FEDERAL COURT OF AUSTRALIA

Friends of Leadbeater's Possum Inc v VicForests (No 4) [2020] FCA 704

File number:	VID 1228 of 2017
Judge:	**MORTIMER J**
Date of judgment:	27 May 2020
Catchwords:	**ENVIRONMENT LAW** – listed threatened species – conduct of past and proposed forestry operations in the Victorian Central Highlands Regional Forest Agreement region – precautionary principle – whether exemption in s 38(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) lost because forestry operations were not or are not likely to be undertaken in compliance with the *Code of Practice for Timber Production 2014* (Vic) – whether, if the s 38(1) exemption is lost, forestry operations are an action that was likely to have had or is likely to have a significant impact on the Greater Glider or Leadbeater's Possum or both
Legislation:	*Acts Interpretation Act 1901* (Cth) s 23 *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ss 3, 18, 38, 40, 67, 75, 139, 178, 179, 201, 207A, 207B, 208A, 266B, 269AA, 270, 303CG, 391, 475, 480A, 502, 503, 523, 524, 527E, 528 *Evidence Act 1995* (Cth) ss 50, 53, 97 *Federal Court of Australia Act 1976* (Cth) ss 21, 23 *Regional Forest Agreements Act 2002* (Cth) ss 4, 6 *Protection of the Environment Administration Act 1991* (NSW) s 6 *Conservation, Forests and Lands Act 1987* (Vic) ss 31, 39, Pt 5 *Flora and Fauna Guarantee Act 1988* (Vic) s 19 *Sustainable Forests (Timber) Act 2004* (Vic) ss 5, 37, 41, 44, 46, 70
Cases cited:	*Australian Building and Construction Commissioner v Powell* [2017] FCAFC 89; 251 FCR 470 *Australian Competition and Consumer Commission v Metcash Trading Ltd* [2011] FCAFC 151; 198 FCR 297 *Australian Conservation Foundation Inc v Minister for the Environment* [2016] FCA 1042; 251 FCR 308 *Baird v Queensland* [2006] FCAFC 162; 156 FCR 451

	Bridgetown/Greenbushes Friends of the Forest Inc v Executive Director of Conservation and Land Management (1997) 18 WAR 102 *Environment East Gippsland Inc v VicForests* [2010] VSC 335; 30 VR 1 *Friends of Leadbeater's Possum Inc v VicForests* [2018] FCA 178; 260 FCR 1 *Friends of Leadbeater's Possum Inc v VicForests (No 2)* [2018] FCA 532 *Friends of Leadbeater's Possum Inc v VicForests (No 3)* [2018] FCA 652; 231 LGERA 75 *Krajniw v Brisbane City Council (No 2)* [2011] FCA 563 *Morton v Union Steamship Co of New Zealand Ltd* [1951] HCA 42; 83 CLR 402 *MyEnvironment Inc v VicForests* [2012] VSC 91 *MyEnvironment Inc v VicForests* [2013] VSCA 356; 42 VR 456 *Northern Inland Council for the Environment Inc v Minister for the Environment* [2013] FCA 1419; 218 FCR 491 *Oztech Pty Ltd v Public Trustee of Queensland* [2019] FCAFC 102; 269 FCR 349 *Plaintiff M47/2012 v Director-General of Security* [2012] HCA 46; 251 CLR 1 *Seltsam Pty Ltd v McGuiness* [2000] NSWCA 29; 49 NSWLR 262 *Spencer v Commonwealth* [2010] HCA 28; 241 CLR 118 *Tasmanian Aboriginal Centre Inc v Secretary, Department of Primary Industries, Parks, Water and Environment (No 2)* [2016] FCA 168; 337 ALR 96 *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; 67 NSWLR 256 *Wotton v State of Queensland (No 5)* [2016] FCA 1457; 352 ALD 146
Date of hearing:	3, 4, 5, 7, 11, 12, 13, 14, 17, 18, 19 and 20 June 2019
Date of last submissions:	13 September 2019
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Number of paragraphs:	1464
Counsel for the Applicant:	Mr J Delany QC with Ms J Watson and Ms T Skvortsova
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Counsel for the Respondent:	Mr I Waller QC with Mr H Redd and Ms R Howe
Solicitor for the Respondent:	Baker & McKenzie

ORDERS

VID 1228 of 2017

BETWEEN:	**FRIENDS OF LEADBEATER'S POSSUM INC** Applicant
AND:	**VICFORESTS** Respondent
JUDGE:	**MORTIMER J**
DATE OF ORDER:	**27 MAY 2020**

THE COURT ORDERS THAT:

1. On or before 4 pm on 10 June 2020, the parties file any agreed proposed minutes of orders, including the proposed form of declaratory relief, reflecting the Court's reasons for judgment.
2. In the absence of agreement, on or before 4 pm on 17 June 2020, the parties each file proposed minutes of orders, including the proposed form of declaratory relief, reflecting the Court's reasons for judgment, together with submissions limited to 5 pages in support of the proposed minutes of orders.

Note: Entry of orders is dealt with in Rule 39.32 of the *Federal Court Rules 2011*.

REASONS FOR JUDGMENT

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MORTIMER J:

INTRODUCTION AND SUMMARY

1 This proceeding concerns forestry operations in 66 specified native forest coupes in the Central Highlands region of Victoria and the effect of those forestry operations on two native fauna species, the Greater Glider and the Leadbeater's Possum. Both are listed as threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). The Greater Glider is listed as "vulnerable", and the Leadbeater's Possum is listed as "critically endangered". Some of the 66 coupes have already been logged, and some have not. Thus, the proceeding concerns both past and proposed forestry operations.

2 The case has been brought by Friends of Leadbeater's Possum Inc, an environmental group, against VicForests, a Victorian statutory agency whose purpose is the management and sale of timber resources in Victorian State forests on a commercial basis. The native forest in question is included within the region covered by the Central Highlands Regional Forest Agreement (**CH RFA**), an intergovernmental agreement between the Commonwealth and the State of Victoria. The term "coupe" is a forestry term, referring to areas or patches of forest in which logging occurs.

3 The proceeding raises complex issues of law and fact about the operation of the EPBC Act on VicForests' impugned forestry operations in those 66 coupes. It has already been the subject of two published decisions, the first of which in particular establishes the framework for the issues to be determined in these reasons: see *Friends of Leadbeater's Possum Inc v VicForests* [2018] FCA 178; 260 FCR 1 and *Friends of Leadbeater's Possum Inc v VicForests (No 3)* [2018] FCA 652; 231 LGERA 75. I shall refer to those two judgments as the "Separate Question reasons" and the "Injunction reasons" respectively. I also published reasons for judgment determining the form of answer to the separate question and addressing other matters relating to an amended statement of claim filed by the applicant in *Friends of Leadbeater's Possum Inc v VicForests (No 2)* [2018] FCA 532. I will refer to that judgment as the "Relief reasons". It will be necessary to refer to aspects of those three sets of reasons in this judgment, but it should be taken that I have generally adopted the reasoning I set out in those decisions in this judgment. In particular, my reasoning about the legislative scheme of the EPBC Act, and the way forestry operations as "actions" are dealt with in that Act, is set out in the Separate Question reasons at [123]-[135], [170], [195(a)], [197]-[198] and [223]-[226]. The core provisions of the EPBC Act are also set out in those reasons at [64]-[76].

4 Further, my reasoning on how the exemption conferred by s 38(1) might be lost can be found at [193]-[272] of the Separate Question reasons. While those findings may need to be developed somewhat, and applied to the evidence, the basic approach I have taken is set out in those passages.

5 These present reasons reflect the Court's comfortable persuasion, on the balance of probabilities, that the applicant has made out its pleaded case. That pleaded case centres on allegations about the adverse impacts on the Greater Glider as a species and Leadbeater's Possum as a species from VicForests' past and proposed forestry operations in the 66 impugned coupes. The applicant's pleaded case divides the 66 impugned coupes into a number of subsets, depending on whether they have been logged or are proposed to be logged, and depending on which coupes provide habitat for, and are used or occupied by, each of the two species. Thus, these reasons refer to the "Logged Coupes" (see [151] below); the "Scheduled Coupes" (see [152] below); the "Logged Glider Coupes", the "Logged Leadbeater's Possum Coupes" and the "Scheduled Leadbeater's Possum coupes" (see [158] below).

6 In summary, the principal findings of the Court are as follows:

(a) I have accepted VicForests' submission that the applicant's case as put in closing submissions is wider than its pleaded case. Accordingly, the Court confined itself to the applicant's pleaded case.

(b) In undertaking forestry operations in the Logged Glider Coupes, VicForests did not apply the precautionary principle to the conservation of biodiversity values in those coupes, as it was required to do by cl 2.2.2.2 of the *Code of Practice for Timber Production 2014*. Specifically, on the applicant's case, VicForests did not apply the precautionary principle to the conservation of the Greater Glider as a threatened species present in, and using, the forest in those coupes. Accordingly, in relation to the forestry operations undertaken by VicForests in the Logged Glider Coupes, its conduct was not covered by the exemption in s 38(1) of the EPBC Act.

(c) Where made out, the miscellaneous breaches of the Code alleged by the applicant result in the loss of the exemption under s 38(1) in respect of forestry operations undertaken in the coupes in which the breaches occurred.

(d) In undertaking forestry operations in the Scheduled Coupes, VicForests is not likely to apply the precautionary principle to the conservation of biodiversity values in those coupes, as it is required to do by cl 2.2.2.2 of the Code. Specifically, on the applicant's

case, VicForests is not likely to apply the precautionary principle to the conservation of the Greater Glider as a threatened species present in, and using, the forest in those coupes. Accordingly, in relation to any forestry operations proposed to be undertaken by VicForests in the Scheduled Coupes, its conduct will not be covered by the exemption in s 38(1) of the EPBC Act.

(e) The result of the Court's findings on (b), (c) and (d) means that none of the 66 impugned coupes are subject to the s 38(1) exemption.

(f) The findings in (b) to (d) do not result in only a qualified loss of the s 38(1) exemption, restricted to the impact of the forestry operations on the Greater Glider.

(g) For the purposes of s 18 of the EPBC Act, each forestry operation in each of the 66 impugned coupes is an action; each series of forestry operations in each coupe group (see [155] and [162] below) is an action; the forestry operations undertaken in the Logged Coupes are, collectively, an action; the forestry operations proposed to be undertaken in the Scheduled Coupes are, collectively, an action; and the forestry operations in all of the 66 coupes are, collectively, an action.

(h) In relation to each of the actions identified in (g), VicForests' conduct of forestry operations is likely to have had, or is likely to have, a significant impact on the Greater Glider as a species and/or the Leadbeater's Possum as a species. Accordingly, s 18 has been contravened and/or is engaged, depending on whether the action has been undertaken, or is proposed to be undertaken.

(i) The evidence provides sufficient certainty for the findings in (g) and (h) to be made, on the balance of probabilities. It will be a matter for further argument if, and how, those findings can and should be translated into injunctive relief in respect of the Scheduled Coupes.

(j) The consequence of these findings is that declaratory relief should be granted. The form of that declaratory relief will be determined after the parties have had an opportunity to consider the Court's reasons and have attempted to agree on the form of declaratory relief or have made submissions about the appropriate form.

(k) In relation to the Logged Coupes (that is, the Logged Glider Coupes and the other Logged Coupes), relief of the kind set out in s 475(3) of the EPBC Act may also be available, subject to the Court hearing the parties' further submissions, based on the findings the Court has made.

7 It is appropriate to make four general observations at the start of these reasons.

8 First, what the evidence in this proceeding has demonstrated is that the protection and conservation of biodiversity values – in this case relevantly the two listed threatened species in issue – is essentially a practical matter. Although policies and planning are important precursors and elements in protection and conservation, what happens on the ground in the native forest which supports and encompasses those values is how protection and conservation are achieved. Relevantly to the issues in this proceeding (rather than the wider biodiversity values protected by other aspects of the EPBC Act), understanding a native forest as a living, changing, finely balanced and often vulnerable ecosystem, and understanding the way in which all flora and fauna species in fact (rather than theory) use and depend on that native forest, are what best informs protection and conservation of, and the avoidance of adverse impacts on, those species. The evidence demonstrates the need for this approach is acute when dealing with listed threatened species.

9 Second, it was a repeated theme of VicForests' submissions that the applicant's case and arguments invite the Court to intrude into spheres of decision-making which are properly seen as reposed in the legislature or the executive. For example, VicForests contended (at [12] of its closing written submissions) the applicant's case was not "essentially one of factual questions about the threat posed by the impact of forestry operations on Greater Glider and Leadbeater's Possum" at some general level, but that it primarily concerned legal questions about the construction of the Code and the EPBC Act "as applied to factual matters". In other words, that the Court was not examining what were the appropriate protections, at a policy level, for each of the species, but what the specified protections were, and whether they had been observed by VicForests. Another example is at [230] of its closing written submissions, where VicForests contended the Victorian legislature and the executive "have struck a balance between conservation measures and those that relate to the commercial use and exploitation of forest resources in State forests", and that where there were "value judgments" to be made about that balance, those judgments were the "province of the legislature or the executive rather than the judiciary". The Court's role does not, VicForests submitted, extend to "the substitution of the court's view of a more reasonable balance for that which was struck by the legislature or the executive". These submissions were primarily made in the context of the approach VicForests contended should be taken to the obligation imposed by cl 2.2.2.2 of the Code.

10 It is not unusual for a respondent in the position of VicForests to make submissions that seek to confine the Court's role as narrowly as possible, especially in a public interest case, involving contested issues of fact as well as law, and with significant consequences for a respondent in the performance of its functions and duties. Likewise, it is not unusual for an applicant in a public interest case to encourage the Court to take an expansive view of what matters need to be determined.

11 The Court's function is to determine, on the evidence, whether the applicant has proven, on the facts and on the law as applied to those facts, its allegations against VicForests in respect of its forestry operations in the Logged Coupes and the Scheduled Coupes. Contrary to VicForests' submissions, there is a significant factual aspect to the applicant's allegations, which as a trial court, the Court must decide. It necessarily involves examining the competing evidence (including expert opinion evidence) about topics which are the product of wider policies and practices, and factual topics of more general application. In performing its task, the Court acts on the evidence before it, taking account of the submissions made. In this case, both the evidence and argument adduced by both parties travelled well outside evidence about these 66 coupes, as it needed to. Where the legal and statutory framework which the Court must consider, by reason of the parties' respective cases, includes matters of degree, or has some qualitative or evaluative element, the determination of those matters is part of the exercise of judicial power, and not outside it.

12 Third, and not unconnected to the second matter, the evidence revealed that VicForests is required to operate under demands and constraints which pose something of an inherent contradiction. On the one hand, it is required to conduct forestry operations in Victoria's native forest, rather than only in plantations. That native forest is identified as an available timber resource, indeed a principal available timber resource in Victoria, for VicForests to perform its commercial forestry function, as conferred by statute. On the other hand, VicForests is required by law to conduct those forestry operations in a way which avoids and mitigates adverse impacts on a wide range of biodiversity values, a range that is much wider than listed threatened flora and fauna species, but includes them. As I explain later in these reasons and as both VicForests and various reviewing bodies have recognised, for listed threatened species which are highly dependent on the very native forest which is to be subject to forestry operations, and for whom recovery out of the status of being a threatened species is expressed to be an objective, the avoidance of adverse impacts in a real world sense (rather than just an aspiration) inevitably involves compromising available commercial timber resources. Hence the conflict,

which may explain (but not necessarily justify) why the actual conduct of forestry operations on the ground often cannot meet the conservation and protection obligations imposed by law.

13 Fourth, and no less importantly than the other general matters, all counsel, their instructing solicitors and their clients invested enormous amounts of time and resources in the conduct of this proceeding and did so with commendable efficiency and cooperation, including coping with the Court's management of this proceeding as a digital trial, conducted only with the resources of the parties and the Court and no external provider. The Court is grateful to them all.

THE HISTORY OF THE PROCEEDING

14 This proceeding was commenced by way of an originating application and statement of claim filed on 13 November 2017. On 17 November 2017, the Court made orders stating a separate question for hearing and determination, with the agreement of the parties. Prior to the hearing of the separate question, the Court issued rulings regarding the filing of an agreed statement of facts (on 1 December 2017) and the granting of leave to the State of Victoria and the Commonwealth to intervene (on 29 November 2017). The Separate Question reasons were delivered on 2 March 2018.

15 On 20 April 2018, the Court delivered the Relief reasons, which, as I have already noted, stated the answer to the separate question and addressed matters relating to the amended statement of claim filed by the applicant on 29 March 2018 (which amendments were generally summarised in those reasons at [30]-[33]). The amended statement of claim removed all references to cl 36 of the CH RFA, flowing from the Separate Question reasons, and instead put forward arguments relying on breaches of the Code. The Court concluded the operation of the *Federal Court Rules 2011* (Cth) permitted the applicant to take this course.

16 On 23 April 2018, the applicant filed an application for an interlocutory injunction. Previous undertakings given by VicForests in relation to its timber harvesting operations pending the hearing and determination of the separate question had come to an end when the Court made its separate question orders on 20 April 2018. The Injunction reasons were delivered on 10 May 2018. On that date, the Court ordered that until the hearing and determination of the proceeding or further order, VicForests, whether by itself, its servants, agents, contractors or howsoever otherwise, be restrained from conducting forestry operations, felling, removing or damaging any trees or other substantial vegetation or widening the existing road line in certain specified coupes.

17 At the hearing of the injunction application, the proceeding was listed for trial commencing on 25 February 2019. On 11 February 2019, pursuant to leave granted by the Court on 7 February 2019, VicForests filed an affidavit of Mr William Edward Paul, which addressed "recent developments concerning VicForests' silvicultural policies and practices" (at [5(a)]). At a case management hearing on 14 February 2019, both parties submitted that, as a result of the matters contained in Mr Paul's affidavit, the trial dates should be vacated and the matter relisted for trial at a later date which could accommodate the developments to which Mr Paul's affidavit adverted.

18 On 18 February 2019, the Court ordered, amongst other matters, that the trial be relisted to commence on 3 June 2019, and that the parties file proposed orders concerning the conduct of a joint experts' conference and preparation of a joint report. The Court made further timetabling orders following a case management hearing on 25 February 2019, including orders for discovery of specified categories of documents by VicForests and the referral of other requests for discovery made by the applicant to Judicial Registrar Ryan for mediation and determination. Judicial Registrar Ryan conducted a mediation with the parties on 18 March 2019, following which he made orders for discovery of certain categories of documents and referred any outstanding discovery disputes back to the Court for hearing at a case management hearing on 16 April 2019. Following the filing of written submissions by the parties, the dispute concerning three remaining categories of discovery was determined by the Court in a ruling dated 17 May 2019.

19 On 22 March 2019, the Court made orders, with the agreement of the parties, in relation to the conduct of a joint experts' conference and preparation of a joint report. The conference was scheduled to take place on 3 May 2019, facilitated by two Judicial Registrars. The parties were ordered to file an agreed list of questions for the experts (or separate proposed lists of questions) by 15 April 2019. Following further discussion with the parties at a case management hearing on 16 April 2019, and in written correspondence, it became apparent that the conference would be of little utility due to the divergence in the parties' proposals regarding the approach to the conference. On 17 April 2019, the Court informed the parties that the joint experts' conference and joint report orders would be vacated and the parties' experts would be examined, cross-examined and re-examined at trial in the usual way. Although the Court left open the possibility of conducting a joint experts' conference after the commencement of the trial, and VicForests again raised the possibility of a joint conference in its opening written submissions filed prior to trial, it did not eventuate. There remained no utility, in the Court's opinion, in considerable

resources and expense being applied to such a process, in light of the parties' differing approaches to the proposed conference during case management and their considerably divergent approaches to how the experts should be asked to consider the complex factual issues in the proceeding.

Amendments just before trial

20 Late in the afternoon of the Friday before the trial was scheduled to commence, the Court was notified of some proposed further amendments to the applicant's claim. The amendments, which were foreshadowed at [172] and [174] of the applicant's opening written submissions, narrowed the case to be put and added an additional ground of relief. They were the subject of consent from VicForests. The Court granted leave to the applicant to file and serve a third further amended statement of claim and amended originating application. Those documents were filed on 3 June 2019. As a result of those amendments the applicant:

(a) withdrew its allegations that forestry operations have had, are having, or are likely to have a significant impact on the Leadbeater's Possum in the Ada River logged coupe 9.26 (Tarzan), Baw Baw logged coupe 9.32 (Rowels), Hermitage Creek scheduled coupes 10.14-10.16 (Drum Circle, Flute, San Diego) and the Torbreck River scheduled coupes 10.18-10.20 (Skupani, Splinter and Bhebe); and

(b) sought a declaration of right pursuant to s 21 of the *Federal Court of Australia Act 1976* (Cth) that VicForests has breached s 18(2) of the EPBC Act by reason of its forestry operations in the "Logged Leadbeater's Possum Coupes" and has breached s 18(4) of the EPBC Act by reason of its forestry operations in the "Logged Glider Coupes" (as those terms are defined in the third further amended statement of claim).

The view

21 During the trial, the Court and the parties undertook an inspection or view of ten coupes in the Central Highlands pursuant to s 53 of the *Evidence Act 1995* (Cth). The coupes inspected were Castella Quarry, Goliath, Shrek, Guitar Solo, Flute, Kenya, The Eiger, Mont Blanc, Hairy Hyde and Greendale, being a mix of Logged Coupes and Scheduled Coupes. Castella Quarry is not one of the 66 impugned coupes in the proceeding but was visited as an example of a coupe in which VicForests' new silvicultural systems were being implemented. The Court expresses its gratitude to the parties for facilitating that inspection and in particular to the VicForests staff who assisted on the day.

THE SPECIES IN ISSUE

22 While there was a significant dispute between the parties about the effects of VicForests' forestry operations on the two species, there was also a dispute between the parties about how perilous the circumstances of the Greater Glider are, as a species. There appeared to be less debate about the perils facing the Leadbeater's Possum. In relation to that species, the area of debate in assessing the impact of VicForests' impugned forestry operations was about whether the measures in place were effective enough to avoid a conclusion of significant impact and whether VicForests adhered to them.

23 Unsurprisingly, each of the parties relied on the opinions given by their respective experts as the basis for the Court's fact-finding about the species. As I explain later in these reasons, I accept and prefer the opinion evidence of the applicant's species experts, Dr Smith and Professor Woinarski, and where the evidence of VicForests' experts such as Dr Davey or Professor Baker conflicts with the applicant's species experts, I prefer the evidence of the applicant's species experts. Both Dr Smith and Professor Woinarski gave detailed evidence in their reports about each of the Greater Glider and the Leadbeater's Possum. In terms of the characteristics of the species and their habitats, some of the significant differences of opinion between the applicant's species experts and Dr Davey were their opinions about:

(a) the estimates of Greater Glider populations and their rates of decline;

(b) how Greater Gliders might use logged forest, including retained habitat trees;

(c) the effectiveness of the Comprehensive, Adequate and Representative (**CAR**) reserve system and existing management prescriptions; and

(d) the movement patterns of the Leadbeater's Possum.

24 I rely on the expert evidence to some extent in setting out my general findings about each of the species; however, the principal sources I have relied upon are the Conservation Advices for each species.

25 I have placed significant weight in my fact-finding in this proceeding on the Conservation Advices. I consider that in the context of a proceeding under the EPBC Act, it is appropriate to do so. They are the mandatory and foundational documents describing each threatened species, its characteristics and habitat, and the threats posed to it. A Conservation Advice must be prepared for each listed threatened species: s 266B(1). The Conservation Advice must include a statement setting out the grounds on which the species is eligible to be included in the

category in which it is listed and the main factors that are the cause of it being so eligible: s 266B(2)(a). Relevantly, it must also include "information about what could appropriately be done to stop the decline of, or support the recovery of, the species": s 266B(2)(b)(i).

26 This document contains the formal recognition, for the purposes of the EPBC Act, of why the listed threatened species has been determined to need protection and what measures need to be taken to ensure its conservation and recovery.

27 The Conservation Advice for each species is issued by the Threatened Species Scientific Committee. The Threatened Species Scientific Committee is established pursuant to s 502 of the EPBC Act and is referred to in the Act as the "Scientific Committee": see the definition of "Scientific Committee" in s 528. Amongst other functions, it has the function of advising the responsible Minister on the amendment and updating of the lists of threatened species for which s 178 and s 179 of the EPBC Act provide: s 503(b). It is an expert committee whose members are appointed by the responsible Minister: s 502.

The Greater Glider

28 The Conservation Advice for the Greater Glider states that it is based on "'The Action Plan for Australian Mammals 2012' (Woinarski et al., 2014)". One of the authors of that publication is Professor Woinarski, the applicant's Leadbeater's Possum species expert. The fact that the Scientific Committee is prepared, for the purposes of performing its functions under the EPBC Act, to rely on a publication of which Professor Woinarski is an author confirms to me that

Professor Woinarski's opinions, where otherwise rational and having a scientific basis, as I find they are and do, should be given substantial weight.

29 The taxonomy of the Greater Glider species is accepted to be *Petauroides Volans*. It is the only species in the genus, with two recognised sub-species: *P. v. minor* (found in north-eastern Queensland) and *P. v. volans* (found in south-eastern Australia). The Greater Gliders which are the subject of this proceeding are the second sub-species.

30 The Greater Glider was listed in the vulnerable category under the EPBC Act effective 5 May 2016 and in the Threatened List under the *Flora and Fauna Guarantee Act 1988* (Vic) effective 14 June 2017.

31 The Greater Glider is the largest gliding possum in Australia. It is a member of the nocturnal and arboreal leaf eating Ringtail Possum family (*Pseudocheiridae*). Being an arboreal mammal, it rarely travels along the ground. Its head and body length can reach 46 cm. Its thick fur increases its apparent size. It has an especially prominent, long furry tail measuring 45-60 cm. Sexual maturity is reached in the second year, and females give birth to a single young from March to June. The longevity of the Greater Glider has been estimated at 15 years, so generation length is likely to be 7-8 years. The Conservation Advice states:

> The relatively low reproductive rate (Henry 1984) may render small isolated populations in small remnants prone to extinction (van der Ree 2004; Pope et al., 2005).

32 It is a nocturnal marsupial, largely restricted to eucalypt forests and woodlands. In the CH RFA region its habitat is the Mixed Species and Ash forests, which serve as both a source of food and a source of denning and resting. Dr Smith gave evidence that:

> The Central Highlands is an area of exceptional site quality that is likely to sustain higher than average densities of the Greater Gliders because of its high rainfall, low temperatures and high eucalyptus growth rates.

33 Its preference for a diversity of eucalypt species is due to the seasonal variation in its preferred tree species. Its diet mostly comprises eucalypt leaves, and occasionally flowers. The Conservation Advice states:

> It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows.

34 During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees. As to the significance of these hollows, in re-examination, Professor Woinarski gave

the following evidence, which is relevant to my findings about both the Greater Glider and the Leadbeater's Possum:

> So it's in almost all parts of Australia, hollows – there's no – unlike in North America where woodpeckers make hollows for many other trees – for many other hollow-dependant species, there are no fauna species that make hollows in Australia. But it depends upon the rot and decay and the senility of the trees themselves for the hollows to form. The exception is, of course, termites, but we won't go there. There aren't so many termites in these forests. So it's a – it's a finite resource, and it's eagerly used. There's about 30 per cent Australian vertebrates species depend upon hollows. So it's a really large component of the forest fauna is totally dependent on naturally occurring hollows. Naturally occurring hollows occur, as we've talking about previously, sort of they – they become established after 100 years or so, so it's a really slow process. And there's much more likelihood of the hollow in any forest to be declining than increasing, simply because of that age – that age disturbance factor. There's a range – we know Greater Gliders, Sugar Gliders, Squirrel Gliders, a whole lot of owls, Pardalotes, kookaburras, cockatoos, parrots, all of those species are dependent upon hollows in this mountain ash environment, and will compete aggressively with other species for those hollows where they overlap. Leadbeater's Possums, probably there's a range of bird species which may compete with them for hollows. So cockatoos, rosellas and the like, for example, could aggressively kick them out. Also, there's also competition within Leadbeater's Possum families or – or neighbouring groups for hollow availability as well. So if a suitable den tree for Leadbeater's Possum colony A and Leadbeater's Possum colony B is running out of den trees, then it will – they will fight over that availability.

35 The Conservation Advice states:

> In Grafton/Casino, Urbenville and the Urunga/Coffs Harbour Forestry Management Areas (FMAs) in northern New South Wales (NSW), the abundance of greater gliders on survey sites was significantly greater on sites with a higher abundance of tree hollows …

36 The expert evidence about the optimal number and placement of suitable tree hollows per hectare for the Greater Glider, and the significance of these needs in assessing the impact of forestry operations, are matters I will address when dealing with the precautionary principle and with significant impact. However, as one of VicForests' witnesses, Mr Timothy McBride, noted in correspondence included in his affidavit affirmed on 15 October 2018 (at [23]), the hollows needed for the Greater Glider have to be fairly large, because of the size of the (mature) animal.

37 Home ranges for the Greater Glider are, according to the Conservation Advice, "typically relatively small", around 1-4 ha. Males visit around 22 trees per night and females around 14: Tyndale-Biscoe H, *Life of Marsupials* (CSIRO Publishing, 2005) p 240. Home ranges can be larger in lower productivity forests and more open woodlands; they are larger for males than for females. Male home ranges are largely non-overlapping. Despite having small home ranges,

the Greater Glider has a "low dispersal ability", making it sensitive to habitat fragmentation. The Conservation Advice states that Greater Gliders:

> have relatively low persistence in small forest fragments, and disperse poorly across vegetation that is not native forest. Modelling suggests that they require native forest patches of at least 160 km^2 to maintain viable populations (Eyre 2002). Kavanagh & Webb (1989) found no significant movement of greater gliders into unlogged reserves from surrounding logged areas.

38 The Conservation Advice also states:

> Kavanagh & Webb (1989) found no significant movement of greater gliders into unlogged reserves from surrounding logged areas.

39 The Greater Glider is restricted to eastern Australia, but occurs from the Windsor Tableland in north Queensland through to central Victoria, at elevations ranging from sea level to 1200 m above sea level. Dr Davey stated that the population in the Central Highlands region is at the limits of the species' distributional range. Similarly, when discussing Greater Glider populations most likely to be of key importance to the species' long-term survival and recovery, Dr Smith acknowledged that populations at the limits of the species' geographic ranges are important populations. I find that is an important fact in assessing the impact of forestry operations on the species.

40 As to distribution, the Conservation Advice states:

> The broad extent of occurrence is unlikely to have changed appreciably since European settlement (van der Ree et al., 2004). However, the area of occupancy has decreased substantially mostly due to land clearing. This area is probably continuing to decline due to further clearing, fragmentation impacts, fire and some forestry activities. Kearney et al. (2010) predicted a "stark" and "dire" decline ("almost complete loss") for the northern subspecies *P. v. minor* if there is a 3° C temperature increase.

41 I return to the last point made in this extract at several sections in these reasons: it is well accepted on the scientific evidence, and in the expert opinion, that there are large and presently unaddressed risks to species such as the Greater Glider from climate change and the warming of the environments in which they live.

42 As a species, the Greater Glider is considered to be "particularly sensitive" to forest clearance and to intensive logging, although the Conservation Advice qualifies this statement by stating that "responses vary according to landscape context and the extent of tree removal and retention".

43 The species is also described in the Conservation Advice as "sensitive to wildfire" and "slow to recover following major disturbance". The Conservation Advice states:

> In the Urbenville FMA of northern NSW, the abundance of greater gliders on survey sites was significantly greater in forests that were infrequently burnt (Andrews et al., 1994).

Population

44 The criterion which the Greater Glider met, and which was identified as justifying its listing in the vulnerable category as a threatened species under the EPBC Act, was Criterion 1, titled "Population size reduction (reduction in total numbers)". Under this criterion, the Greater Glider was assessed by the Scientific Committee as experiencing:

(a) a population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased or may not be understood or may not be reversible, based on an index of abundance appropriate to the Greater Glider, and a decline in area of occupancy, extent of occurrence and/or quality of habitat (Criterion 1 A2(b) and (c));

(b) a population reduction, projected or suspected to be met in the future (up to a maximum of 100 years), based on an index of abundance appropriate to the Greater Glider, and a decline in area of occupancy, extent of occurrence and/or quality of habitat (Criterion 1 A3(b) and (c)); and

(c) an observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a maximum of 100 years in the future), and where the causes of reduction may not have ceased or may not be understood or may not be reversible, based on an index of abundance appropriate to the Greater Glider, and a decline in area of occupancy, extent of occurrence and/or quality of habitat (Criterion 1 A4(b) and (c)).

45 The listing of the Greater Glider in the Vulnerable category by reference to Criterion 1 A2(b) and (c), A3(b) and (c) and A4(b) and (c) meant that the Greater Glider was assessed to be vulnerable to a reduction in population of more than 30%.

46 The Greater Glider was assessed by the Scientific Committee as not meeting listing Criteria 2, 3, 4 or 5: namely, geographic distribution as indicators for either extent of occurrence and/or area of occupancy, population size and decline, number of mature individuals or quantitative analysis indicating a probability of extinction in the wild.

47 In its closing submissions (at [310]-[322]), VicForests seeks to make something of the fact the Greater Glider's EPBC Act listing was only under Criterion 1. The underlying theme appeared

to be that the situation facing the Greater Glider was not the worst of the worst, and not – for example – as critical as that facing the Leadbeater's Possum. I do not consider such a comparative approach assists the task the Court must perform. The fact is that the Greater Glider *is* a listed threatened species, and while it will be relevant in assessing both compliance with cl 2.2.2.2 of the Code and the issue of significant impact to bear in mind that the justification for its listing was its rate of population decline, there is no basis in the evidence or in the scheme of the EPBC Act for the Court to confine itself to any exact correlation between identified impacts or threats and the precise reason for the listing of the species. In relation to s 18, the question the statute relevantly asks is whether there is or will be a likely significant impact on a listed threatened species because of the actual or proposed conduct (here, of VicForests in its impugned forestry operations). In relation to cl 2.2.2.2 – as I explain below – the compliance question the Code asks of VicForests in its forestry operations is whether it has applied the precautionary principle to the conservation of the Greater Glider as a species (being a "biodiversity value"). The question is not as narrow as whether VicForests will, in its forestry operations, fail to apply the precautionary principle to conduct which may affect only the rate of population decline of the Greater Glider. An obvious reason for this is that threats to a listed species may increase or decrease over time, and they may alter in their significance because of particular events, such as climate change or wildfire. There is nothing static in assessing the nature of any threats and the range of impacts, and the scheme of the EPBC Act does not assume there is.

48 The Conservation Advice states that there "is no reliable estimate of population size" for the Greater Glider, by reference to a 2008 study which described the Greater Glider population as having a "presumed large population" and being "locally common". In oral evidence Dr Smith appeared to disagree with this aspect of the Conservation Advice, saying that in 2008 not much was known about the Greater Glider population.

49 The Conservation Advice states that the estimate of the Greater Glider population across its range is in excess of 100,000 mature individuals. In oral evidence, Dr Smith considered this to be a reasonable estimate. To qualify under Criterion 4, relating to numbers of mature individuals, a species must have less than 1000 mature individuals to be characterised as "vulnerable".

50 I note that Criterion 5 – the quantitative analysis of the probability of extinction in the wild – was not met in respect of the Greater Glider, but not because of any reliable estimate of the

probability. Rather, the Conservation Advice indicates this criterion was not met (referring to the work of Professor Woinarski and others) because no population viability analysis had been conducted across the Greater Glider population as a whole, although some local analysis had been carried out.

51 In the section of the Conservation Advice explaining why the Greater Glider met the first criterion for listing, the Conservation Advice makes the following points relevant to the issues in this proceeding (with abbreviated citations as reproduced in the Conservation Advice):

(a) Despite the absence of robust estimates of total population size or population trends across the species' total distribution, declines in numbers, occupancy rates and extent of habitat have been recorded at many sites, from which a total rate of decline can be inferred.

(b) The most comprehensive monitoring program for Greater Gliders is in the Central Highlands of Victoria, the region with which this proceeding is concerned.

(c) The Central Highlands region has been monitored annually since 1997.

(d) Over the period 1997-2010, the monitoring showed a population decline of an average of 8.8% per year.

(e) If that rate is extrapolated over the 22-year period relevant to this assessment, the rate of decline is 87% (citing a study by Lindenmayer et al., 2011).

(f) Higher rates of decline were recorded in forests subject to logging than in conservation reserves.

(g) Declines were also associated with major bushfires and lower than average rainfall.

(h) The Conservation Advice quotes a finding from a study conducted by Lumsden and others (2013 p 3) that a "striking result from these surveys was the scarcity of the Greater Glider which was, until recently, common across the Central Highlands".

(i) Major bushfires in 2003, 2006-2007 and 2009 burnt much of the Greater Glider's range in Victoria, and further fragmented its distribution.

(j) Reoccupation of burnt sites in subsequent years is likely to be a slow process due to the small home ranges (1-2 ha) of the species and its limited dispersal capabilities.

(k) Any reoccupation also depends on there not being further significant fires in the interim (citing Vic SAC 2015).

(l) Since the 2009 fires, which burnt the Kinglake East Bushland Reserve and nearby areas, spotlighting records of Greater Gliders in these areas have significantly declined.

(m) Preliminary results of an occupancy survey in 2015 suggest low occupancy rates in three of four survey areas in Victoria. Approximately 50% of the individual transects in this study incorporated sites of known previous occupancy by Greater Gliders based on systematic surveys in the 1990s.

(n) Other evidence supports a decline in East Gippsland. In the Mount Alfred State Forest, roadside spotlighting on the same route over a 30-year period was used to record frequent sightings (10-15 animals on each occasion), but only a single Greater Glider was sighted in the 18 months leading up to November 2015.

(o) There is evidence of some declines in occupancy in unburnt sites in the same parts of Victoria (and also at Booderee National Park in New South Wales), which the Conservation Advice took to suggest that factors other than fire are involved in the species' decline. It nominated a lack of suitable browse due to water stress as a likely contributing factor, as central Victoria was significantly hotter and drier than normal during 2001-2009.

52 For many of its findings in relation to Criterion 1, the Conservation Advice relied on the work of Dr Lumsden in Victoria. The evidence suggests Dr Lumsden worked at the Arthur Rylah Institute in Victoria, an institute which on the evidence collaborates with the Department of Environment, Land, Water and Planning (**DELWP**) on many conservation-related projects. There is no evidence why VicForests, which also appears to have drawn on the work of the Arthur Rylah Institute from time to time, did not call Dr Lumsden. I note that Dr Smith's opinion is that Dr Lumsden's survey data is accurate, although her occupancy model is not.

53 After having noted the less comprehensive monitoring of Greater Glider populations which had been undertaken in New South Wales and Queensland, the Conservation Advice concluded that:

> There is little other published information on population trends over the period relevant to this assessment (around 22 years), and the above sites are not necessarily representative of trends across the species' range. However, they provide sufficient evidence to infer that the overall rate of population decline exceeds 30 percent over a 22 year (three generation) period (Woinarski et al., 2014), and indeed may far exceed 30 percent. **The population of the greater glider is declining due to habitat loss, fragmentation, extensive fire and some forestry practices, and this decline is likely to be exacerbated by climate change** (Kearney et al., 2010). The species **is particularly susceptible to threats because of its slow life history characteristics,**

> **specialist requirements for large tree hollows (and hence mature forests), and relatively specialised dietary requirements** (Woinarski et al., 2014).
>
> The Committee considers that the species has undergone **a substantial reduction in numbers over three generation lengths (22 years for this assessment**), equivalent to at least 30 percent and **the reduction has not ceased**, **the cause has not ceased** and **is not understood**. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 1 to make it eligible for listing as Vulnerable.
>
> (Emphasis added.)

54 I note here the Scientific Committee's clear opinion that the cause for substantial population reduction is "not understood". Whatever legal approach is adopted, that clear opinion has considerable relevance for the obligation imposed on VicForests to apply the precautionary principle in its timber harvesting operations.

Threats to the sustainability and recovery of the Greater Glider as a species

55 The question of threats to the sustainability and recovery of the Greater Glider as a species occupied a great deal of the evidence, including the expert evidence, and I return to this topic at several points in these reasons. What I set out in this section is what might be described as the foundational points, without some of the nuances and detail, which may be important to the resolution of the issues in the proceeding, but about which more detailed findings will be made later in these reasons. As I have noted, the source of these facts, which I accept and adopt, is the Conservation Advice, which is of significant weight in my fact-finding.

56 The Conservation Advice identifies a number of key threats to the Greater Glider, as a species. It is appropriate to set out the table contained in the Conservation Advice in its entirety. Of particular importance for the issues in this proceeding is what is said about habitat loss, fire, climate change, and hyper-predation. The Scientific Committee's summary of the "[c]umulative effects of clearing and logging activities, current burning regimes and the impacts of climate change [which] are a major threat to large hollow-bearing trees on which the species relies" is set out in Table 1 below.

Table 1: Extract from Greater Glider Conservation Advice

Threat factor	Consequence rating	Extent over which threat may operate	Evidence base
Habitat loss (through clearing, clearfell logging and the destruction of senescent trees due to prescribed burning) and fragmentation	Catastrophic	Moderate-large	The species is absent from cleared areas, and has little dispersal ability to move between fragments through cleared areas; low reproductive output and susceptibility to disturbance ensures low viability in small remnants. Roadside clearing in state forests have destroyed many hollow-bearing trees previously left on the perimeter of logging coupes (Gippsland Environment Group pers. comm., 2015).
Too intense or frequent fires	Severe	Large	Population loss or declines documented in and after high intensity fires (Lindenmayer et al., 2013).
Timber production	Severe	Moderate	Prime habitat coincides largely with areas suitable for logging; the species is highly dependent on forest connectivity and large mature trees. Glider populations could be maintained post-logging if 40% of the original tree basal area is left (Kavanagh 2000); logging in East Gippsland is significantly above this threshold (Smith 2010; Gaborov pers. comm., 2015). There is a progressive decline in numbers of hollow-bearing trees in production forests as logging rotations become shorter and as dead stags collapse (Ross 1999; Ball et al., 1999; Lindenmayer et al., 2011). The species occurs in many conservation reserves across its range. In NSW, 83% of the public forested lands (that lie within the Integrated Forestry Operations Approval regions) that coincide with the distribution of the greater glider are protected in formal or informal reserves (Slade & Law, in press). However, the fraction of protected areas is likely to be [lower] in Queensland and Victoria.
Climate change	Severe	Large (future threat)	Biophysical modelling indicates a severe range contraction for the northern subspecies (Kearney et al., 2010). Occupancy modelling indicates that the degree of site occupancy is associated with vegetation lushness and terrain wetness (Lumsden et al., 2013). Water stress affects growth in forest eucalypts (Matusick at al., 2013) and the availability of browse, and higher temperatures may cause heat stress and mortality (Vic SAC 2015).
Barbed wire fencing (entanglement)	Minor	Minor	There are occasional losses of individuals.
Hyper-predation by owls	Severe	Local	The greater glider forms a significant part of the powerful owl's diet (Bilney et al., 2006). Powerful owl numbers have increased greatly in the Blue Mountains since 1990 and have been recorded at many sites with greater gliders (Smith pers. comm., 2015). Reduction in the stand density of hollow-bearing trees could increase predation threat whilst the species is moving between hollows. Since the widespread decline of terrestrial species, the greater glider has become a significant part of the sooty owl's diet – increasing from 2% of its diet at pre-European settlement to 21% (Bilney et al., 2010). The greater glider has significantly declined or become locally extinct in some intact forest, possibly due to owl predation (Lindenmayer et al., 2011; Lumsden et al., 2013; Rickards pers. comm., 2015). At Boodoree National Park, the increase in large forest owls coincided with a reduction in foxes, which may have reduced competition for prey

			with the powerful owl and sooty owl (Lindenmayer et al., 2011).
Competition from sulphur-crested cockatoos	Minor-moderate	Local	Numbers of cockatoos in the Blue Mountains have increased significantly since 1990. They are likely to be competing with greater gliders for hollows and have been observed taking over nesting hollows of powerful owls (Smith pers. comm., 2015).
Phytophthora root fungus	Minor	Large	The fungus is known to impact on the health of eucalypts.

57 The applicant submits at [464] of its closing submissions, and I accept:

> The rating of 'catastrophic' is drawn from the action plan for Australian mammals 2012 (CB 12.60 p256) which describes the "Threat factor" of "Habitat loss (through clearing) and fragmentation" as having a catastrophic consequence rating. The source of this descriptor is the article titled "Action plan for Australian mammals 2012" authored by Woinarski (et al.) which sets out at Table 1.3 the definition of catastrophic, being "likely to cause complete population loss, where operating" (CB 11.4 pdf p 22-23).

58 Although VicForests in its evidence and submissions sought to downplay both the threatened status of the Greater Glider and the role of timber harvesting in its threatened status, and although for many aspects of its submissions VicForests urged the Court to focus on State-based regulatory mechanisms and State-based instruments, some of the clearest statements about the role of timber harvesting in threats to the Greater Glider come from a Victorian document. The final recommendation for the nomination of the Greater Glider for listing as a threatened species under Victoria's FFG Act in March 2017 states (with my emphasis):

> While the Greater Glider is "well represented in a number of conservation reserves" (Menkhorst 1995), the bulk of its distribution remains in forest available for timber harvesting. Wood production practices are known to substantially deplete Greater Glider populations and **gliders usually die if all or most of their home range is intensively logged or cleared (Menkhorst op. cit.)**. Unless they are linked as part of an interconnecting network of reserves, local populations risk extinction through catastrophe or by loss of genetic vigour through inbreeding. Again Menkhorst (1995) notes that agricultural development has already isolated populations in the Wombat Forest, Gippsland Highlands and Gelliondale Forest and in smaller areas on the fringes of the Eastern Highlands. McKay (1988) notes that conservation of the species **"is utterly dependent on sympathetic forest management which retains buffer strips of old forest between coupes and preserves old 'habitat trees' and their potential successors in small unlogged areas."**

59 The statement that the "bulk" of the distribution of the Greater Glider in Victoria remains in forest available for timber harvesting (and *not* in conservation reserves) substantially contradicts one of the underlying premises of Dr Davey's evidence, and of VicForests' contentions. This document represents the formal, official reasons for listing of the Greater Glider as a threatened taxon under the Victorian regulatory scheme of which VicForests made much in this proceeding. This, like other documents on which VicForests relied, is a judgment made by the executive. The authority and accuracy of what is stated in it should be accepted.

60 Returning to the Conservation Advice, in terms of conservation actions which should be taken, the Scientific Committee recommended to the Minister that, as "primary conservation actions", the following should occur:

1. Reduce the frequency and intensity of prescribed burns.

2. Identify appropriate levels of patch retention, habitat tree retention, and logging rotation in hardwood production.

3. Protect and retain hollow-bearing trees, suitable habitat and habitat connectivity.

61 All three of those recommendations have a direct connection to forestry operations. The Conservation Advice goes on to make the following specific recommendations about the conduct of forestry operations in Victoria:

> In production forests some logging prescriptions have been imposed to reduce impacts upon this species, however these are not adequate to ensure its recovery.
>
> In Victoria, logging of areas where greater gliders occur in densities of greater than two per hectare, or greater than 15 per hour of spotlighting, require a 100 ha special protection zone (Vic DNRE1995). However, this threshold is quite high given that density estimates in Victoria range from 0.6 to 2.8 individuals per hectare (Henry 1984; van der Ree et al., 2004), and mature tree densities are declining meaning a lower probability that gliders will occur at higher densities (Gaborov pers. comm., 2015). This management requirement may therefore not adequately protect existing habitat and greater glider populations.

62 The Conservation Advice then sets out further tables summarising the management actions required to advance the conservation and protection of the Greater Glider. Again, these tables should be set out in their entirety.

Table 2: Recommended management actions

Theme	Specific actions	Priority
Active mitigation of threats	Reduce the frequency and intensity of prescribed burns.	High
	Constrain impacts of hardwood production through appropriate levels of patch and hollow-bearing tree retention, appropriate rotation cycles, and retention of wildlife corridors between patches.	High
	Constrain clearing in forests with significant subpopulations, to retain hollow-bearing trees and suitable habitat.	High
	Avoid fragmentation and habitat loss due to development and upgrades of transport corridors.	High
	Restore connectivity to fragmented populations.	Medium
Captive breeding	N/a	
Quarantining isolated populations	N/a	
Translocation	Reintroduce individuals to re-establish populations at suitable	Low

	sites.	
Community engagement	Develop conservation covenants on lands with high value for this species.	Low

Table 3: Survey and monitoring priorities

Theme	Specific actions	Priority
Survey to better define distribution and abundance	Assess population size (or relative abundance) and viability of populations across the species' range, using standardised and repeatable methodology.	Low
	Determine the distribution and abundance in relation to forest vegetation class, age class, and amount of old growth forest in the landscape to understand the pattern of occurrence.	Medium
Establish or enhance monitoring program	From existing monitoring projects, design an integrated monitoring program across major subpopulations, linked to the assessment of management effectiveness.	High
	Monitor the abundance and size structure of critical habitat tree species, and their responses to management including before and after prescribed burns, and before and after logging.	High
	Continue to model impacts of wildfire and logging on population viability.	Medium
	Monitor the incidence of wildfire within the species' range.	Medium

Table 4: Information and research priorities

Theme	Specific actions	Priority
Assess relative impacts of threats	Assess the impacts of a range of possible fire regimes on the species.	Medium-high
	Assess the impacts of ongoing habitat fragmentation (e.g. through peri-urban expansion, coal seam gas mining activities, road networks).	Medium
	Investigate the potential causes of recent declines, including cumulative impacts and impacts of owl predation.	Medium
Assess relative effectiveness of threat mitigation options	Assess the impacts of fire management (prescribed burning programs) on habitat, hollow availability, preferred tree species, and glider population size.	High
	Assess responses to habitat re-connections (e.g. rope ladder crossings over transport corridors).	Medium
	Continue to assess and monitor the species' responses to logging regulations and conditions.	Medium
	Investigate the practicality of supplementing hollow availability	Low-

	with artificial hollows.	medium
Resolve taxonomic uncertainties	Assess the extent of genetic variation and exchange between subpopulations.	Low
	Review taxonomic status.	Low
Assess habitat requirements	Investigate the numbers, densities and types of hollow-bearing trees that must be retained to ensure viable populations.	High
Assess diet, life history	N/a	

63 The following matters are of particular importance to my findings:

(a) the recommendations for the active mitigation of threats and their specification as being of "high priority";

(b) the recognition by the Scientific Committee that more survey work was needed to "better define distribution and abundance" of the Greater Glider, and (I infer) therefore that there remained scientific uncertainty about those issues;

(c) that there was a "medium to high" need to assess the impacts of a range of possible fire regimes on the species, again (I infer) indicating scientific uncertainty about this question;

(d) the need – identified in the low-medium, medium and high priority range on matters relevant to forestry operations – to "assess relative effectiveness of threat mitigation options". This is a matter to which I return later in these reasons, however I note here that, aside from the adverse opinion of Dr Smith and Professor Woinarski, there is little, if any, scientific evidence in this proceeding about the effectiveness of the prescriptions and other mitigations for which the policies of VicForests provide. As I explain later in these reasons, in the absence of any *scientific evidence* (by way of studies and monitoring) that existing prescriptions and mitigations are *effective* in reducing the population decline of the Greater Glider and assisting its recovery, I find the need, in forests where the Greater Glider may be present, for a complete application of the precautionary principle in VicForests' forestry operations is imperative. The absence of such studies was a point repeatedly made by Dr Smith and Professor Woinarski. I also find the likely impact of forestry operations in forests where the Greater Glider may be present is significant.

64 Finally, the Scientific Committee made the following recommendation in the Conservation Advice:

The Committee recommends that there should be a recovery plan for this species.

65 Recovery Plans can be made pursuant to an exercise of a discretionary power conferred on the responsible Minister by s 269AA of the EPBC Act. No Recovery Plan has been issued for the Greater Glider; however, a document entitled "Draft National Recovery Plan for the greater glider (*Petauroides volans*)" was in evidence. That document is dated October 2016. The promulgation of a Recovery Plan under the EPBC Act seems to have stalled since 2016.

66 The Greater Glider Conservation Advice was approved by a delegate of the Minister on 25 May 2016. Its content should be taken to have been known to VicForests from a reasonable time after that date. In respect of the Logged Coupes, the table at [161] of Mr Paul's second affidavit affirmed on 15 October 2018 indicates that in 17 of those coupes, harvesting commenced and completed on dates after 25 May 2016. In five coupes, harvesting operations were commenced prior to 25 May 2016 but completed after that date. In respect of the Camberwell Junction coupe, Mr Paul indicates at [178] of his second affidavit that harvesting was completed on 24 April 2018.

Dr Smith's description of the Greater Glider

67 From Dr Smith's first report (dated 7 January 2019), I consider the following additional characteristics of the Greater Glider and its habitat are important to note specifically.

68 Dr Smith explains why a single Greater Glider needs access to more than one suitable tree hollow:

> Greater Gliders are predominantly solitary and each individual may occupy many different nest trees (habitat trees or trees with suitable hollows) within its home range which are about 1-3 hectares in size in the more productive forests (Kehl and Boorsboom 1984, Smith et al 2007). Nest sites may be changed frequently with individual gliders reported to use up to 18 den trees within their home ranges (Kehl and Boorsboom 1984, Comport et al 1996, Smith et al 2007). Frequent nest tree changes may be necessary for [temperature] control, avoidance of parasites and to reduce predation by Powerful Owls, Sooty Owls and Spotted Tail Quolls. Greater Gliders are an important (keystone) food resource for these large predators.

69 Dr Smith goes on to expand on the relationship between the Greater Glider and species which prey on it:

> The Spotted-tail Quoll, which is listed as endangered under the EPBC Act in south eastern Australia, is particularly dependent on Greater Gliders which it hunts by climbing trees and removing them from tree hollows (Belcher et al 2007). The importance of Greater Gliders to the Spotted-tail Quoll is such that timber harvesting regimes that reduce Greater Glider numbers is recognized as a key threat to this species (Belcher et al 2007).

> Powerful Owls (*Ninox strenua*) have been associated with catastrophic (90%) population declines in local Greater Glider populations (Kavanagh 1988). Powerful Owls may consume approximately 80-250 large mammal prey like Greater Gliders every year within their home ranges which are about 300-350 hectares for breeding females (Higgins 1999). At this rate if [Powerful] Owls fed solely on Greater Gliders they would remove one Greater Glider in every two hectares within their home range each year. This rate of predation exceeds the population growth rate of the Greater Glider in many forests.

70 The issue of predation of Greater Gliders by other species, in particular Powerful Owls, as Dr Smith highlights, has considerable relevance to the operation of the precautionary principle in VicForests' forestry operations, and to the question of significant impact under s 18.

71 As to the nature of the preferred habitat of the Greater Glider – an issue also of key relevance for the precautionary principle question and for s 18 – Dr Smith states:

> The Greater Glider has generally been found to prefer tall more productive "old growth" eucalyptus forests with an overstorey of large old trees that provide hollows suitable for nesting and a high basal area of large trees (> 40 cm diameter) suitable for movement by gliding. These forests may be referred to as "old growth" because it takes 120 -300+ years for trees to become old enough to develop hollows and it takes about 40-80 years for trees to reach a diameter of about 40 cm. (Ambrose 1982).

72 Dr Smith explained that because the Greater Glider is such a large possum, the trees between which it glides have to be sufficiently robust to take its weight, and the force applied when it lands on the trees.

73 There follows a detailed description of the kind of tree species favoured by the Greater Glider, and the characteristics of such forest. Although lengthy, it is important to set this part of Dr Smith's report out, as the characteristics of the forests in which the Greater Glider is found is central to both the precautionary principle issue and the s 18 issue:

> In the Central Highlands the Greater Glider habitat is found in the following three broad forests types:
>
> a) uniform aged old growth Ash forests that have not been intensively burnt for more than 120 years,
>
> b) uneven-aged Ash forests with an overstorey of scattered old trees with hollows and an understorey of advanced regrowth or mature forest (> 40 years of age) that developed after infrequent low intensity wildfire; and
>
> c) uneven aged old growth Mixed Species (Stringybark) forests with an overstorey of scattered or abundant old trees with hollows and an understorey of trees of different sizes including abundant trees > 40 cm diameter.
>
> Ash forest refers to tall open wet forests dominated by Mountain Ash (*Eucalyptus regnans*), Alpine Ash (*E. delegatensis*) and/or Shining Gum (*E. nitens*). They generally occur at high elevations in cooler, wetter more productive environments. Ash forests give way to Mixed Species forests at lower elevations. Mixed Species forests are

commonly dominated by Messmate Stringybark (*E. obliqua*), Mountain Grey Gum (*E. cypellocarpa*) and other species of Stringybarks, Peppermints and Gums. Mixed Species forests extend to low elevations and are sometimes referred to as foothill forests. Trees in Mixed Species forests are much more likely to survive wildfires than trees in Ash forests and hence are typically found in uneven-aged stands (Victorian Environment Assessment Council 2017).

In Ash forests of the Central Highlands old growth commonly occurs in uniform aged stands regenerating after a single past intense wildfire disturbance or as uneven-aged stands with two or more distinct age classes of trees that regenerated after separate less intense fires. Ash old growth appears to be most prevalent in gullies, riparian zones and sheltered aspects that have been protected from intense fire for long periods of time (>120 years). In contrast, Mixed Species forests of the Central Highlands (and elsewhere in Victoria VEAC 2017) naturally occur as uneven-aged old growth because the dominant tree species are generally not killed by intense wildfire, recover rapidly by re-sprouting (coppice) and do not require fire for regeneration (Florence 1996, Lutze et al 2004,). Consequently, large old trees with hollows are common and persistent after wildfire in Mixed Species forests. Because the dominant trees species in Mixed Species forests (Stringybarks) are also generally shade tolerant (Florence 1996) they can regenerate under an existing tree canopies and do not require post logging burning or wildfire for regeneration.

…

The Greater Glider is not present in all old growth eucalyptus forests throughout its range. It is scarce or absent from old growth [eucalyptus] forests in hot and/or dry environments, in forests that are frequently burnt or have been intensively logged and in some parts of forests that have been subject to intensive owl predation. Physiologically the Greater Glider is unable to cool itself effectively at high temperatures (> about 20c) (Rubsamen et al 1984) which explains its restriction to cool, wet forests at higher elevations, especially in the tropics and sub-tropics.

The habitat requirements of the Greater Glider may be more specifically summarized as:

1. scattered emergent (> 1/ha) to abundant (> 12/ha) large diameter living and dead trees with hollows suitable for nesting;

2. a tall open forest structure with an abundance of large tree stems (> 25 /ha) in the mature size class (40 - 80 cm diameter at breast height (dbh) and a scarcity of dense young regrowth in the understorey, to provide an open structure suitable for movement by gliding;

3. low maximum mean monthly temperatures that do not exceed about 20 degrees C and moderate to high rainfall (>[about] 400 mm /annum);

4. infrequent disturbance by fire, >10 year intervals in Mixed Species eucalyptus forest and > 40 - 120+ year intervals in wet Eucalyptus forests;

5. no recent history of high intensity logging (clearfelling) or timber harvesting that has removed more than about 33% (wet forests) to 15% (dry forests) of the natural tree basal area (Dunning and Smith 1985, Howarth 1989, Kavanagh 2000, Eyre 2006).

6. no recent history of intensive Owl Predation.

74 As the Conservation Advice also notes, Dr Smith's opinion is that the Greater Glider has low annual fecundity, and at best (fecundity sitting at about 0.5-0.9 young per female per year) raises a single young each year. It has a short reproductive lifespan (likely less than 10 years). Dr Smith's opinion is that the low fecundity of the Greater Glider "makes it especially vulnerable to predation, and slow to recover after disturbance events such as clear-felling and intense wildfire".

75 Having reviewed a number of surveys of Greater Gliders conducted in the Central Highlands (noted by the Conservation Advice to be the most comprehensive), Dr Smith identifies the population decline of the Greater Glider and its causes, in his opinion (which I accept):

> Together these surveys suggest that Greater Glider numbers in the Central Highlands increased from moderate levels (32%) in 1983 to a peak of up to 60% in 1996 and then declined reaching a low of 10-16% of sites. This rate of decline (more than 50% reduction in 13 years) is consistent with the requirements for listing of the Greater Glider as vulnerable under the EPBC Act.
>
> The pattern of decline is broadly consistent with what we know about changes in the geographic extent of potential Greater Glider habitat in the Central Highlands. It is consistent with an initial increase in the structural suitability of 1939 regrowth Ash Forest for Greater Gliders as these forests increased in age (from 44- 79 years of age), followed by a steady decrease in the overall extent of habitat caused by a combination of:
>
> a) ongoing clearfelling and post logging burning of 1939 regrowth and uneven-aged ash regrowth and particularly the loss of scattered living old growth trees with hollows during logging and post logging burning operations;
>
> b) ongoing natural decay and collapse of dead trees with hollows in 1939 regrowth Ash Forests (Smith 1982, Smith and [Lindenmayer] 1988, [Lindenmayer] et al 1990),
>
> c) ongoing clearfelling of old growth Mixed Species forests (largely found to be incorrectly mapped as 1939 regrowth by VicForests in this study);
>
> d) extensive wildfires in Ash Forests and Mixed Species forests in 2009;
>
> e) increased isolation and fragmentation of remnant habitat caused by excessive logging of old growth Ash and Mixed Species forests remnants in gullies and riparian zones and failure to maintain substantive corridor links between remnant old growth and uneven-aged habitats; and
>
> f) potential loss of habitat in the hotter and drier patches of Mixed Species and Ash Forest at lower elevations and on exposed aspects due to hotter and drier conditions than normal over recent years (Lumsden et al 2013).

76 A recurring theme in the evidence of both Dr Smith and Professor Woinarski, on which I have placed some weight, is the critical role played by the 1939 regrowth Ash forest in the habitat needs of both the Greater Glider and Leadbeater's Possum in the CH RFA region. It is the 1939 regrowth which is also one of the targets of VicForests' forestry operations.

77 Finally, I note some further evidence from Tyndale-Biscoe's *Life of Marsupials*, which was a principal source relied on by Mr McBride for information about the characteristics of the Greater Glider. The author compares the Greater Glider to the Koala, in terms of its focus on eucalyptus foliage as a diet, and states (at p 240):

> Greater gliders are at about the minimum size for an animal subsisting exclusively on Eucalyptus leaves and it is clear from the analysis of their energetics that they are only able to live on this diet by leading a slow life.
>
> …
>
> For a species living so close to the limits of sustainability the nutritional quality of the food, both its energy content and nitrogen content, are critical to survival.

78 As to breeding patterns, the author states:

> They generally live alone except during the brief highly synchronised breeding season in April-June when the single young is born. Young lost prematurely are not replaced and there is no second peak of breeding because the males are no longer producing sperm (see Chapter 2).
>
> …
>
> More interestingly, the number of females with pouch young is about the same as the number of adult males, so that there is a pool of non-breeding females. This is because gliders form monogamous pairs (Henry 1984, Kehl and Borsboom 1984). In both studies the home ranges of adult females did not overlap in the forest but those of males were larger and overlapped the home range of one or two females, depending on the quality of the forest.

79 This text contains some important observations, including observations derived from a study of the effects of forestry operations on the Greater Glider in New South Wales, which are material to the findings I make about the application of the precautionary principle to the Greater Glider and to the question of significant impact. I extract those passages of the text later in these reasons. In substance, the text paints a gloomy picture of the capacity of the Greater Glider to survive forestry operations even in the short to medium term, if they are not killed by the logging event itself. It paints an equally gloomy picture of the capacity of the Greater Glider to move to unlogged forest, or to recolonise logged forest. I reiterate this was a key source of Mr McBride's information about the Greater Glider.

The Leadbeater's Possum

80 The Leadbeater's Possum was initially listed as a threatened species under the EPBC Act in the endangered category, but was transferred to the critically endangered category, effective from 2 May 2015. There was less debate about the characteristics and habitat needs of the Leadbeater's Possum. As well as the 2015 Conservation Advice for this species, setting out the justifications for its listing as critically endangered, there is an Action Statement published in 2014 by the then Victorian Department of Environment and Primary Industries. The Action Statement was made pursuant to s 19 of the FFG Act.

81 There is no current Recovery Plan under the EPBC Act for the Leadbeater's Possum, although there is a draft, dating from 2016, of which Professor Woinarski was one of the co-authors.

There was an earlier Recovery Plan, which is now out of date. On 22 June 2019, shortly after this trial was completed, a new Conservation Advice for the Leadbeater's Possum was issued. The parties and witnesses mostly relied on the 2015 Conservation Advice and I have done the same. However it is worth noting from the 2019 Conservation Advice, which was in evidence, that:

(a) like the 2015 Conservation Advice, the 2019 Conservation Advice lists the Leadbeater's Possum as critically endangered, although under a different criterion: namely, Criterion 1 A4(b) ("An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may have ceased OR may not be understood OR may not be reversible" based on "an index of abundance appropriate to the taxon");

(b) the 2019 Conservation Advice lists the Leadbeater's Possum as endangered under criteria not relied upon in the 2015 Conservation Advice: namely, Criteria 1 A2(a) and A2(b) ("Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible" based on "direct observation" and "an index of abundance appropriate to the taxon") and A3(b) ("Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) based on "an index of abundance appropriate to the taxon"); and

(c) the 2019 Conservation Advice notes that, although, as a result of extensive work that has been undertaken "most notably by scientists from the Arthur Rylah Institute, as well as community groups and the logging industry", large numbers of additional Leadbeater's Possum colonies have been identified, reliable population estimates still cannot be generated from the data.

82 The Leadbeater's Possum is a small, nocturnal, arboreal possum, with a dark brown stripe along its back and pale colour underneath. It grows up to 17 cm in length, with a thick tail about as long as its body. It is Victoria's faunal emblem, and is endemic to that State.

83 Through genetic work, two genetically distinct subpopulations have been identified, occupying different habitats. There is what the 2015 Conservation Advice describes as an "outlier lowland population" at Cockatoo Swamp near Yellingbo, within 181 ha of lowland floodplain forest

where less than 20 ha provides suitable habitat. The 2015 Conservation Advice states that the second, and major subpopulation is in a relatively small part of the CH RFA region:

> The core location of the species is an area of approximately 70 x 80 km in the Central Highlands of Victoria at altitudes between 400–1,200 m above sea level (Lindenmayer et al., 1989) where it is patchily distributed (Macfarlane et al., 1997) and occupies alpine forest and subalpine woodland comprising *Eucalyptus regnans* (mountain ash), *Eucalyptus delegatensis* (alpine ash), *Eucalyptus nitens* (shining gum) and *Eucalyptus camphora* (snow gum).

84 Fossil and historical records indicate the species was once more widely distributed, although a scarcity of specimens combined with clearing of areas thought to be its only habitat in the late 19th century led to suggestions it was extinct. In the 1960s specimens were collected in new areas in the Central Highlands.

85 Unlike the Greater Glider, Leadbeater's Possum live in colonies. Groups number between two to twelve individuals, including one breeding pair, although some studies have found colonies with two breeding females. They shelter in tree hollows during the day and occupy territories that contain multiple den sites. Female dispersal is greater than male dispersal and females are subject to higher rates of mortality. The general adult population is thought to have a sex ratio approaching three males to one female. Thus, breeding is limited by the number of mature females. It is thought Leadbeater's Possum are "strictly monogamous", and that only one adult male per colony is reproductively active. The 2015 Conservation Advice states that Leadbeater's Possum nest trees are:

> spaced close to the centre of a relative exclusive home range (Smith, 1984), and linear strips of habitat (e.g., 80 m) may be insufficient for their social and dietary requirements.

86 Again, quite differently to the Greater Glider, the Leadbeater's Possum reproduces twice a year and has more than one young. The mean litter size is put at approximately 1.5.

87 Adult Leadbeater's Possum live for approximately ten years and the first breeding age is typically two years. Generation length (described in the 2015 Conservation Advice as longevity plus age at maturity divided by two) for Leadbeater's Possum is six years.

88 The species appears to have long-term site fidelity, and colonies live in territories of 1-3 ha that contain multiple den sites and which are actively defended from neighbouring colonies. The Leadbeater's Possum is described in the 2015 Conservation Advice as:

> typically sedentary and territorial, with resident animals travelling between den trees and feeding areas, or between alternative den trees (Lindenmayer and Meggs, 1996;

> Smith, 1984) with the distance between a set of nest sites used by a colony possibly exceeding 100 m (Lindenmayer and Meggs, 1996).

89 The 2015 Conservation Advice states that Leadbeater's Possum habitat is usually defined as Montane Ash forest dominated by Mountain Ash, Alpine Ash and Shining Gum with a dense understorey of Acacia and an abundance of large hollow-bearing trees. Leadbeater's Possum also inhabits sub-alpine woodland dominated by Snow Gum containing a dense midstorey of Mountain Tea Tree (*Leptospermum grandiflorum*) along drainage lines, or forest dominated by Mountain Swamp Gum (*Eucalyptus camphora*) with a dense midstorey of *Melaleuca* and *Leptospermum* species. It can be seen from this description that Leadbeater's Possum habitat requirements are quite different to that of the Greater Glider, although both are hollow-dependent species.

90 The diet of the Leadbeater's Possum is also quite different to, and broader than, that of the Greater Glider. The 2015 Conservation Advice describes its diet as consisting of carbohydrate-rich plant and insect secretions (eg sap, manna, honeydew) and invertebrates. It has also been observed to feed on an undescribed species of tree cricket. In Montane Ash forest, the species has been recorded incising Acacias and feeding on the gum that exudes into the wound. Paperbarks and Tea Trees may also be incised in lowland swamp forest.

91 In contrast to the Greater Glider, the hollows used by the Leadbeater's Possum are predominantly in dead trees. It rarely makes use of the ground. The 2015 Conservation Advice describes Leadbeater's Possum habitat requirements in the following way:

> Tree hollows are a critical resource for Leadbeater's possum and the species' abundance is positively correlated with hollow availability (Lindenmayer et al., 1991b). The majority of trees occupied by Leadbeater's possum are dead hollow-bearing trees. Living hollow-bearing trees are also used and become the next cohort of dead hollow-bearing trees in the future (Lindenmayer et al., 2013a). Leadbeater's possum rarely descends to the ground and is highly reliant upon dense, continuous vegetation with interconnecting lateral branches and/or high stem density (Lindenmayer, 1996a).
>
> The key attributes of Leadbeater's possum across all forest types (LPAG, 2013) are:
>
> - Hollow-bearing trees (for nest sites and refuge) with large internal dimensions in the order of 30 cm in diameter are a critical habitat feature for Leadbeater's possums (LPAG, 2013), particularly and almost exclusively large old trees (Lindenmayer et al., 2013a; Lindenmayer et al., pers. comm., 2014a).
> - Density of hollow-bearing trees is recognised as a critical habitat feature (e.g., DEPI, 2014). There are strong and quantified links between the abundance of hollow-bearing trees and the occurrence of Leadbeater's possum (e.g., Lindenmayer et al., 1991b; Lindenmayer et al., 2013b; Lindenmayer et al., pers. comm., 2014a), with nest hollow availability the limiting factor to

> population size. Density of less than one hollow-bearing tree per hectare is considered to represent ecosystem collapse for the Mountain Ash Forest ecosystem (Burns et al., 2014).
>
> - predominance of smooth-barked eucalypts (with loose bark hanging in strips providing shelter for insect prey and material for nests) or gum-barked eucalypts (related to foraging behaviour) (Lindenmayer, 1996a; Harley, 2004a;b;c). Forest types of Leadbeater's possum are most commonly ash forest typically dominated by mountain ash, alpine ash and shining gum but it is also known to occur in subalpine woodlands and lowland swamp forest dominated by snow gum or mountain swamp gum (Smith and Hartley, 2008)
> - a structurally dense interlocking canopy or secondary tree layer of continuous interconnecting structure (to facilitate movement) (Lindenmayer, 1996a; Harley, 2004a;b;c), and
> - a wattle [understorey] (providing food) (Smith and Lindenmayer, 1988; Menkhorst and Lumsden, 1995; DSE, 2013).

92 In terms of the fundamental habitat requirements for the Leadbeater's Possum, the 2015 Conservation Advice describes those in the following way:

> An optimum habitat is an uneven-aged ash forest with a dense [understorey] of wattle trees and a supply of hollow bearing trees of between 4.2 – 10 per 3 ha (Smith and Lindenmayer, 1988). Leadbeater's possums appear to have critical minimum habitat size of around 12 ha (Lindenmayer et al., pers. comm., 2014b).

93 The 2015 Conservation Advice states unequivocally that Leadbeater's Possum do not occur on burned sites, including those subject to low and moderate severity fire, clear-fell logged, or regenerated Montane Ash forest where hollow-bearing trees are largely absent, until the habitat conditions they need have returned.

94 The Leadbeater's Possum's listing as critically endangered was justified in the 2015 Conservation Advice because the Leadbeater's Possum met a number of the criteria for the following reasons:

(a) the species' loss of population size, characterised by the Scientific Committee as "very severe", justifying its listing under the Critically Endangered category;

(b) it has a restricted area of occupancy and a geographic distribution that is precarious for its survival, justifying its listing under the Endangered category;

(c) the number of mature breeding individuals is likely to be at least "limited" and is very likely to be "restricted", with numbers likely to continue to decline, together with the precariousness of the species' geographic distribution, justifying listing under the Endangered category; and

(d) it has a probability of extinction of at least 10%, justifying listing in the Vulnerable category, given the estimate that the Mountain Ash Forest ecosystem on which the montane populations of Leadbeater's Possum depend will become extinct within the next 100 years with at least a 10% likelihood, and that the only known population of the species outside of this habitat (being the lowland Yellingbo population) is also predicted to become extinct in the next 100 years, with a greater than 10% likelihood.

95 The 2015 Conservation Advice states, in the context of discussing the species' eligibility for listing under Criterion 1 (reduction in numbers), that:

> [s]uitable habitat at the baseline at 1989 is estimated to be 11,470 ha, which declines to only 2,225 ha by 2013 as a result of loss from fire, harvesting and loss in habitat quality from loss of hollow-bearing trees. This is a decline of over 80 per cent decline, which is considered to be very severe …

Threats to the sustainability and recovery of the Leadbeater's Possum as a species

96 The 2015 Conservation Advice describes the threats to the Leadbeater's Possum in the following terms:

> The primary threats to Leadbeater's possum are habitat loss and ongoing deterioration of habitat quality including loss of vegetation type and structure. These threats result in a loss in the species' ability to shelter, breed, disperse, and feed. This situation has resulted in immediate population decline as well as ongoing decline in reproduction rates. Loss of habitat quality has resulted in complete abandonment of habitat in some instances, or reduction in population size and reproduction rate (e.g., at Yellingbo during the past nine years).

97 The two relevant causes of habitat loss and loss in habitat quality identified in the 2015 Conservation Advice are, in the order in which they appear in the 2015 Conservation Advice:

(a) **Loss through fire.** While the 2015 Conservation Advice recognises fire as a natural disturbance, it notes that prior to European settlement "the fire regime was less frequent than at present, and occurred in late summer (citing Lindenmayer et al., 2013b)". It also notes, presciently:

> [O]ver the last century, bushfires have occurred in the Central Highlands on average every ten years, and that the frequency and intensity of wildfires are likely to increase under climate change scenarios, which predict increased rates of extreme climatic events (Lumsden et al., 2013). The last decade has seen a significant and measurable increase in the number, intensity and area burnt by bushfires and projections suggest that this will continue to escalate (DSE, 2008).

(b) Critically, the 2015 Conservation Advice notes the effect of the 2009 fires, where of the 195,000 ha of Ash forest and Snow Gum woodlands considered to be potential

habitat of Leadbeater's Possum at that point, 68,000 ha (35%) was burnt and 45% of the best Leadbeater's Possum habitat within Montane Ash forest was burnt. The 2015 Conservation Advice states that after these fires, the species has not been detected at burned sites regardless of the fire severity.

(c) The 2015 Conservation Advice includes some stark numbers on the effects of fire, by reference to a monitored site at Lake Mountain, which was thought to contain up to 300 individual Leadbeater's Possums prior to the 2009 fires, with only four individuals recorded since the fires.

(d) In this part, the 2015 Conservation Advice also notes the adverse effects on the species from post-fire salvage logging and the regeneration burning after clear-fell harvesting.

(e) The second relevant identified threat is **loss through harvesting and lack of habitat quality in regrowth forest**. The 2015 Conservation Advice notes clear-felling as a predominant method of logging in the Central Highlands, and then states:

> Hollow-bearing trees retained for 'wildlife habitat' are of little immediate habitat value to Leadbeater's possum when there is no surrounding foraging habitat, but may be used when surrounding foraging habitat vegetation and structure is regrown (i.e. 20 years (LPAG, 2013)).

(f) In the context of timber harvesting, the 2015 Conservation Advice notes:

> Old-growth ash forest is prime habitat for Leadbeater's possum. It is estimated that old-growth or multi-aged mountain ash forest comprised 30–60 per cent of the current ash forest estate in the Central Highlands of Victoria prior to European settlement. Old growth ash forest now comprises 1.15 per cent of this mountain ash forest estate (Lindenmayer et al., 2013a).

(g) As I will discuss later in these reasons, what a forester describes as "old growth" and what a conservation biologist or conservation ecologist describes as "old growth" might differ. For the purposes of my fact-finding, the material issue is that this Conservation Advice highlights the dramatic decline in forest of that type, indicates that forest of that type is the prime habitat for the Leadbeater's Possum, and finds that the Leadbeater's Possum population has only 1.15% of Mountain Ash forest of this kind left in the Central Highlands.

(h) The Leadbeater's Possum's dependence on dead hollows also has consequences for the effects of timber harvesting, according to the 2015 Conservation Advice. The 2015 Conservation Advice states that while hollows begin to develop in dominant eucalypts in Montane Ash forest after 120 years, hollows suitable for Leadbeater's Possum are not present until trees attain 190 years of age. In many areas, the 2015 Conservation

Advice states that standing dead trees have provided the majority of dens for Leadbeater's Possums.

(i) The difficulty is that standing dead trees are subject to a high rate of collapse resulting from natural decay and while loss due to decay is a natural process, the 2015 Conservation Advice states that the loss of hollows has occurred and now occurs at a greater rate than they are formed, due to a reduction in equivalent replacements as a result of clear-felling, fire, and in some cases, altered succession (eg Yellingbo). Further, short-term intervals between fire events and timber harvesting on short rotation cycles do not provide for formation of replacement hollows. Therefore, the availability of suitable hollows for denning is a limiting factor across much of the range of the Leadbeater's Possum. Regrowth trees in areas burnt during the fires in the 1930s may not develop hollows suitable for Leadbeater's Possums for more than a century.

(j) The 2015 Conservation Advice then describes the effect of logging rotations and other effects of forestry operations:

> Clearfell logging on 80–120 year rotations means that large old trees never develop on logged and regenerated sites. Selective clearfelling removes targeted existing large trees (including nest hollows), but also accelerates the decay and collapse of non-targeted hollow bearing trees, (Lindenmayer et al., 2013b). The rate of tree fall exceeds recruitment of new hollow-bearing trees within montane ash forests (Lindenmayer et al., 1997).
>
> The impacts of fire go beyond the areas directly burned. Hollow-bearing trees adjacent to areas of logged forest have been found to suffer from accelerated rates of collapse (Lindenmayer et al., 1997).
>
> In existing forests, the quality of Leadbeater's possum habitat may be reduced by:
>
> - loss of hollow bearing trees without equivalent replacement hollows as a result of earlier harvesting;
> - habitat fragmentation as a result of timber harvesting or fire,
> - altered habitat structure due to altered fire regimes, harvesting regimes or altered hydrology.

98 It will be necessary later in these reasons to address in detail one of VicForests' principal submissions in response, being that it intends to reduce clear-fell logging as a timber harvesting method, and therefore, that much of what is said in documents such as the 2015 Conservation Advice cannot be applied to its forestry operations in the future, including those in the Scheduled Coupes. In summary, I do not accept that submission.

99 The 2015 Conservation Advice identifies as "important habitat for the survival of the species", the following:

> The key habitat attributes of Leadbeater's possum across all forest types (LPAG, 2013), and therefore important habitat for the survival of the species, are:
>
> - Hollow-bearing trees (for nest sites and refuge) with large internal dimensions in the order of 30 cm in diameter are a critical habitat feature for Leadbeater's possums (LPAG, 2013), particularly and almost exclusively large old trees (Lindenmayer et al., 2013a; Lindenmayer et al., pers. comm., 2014a).
> - Density of hollow-bearing trees is recognised as a critical habitat feature (e.g., DEPI, 2014). There are strong and quantified links between the abundance of hollow-bearing trees and the occurrence of Leadbeater's possum (e.g., Lindenmayer at al., 1991c; Lindenmayer et al., 2013c; Lindenmayer et al., pers. comm., 2014a), with nest hollow availability the limiting factor to population size. Density of less than one hollow-bearing tree per hectare is considered to represent ecosystem collapse for the Mountain Ash Forest ecosystem (Burn et al., 2014).
> - Predominance of smooth-barked eucalypts (with loose bark hanging in strips providing shelter for insect prey and material for nests) or gum-barked eucalypts (related to foraging behaviour) (Lindenmayer, 1996a; Harley, 2004a;b;c).
> - Forest types of Leadbeater's possum are most commonly ash forest typically dominated by mountain ash, alpine ash and shining gum.
> - The species is also known to occur in subalpine woodlands and lowland swamp forest dominated by snow gum or mountain swamp gum (Smith and Hartley, 2008) with *Melaleuca* spp or *Leptospermum* spp in the [middlestorey] (Harley et al., 2005).
> - A structurally dense interlocking canopy or secondary tree layer of continuous interconnecting structure (to facilitate movement) (Lindenmayer, 1996a; Harley, 2004a;b;c), and
> - A wattle [understorey] (providing food) (Smith and Lindenmayer, 1988; Menkhorst and Lumsden, 1995; DSE, 2013).

100 The Scientific Committee then notes, and I attribute considerable weight to this statement:

> Leadbeater's possum colonies are territorial, defending areas of 1–3 hectares (Smith, 1984). Leadbeater's possums appear to have critical minimum habitat size of around 12 ha (Lindenmayer et al., pers comm., 2014b). As the species indicates long-term site fidelity (Lindenmayer et al., 2013a), habitat where the species currently occurs is important habitat to maintain.

101 In other words, conservation and recovery of this species are unlikely to be achieved if a premise of conduct in relation to their habitat is that they must relocate.

102 The Scientific Committee ended the 2015 Conservation Advice with the following statement, to which I have also given some weight:

> The Committee considers the most effective way to prevent further decline and rebuild the population of Leadbeater's possum is to cease timber harvesting within montane ash forests of the Central Highlands.

103 This Court is not determining in this proceeding whether timber harvesting should cease in the CH RFA region in which the Logged Coupes and Scheduled Coupes are located. Its task is narrower than that. However, I consider it to be a factor of some weight that the expert committee established under the EPBC Act recommended, for the conservation and recovery of the Leadbeater's Possum, a total cessation of timber harvesting in the Montane Ash forests of the region. The severity of that recommendation indicates the severity of the situation facing the Leadbeater's Possum as a species.

Additional biology/ecology points made by Professor Woinarski

104 Professor Woinarski makes the following observation in his first report about the ecology of the Leadbeater's Possum, after noting that there is "general agreement about most aspects of its biology":

> However, although Leadbeater's possum is amongst the most intensively studied native animal species in Australia, there are important aspects of its ecology that are unknown or poorly known: these include its home range size and dispersal, the minimum area of habitat fragments that can sustain a viable population, its overall population size, the extent to which it can reside within regrowth vegetation, and factors that influence its reproductive success.

105 Professor Woinarski also makes the following general points in his first report, to which I have given weight (quoting directly from Professor Woinarski's report, with emphasis in the original and footnotes omitted):

(a) The Leadbeater's Possum is now restricted to Victoria, with almost all of its distribution and population within the Central Highlands region. Its extent of occurrence is about 4000 km^2.

(b) Leadbeater's Possum is essentially entirely arboreal. Because it rarely comes to the ground, its movements around its home range (eg for foraging and social reasons) are dependent upon a continuous spatially interconnected network of woody vegetation (branches, trunks and foliage of trees and tall shrubs).

(c) In high quality habitat, its home range size (ie the area in which a colony lives and defends) is 1 to 3 ha, but this estimate is based on few data, and home range size is likely to need to be larger in poorer quality habitat.

(d) Family parties of Leadbeater's Possum typically use, and rely on, multiple den sites within their territory, so the abundance and juxtaposition of tree hollows is especially important in determining habitat suitability and persistence and viability of colonies.

(e) With a few notable exceptions, Leadbeater's Possum occurs almost entirely in Montane Ash forests, especially those dominated by Mountain Ash *Eucalyptus regnans* trees of suitable age and stature (with appropriate hollows) and with suitable understorey. The minority exceptions comprise (i) a very small population (around 40 individuals) in a small strip of remnant lowland swamp forest (mostly dominated by *Eucalyptus camphora*) at Yellingbo; (ii) some small populations in sub-alpine Snow Gum *Eucalyptus pauciflora* woodlands within the Central Highlands; and (iii) some small populations in mixed-species eucalypt forests in and near the Central Highlands.

(f) Recent technical advances – most notably the use of remote cameras (camera traps) and thermal imagery – have allowed for much recent increase in knowledge of the distribution and habitat use of the species. As a result of these breakthroughs, there has been a significant increase in the number of sites from which Leadbeater's Possum has been recorded. This increase reflects an increase in survey effort and efficacy rather than any expansion in the possum's distribution or increase in its population size.

(g) Nonetheless, there has been no appropriate sampling effort in much of the possum's putative range, and even surveys using camera traps and thermal imagery may fail to detect possums that are present in an area.

(h) The Australian conservation status of Leadbeater's Possum was reviewed in 2014-15 and it was uplisted to Critically Endangered in 2015, in recognition of its increasing extinction risk. As assessed by the independent Threatened Species Scientific Committee, and accepted by the Australian Minister for the Environment, it was found to qualify as Critically Endangered (the highest threatened category) on the basis of a reduction in its total population size of at least 80% over the previous three (possum) generations (ie 18 years: 1997-2015) (criterion A2(c)) and *also* on a projected decline in its population size of at least 80% over the next three (possum) generations (ie 2016-2034) (criterion A3(c)).

(i) This assessment of the rate of likely future decline incorporated due consideration of the array of timber-harvesting regulations and extent of reservation in operation in Victoria at the time: ie Leadbeater's Possum was assessed by the Threatened Species Scientific Committee and the Australian Minister for the Environment to be likely to

experience a decline of at least 80% in population size over the 18 year period from 2016 to 2034 even allowing for that set of then-existing timber harvesting regulatory provisions.

(j) The assessment of rate of population decline was informed largely by data from one of Australia's most substantial and long-lasting biodiversity monitoring programs undertaken by Professor David Lindenmayer and colleagues from the Australian National University. Those studies have reported a substantial and ongoing chronic decline in occupancy by Leadbeater's Possum in monitoring sites widely spaced across the Central Highlands, with episodic periods of acute decline associated with recent severe and extensive wildfire events.

(k) It is challenging to quantify the risk of extinction, or the likely number of years to extinction for Leadbeater's Possum. This is partly because there are some gaps in knowledge, notably in relation to the species' total population size, and partly because population trajectory is substantially influenced by stochastic events, notably the incidence and extent of severe wildfire. A recent expert elicitation evaluated the extinction risk for Australian bird and mammal species, and estimated that, on the assumption of continuation of current management, there was a 29% chance of extinction for Leadbeater's Possum within 20 years.

THE FEDERAL AND STATE REGULATORY FRAMEWORK IN SUMMARY

106 Much of this framework and my analysis of it, especially the EPBC Act, the background to the conclusion of the Regional Forest Agreements and the provisions and operation of the *Regional Forest Agreements Act 2002* (Cth) (**RFA Act**), is set out in the Separate Question reasons. I adopt and rely upon what I said in those reasons at [64]-[190].

107 In relation to the interaction between s 38 of the EPBC Act and the Victorian regulatory framework, at [148]-[149] of the Separate Question reasons, I said:

> Clause 40 in Pt 2 [of the CH RFA] records the parties' agreement that Victorian processes and systems existing at the time of the Central Highlands RFA "provide for ecologically sustainable management of forests in the Central Highlands and that these processes and systems are accredited in clause 47 of this Agreement". There are four components of the Victorian regulatory system which are accredited under cl 47. It is worthwhile noting them, in particular because some of them directly affect the conduct of forestry operations and are the subject-matter of the RFA that the Commonwealth contends is (at least) capable of affecting the operation of the exemption in s 38(1) of the EPBC Act. The four components of the accredited Victorian system in cl 47 are:
>
> - the Forest Management Plan and the process for its review;

- the Flora and Fauna Guarantee Act 1988 [(Vic)];
- the process for forecasting sawlog sustainable yield in the Central Highlands; and
- the systems and processes established by the Code of Forest Practices for Timber Production and the Code of Practice for Fire Management on Public Land.

> The last component bears directly on the conduct of forestry operations in the Central Highlands RFA region. The provisions of the Flora and Fauna Guarantee Act are also capable of having a direct bearing on the conduct of forestry operations.

108 Thus, the Code is a key component of the substituted system accredited by the Commonwealth under the CH RFA.

109 I set out the key elements of the Victorian regulatory framework, and the parties' arguments about it, in the Injunction reasons at [28]-[48]. At [29], I noted that for the purpose of the interlocutory application, VicForests did not dispute that non-compliance with the Code, or with the "Management Standards and Procedures for timber harvesting operations in Victoria's State forests", was capable of depriving a person or entity who conducted a Regional Forest Agreement forestry operation of the protection afforded by the exemption in s 38(1) of the EPBC Act. That concession was made again in VicForests' closing written submissions: see [61]-[62], [94]-[96], [98]-[99], [131] and [134]. The critical question is whether the circumstances alleged by the applicant have that result, and VicForests contended they did not.

110 Notwithstanding that it may involve some repetition of parts of both the Separate Question reasons and the Injunction reasons, the key aspects of the Victorian regulatory framework which bear on the resolution of this proceeding should be set out.

Allocation orders and Timber Release Plans

111 As property of the Crown in right of the State of Victoria, timber resources are allocated to VicForests under Pt 3 of the *Sustainable Forests (Timber) Act 2004* (Vic), through publication of an Allocation Order. The Allocation Orders relevant to this proceeding were in evidence at Court Book references 6.4-6.5A. Allocation Orders can include conditions, limitations, matters or specifications: see s 15(2). Allocation is by way of gross area and the Allocation Order 2013, which was also in evidence as Court Book item 6.4, expressly states:

> No adjustments have been made for areas that are not available for harvesting under relevant Codes of Practice relating to timber harvesting.

112 Taking the Allocation Order 2013 as an example (which was amended by subsequent orders published in 2014 and 2019), the following clauses should be set out:

OBJECTIVES

2. The objectives of this Order are to:

   a. Allocate specified timber in State forests to VicForests for the purposes of harvesting and selling, or harvesting or selling, timber resources;

   b. Permit VicForests to undertake associated management activities in relation to that allocated timber and additional activities in the areas to which this Order applies; and

   c. Specify the conditions and limitations that apply under this Order.

…

ALLOCATION TO VICFORESTS

…

7. Pursuant to section 13(a) of the SFT Act, timber in the forest stands described in Item 4 of Table 1 and the map at Appendix l of this Order is allocated to VicForests for the purposes of harvesting and selling, or harvesting or selling, timber resources (subject to the conditions and limitations in this Order).

…

AUTHORISED ACTIVITIES

9. Pursuant to section 13(a) of the SFT Act. VicForests is permitted to harvest and sell, or harvest or sell, the timber allocated by this Order.

10. Pursuant to sections 13(b) and 15(1)(b) of the SFT Act, VicForests is permitted to carry out associated management activities in relation to that allocated timber and additional activities in coupes described in any timber release plan (TRP) as defined in the SFT Act, including:

   a. preparation of sites for timber harvesting;

   b. construction of access roads to coupes;

   c. site rehabilitation;

   d. forest regeneration;

   e. seed collection;

   f. harvest of non-eucalypt species (such as Acacia species);

   g. monitoring; and

   h. tending or forest stands (e.g. thinning).

…

SPECIFIED CONDITIONS

12. Pursuant to section 15(2), (3) and (4) of the SFT Act, VicForests is required to comply with the following conditions:

Legislative and regulatory obligations

13. VicForests must comply with all relevant laws including, but not limited to, the **Sustainable Forests (Timber) Act 2004**, the **Forests Act 1958**, the **Conservation, Forests and Lands Act 1987**, the **Flora and Fauna Guarantee Act 1988**, the **Road Management Act 2004** and the **Traditional Owner Settlement Act 2010**.

14. VicForests must comply with all relevant Codes of Practice and other relevant documents as determined by the Secretary to the Department of Environment and Primary Industries (DEPI) (and any predecessor or successor thereto) and as prepared and amended from time to time, including, but not limited to, the Code of Practice for Timber Production 2007, the Code of Practice for Bushfire Management on Public Land 2012, and the Management Procedures for Timber Harvesting, Roading and Regeneration in Victoria's State Forests 2009.

(Original emphasis.)

113 Thereafter VicForests must prepare a Timber Release Plan: see s 37 of the SFT Act. A Timber Release Plan must be consistent with the Allocation Order to which it relates (including any conditions, limitations, matters or specifications), as well as with any relevant Code of Practice relating to timber harvesting: s 37(3).

114 In the present case, a Timber Release Plan for the Logged Coupes and Scheduled Coupes was gazetted in January 2017, although itself a modification to an earlier Timber Release Plan. Then in April 2019 – during the currency of this proceeding – the Timber Release Plan was gazetted again, without any significant change to the silvicultural methods designated for the Scheduled Coupes. The text of the 2017 Timber Release Plan relevantly states:

Timber Release Plan

VicForests has prepared a Timber Release Plan as contemplated in Part 5 of the Sustainable Forests (Timber) Act 2004 (Vic) (the **SFT Act**). Section 37 of the **SFT Act** requires VicForests to prepare a plan in respect of an area to which an Allocation Order applies for the purposes of:

(a) harvesting and selling, or harvesting or selling, timber resources; and

(b) undertaking associated management activities in relation to those timber resources.

With respect to Section 43 of the **SFT Act**, VicForests is permitted to review and change the Timber Release Plan at any time if the change is not inconsistent with:

(a) the allocation order to which the plan relates, including any condition, limitation, matter or specification in the order; and

(b) any relevant Code of Practice relating to timber harvesting.

Specified conditions

VicForests recognises that all planning and operations of VicForests must:

(a) comply with all relevant laws including, but not limited to:

i. the Forests Act 1958 (Vic);

ii. the Conservation, Forests and Land Act 1987 (Vic);

iii. the Flora and Fauna Guarantee Act 1988 (Vic);

iv. the Road Management Act 2004 (Vic); and

v. the Traditional Owner Settlement Act 2010 (Vic); and

(b) comply with all conditions, requirements and limitations in the Allocation Order 2013 as amended.

(Original emphasis.)

115 The text of the 2019 Timber Release Plan, after repeating the above text, then states:

> **Approved Changes to Timber Release Plan**
>
> The VicForests Board has approved a Change to the Timber Release Plan in accordance with Section 43 of the SFT Act, causing notice in the Government Gazette published on 24 April 2019 (S 154).
>
> The Approved Changes were necessary to:
>
> - Maintain a flexible 2-3 year rolling operation schedule (coupes that have been harvested need to be replaced with new coupes for the future);
> - Maintain consistency of the TRP with any changes made by Department of Environment, Land, Water and Planning (DELWP) to the Forest Management Zoning Scheme;
> - Modify boundaries and silviculture based on improved planning information gathered on existing approved TRP coupes;
> - Removal of coupes which have been successfully regenerated;
> - Removal of coupes following stakeholder consultation;
> - Incorporation of selected Timber [Utilisation] Plan coupes into the TRP;
> - Facilitate improved access to existing TRP coupes.

116 There follows in each Timber Release Plan a table setting out on a coupe-by-coupe basis the forest stands which are scheduled for harvesting in the nominated period of harvest in the Timber Release Plan. It is not necessary to set out the entire content of the Timber Release Plan, but it is necessary to understand the form in which it appears, especially as to its nomination of the period for scheduled harvesting and the silvicultural system to be used. The below excerpt from the 2019 Timber Release Plan shows Turducken (coupe number 348-519-0008) in bold, which is one of the Scheduled Coupes in the proceeding in which the Greater Glider has been detected.

Table 5: Excerpt from 2019 Timber Release Plan

Region	Forest Management Area	District	Coupe Number	TRP Status	Nominated Period of Harvest	TRP Approval Date	Silviculture	Gross Area (ha)	Nett Area (ha)	Driveway Area (ha)	Driveway length (m)	Road Length (km)	Forest Stand Description
West Gippsland	Dandenong	Powelltown	348-515-0004	Current	2019 - 2022	31/08/2015	Clearfelling	27.0	18.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-516-0005	Current	2019 - 2022	31/08/2015	Clearfelling	32.2	14.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-516-0006	Current	2019 - 2022	31/08/2015	Road alignment - improvement	5.1	1.0	0	0	0.8	Ash
West Gippsland	Dandenong	Powelltown	348-517-0005	Current	2019 - 2022	01/10/2013	Clearfelling	30.5	19.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-517-0006	Current Regen.	N/A	01/10/2013	Clearfelling	38.3	26.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-517-0007	Current Regen.	N/A	01/10/2013	Clearfelling	30.7	17.0	0	130	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-517-0008	Current	2019 - 2022	01/10/2013	Clearfelling	16.8	5.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-517-0009	Current Regen.	N/A	01/10/2013	Clearfelling	22.8	13.0	1.6	190	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-518-0003	Current Regen.	N/A	01/10/2013	Clearfelling	23.7	14.0	0	0	0.0	Ash
West Gippsland	Dandenong	Powelltown	348-518-0004	Current	2019 - 2022	01/10/2013	Clearfelling	33.8	25.0	0	0	0.0	Mixed Species
West Gippsland	**Dandenong**	**Powelltown**	**348-519-0008**	**Current**	**2019 - 2022**	**17/07/2014**	**Clearfelling**	**43.1**	**32.0**	**0**	**0**	**0.0**	**Ash**

117 In the Glossary to the 2019 Timber Release Plan the following definition appears (with my emphasis added):

> **Silviculture System** – Describes the method **that will be used** to regenerate (and hence to harvest) the coupe.

118 Despite the language in fact used in the Timber Release Plan, one of the issues between the parties is the extent to which the Court can and should rely on the silvicultural systems specified in the 2019 Timber Release Plan in its findings about how VicForests will conduct its forestry operations in the Scheduled Coupes. In substance, VicForests contends little reliance can be placed on the entries in the Timber Release Plan, and the applicant contends some considerable reliance can be placed on them. I make findings about that matter later in these reasons.

119 However it is the case that when the Timber Release Plan was reissued in April 2019 – well after VicForests had embarked on its revision of its silvicultural systems – the majority of the Scheduled Coupes were still identified as scheduled to be harvested by clear-felling. Of the 41 Scheduled Coupes, 32 of those coupes are listed on the 2019 Timber Release Plan with the designated silvicultural system of clear-felling.

120 The Timber Release Plans specify a three-year nominated period of harvest. The applicant contends the Court can be satisfied on the balance of probabilities that, given they appear on the April 2019 Timber Release Plan, the Scheduled Coupes will (absent injunctions or undertakings) be subject to forestry operations in the period of 2019-2022. This is the period which, on the applicant's case, the Court must assess. One aspect of Mr Paul's evidence, and VicForests' submissions, is that simply because the coupes appear on the Timber Release Plan, this does not indicate when and whether they will be subject to forestry operations.

121 It should also be noted at this point that a key planning and operational mechanism used by VicForests is the concept of a "coupe". A coupe is a forestry concept. It has no biological, ecological, habitat or conservation function. Rather, it is a planning tool by which the forest is mapped and divided for the purposes of forestry operations and timber harvesting. VicForests' "Coupe Reconnaissance Instruction" (dated 6 July 2016), which was annexed to Mr Paul's second affidavit, defines "coupe" as a "single area of native forest of variable size, shape and orientations from which timber is harvested or a road-line is constructed or improved". That is a very similar definition to the one which appears in the glossary to the Timber Release Plans. In the context of the present proceeding, forestry operations on a coupe-by-coupe basis can be used as one way (and only one way) of identifying the "action" to which the terms of the EPBC

Act are to be applied. Of course, forestry operations within a coupe in fact involve many "actions", and there are many "actions" which occur on a wider or larger scale than coupe level. These are some of the matters the Court must resolve in deciding how the EPBC Act applies to VicForests' past and proposed conduct. The short point to emphasise at this stage of the reasons is that a coupe is a forestry planning and operational tool: it may or may not inform the proper application of the scheme of the EPBC Act.

The Code

122 Section 31 of the *Conservation, Forests and Lands Act 1987* (Vic) (**CFL Act**) confers a power on the relevant Minister to make a Code of Practice which specifies "standards and procedures for the carrying out of any of the objects or purposes of a relevant law". The Code must be tabled before the Victorian Parliament.

123 Section 39 of the CFL Act provides that compliance with a Code of Practice is not required unless it is adopted by a relevant law, or by a condition specified in an authority under a relevant law. For present purposes, s 46 of the SFT Act provides:

> The following persons must comply with any relevant Code of Practice relating to timber harvesting—
>
> (a) VicForests;
>
> (b) a person who has entered into an agreement with VicForests for the harvesting and sale of timber resources or the harvesting or sale of timber resources;
>
> (d) any other person undertaking timber harvesting operations in a State forest.

124 The relevant Code of Practice is the *Code of Practice for Timber Production 2014*, which I have been referring to in these reasons as the "Code". An earlier version, made in 2007, was the version of the Code considered in *Environment East Gippsland Inc v VicForests* [2010] VSC 335; 30 VR 1 (***Brown Mountain***) and *MyEnvironment Inc v VicForests* [2012] VSC 91. However, the Court was informed there was no relevant distinction for the purposes of the issues in this proceeding between the key provisions relating to the precautionary principle in the two versions of the Code.

125 The Code is a Code of Practice within the meaning of Pt 5 of the CFL Act and is now a prescribed legislative instrument in Sch 2 of the *Subordinate Legislation (Legislative Instruments) Regulations 2011* (Vic). As such it is subject to the principles concerning the proper construction of legislation.

126 VicForests is defined to be the "Managing Authority" in the Code for timber harvesting operations conducted under an Allocation Order.

127 Although s 46 of the SFT Act is the express source of the obligation imposed on VicForests to comply with the Code, that obligation is also recognised in the Allocation Orders, in the Timber Release Plans and in the CH RFA itself (in cl 47).

128 Incorporated into the Code are the "Management Standards and Procedures for timber harvesting operations in Victoria's State forests", which I have been referring to in these reasons as the "Management Standards and Procedures".

129 The Code describes itself as containing at least three tiers of mechanisms:

> **1.2.8 Terminology**
>
> The following terms are used in the Code to provide a structure for the Code's intended outcomes and the mechanisms within the Code to achieve these. The glossary provides further definitions.
>
> A Code Principle is a broad outcome that expresses the intent of the Code for each aspect of sustainable forest management.
>
> An Operational Goal states the desired outcome or goal for each of the specific areas of timber harvesting operations, to meet the Code Principles.
>
> Mandatory Actions are actions to be conducted in order to achieve each operational goal. Timber harvesting managers, harvesting entities and operators must undertake all relevant mandatory actions to meet the objectives of the Code. Mandatory Actions are focussed on practices or activities. Failure to undertake a relevant Mandatory Action would result in non-compliance with this Code.

130 At cl 1.3, the Code then sets out "Code Principles":

> **1.3 Code Principles**
>
> Timber production on all native forest and plantations in Victoria are guided by the Code Principles described in Table 1. The Code Principles express the broad outcomes of the intent of the Code for each aspect of sustainable forest management.
>
> The six Code Principles are developed from the internationally recognised Montreal Process criteria, and are consistent with the objectives of the *Sustainability Charter for Victoria's State forests*. Reporting mechanisms such as *Victoria's State of the Forests Report* use the same principles, and demonstrate Victoria's commitment to being an international leader in sustainable forest management.
>
> The six Code principles are that:
>
> 1. Biological diversity and the ecological characteristics of native flora and fauna within forests are maintained.
>
> 2. The ecologically sustainable long-term timber harvesting capacity of forests managed for timber harvesting is maintained or enhanced.

3. Forest ecosystem health and vitality is monitored and managed to reduce pest and weed impacts.

4. Soil and water assets within forests are conserved. River health is maintained or improved.

5. Cultural heritage values within forests are protected and respected.

6. Planning is conducted in a way that meets all legal obligations and operational requirements.

Timber production must always be planned and conducted according to knowledge developed from research and management experience so as to achieve the intent of the Code Principles. Application of this knowledge will ensure that timber can continue to be utilised while ensuring that impacts on soil, water, biodiversity, forested landscapes and significant archaeological, historic and other cultural heritage sites are avoided or minimised.

In Table 1, the Operational Goals of the Code are aligned with each Code Principle. These Operational Goals are repeated in the body of the Code, with a variety of Mandatory Actions to achieve each Goal. This framework translates the high level Principles into on-ground action.

131 The term "biodiversity" is defined in the Code in the Glossary:

'**biodiversity**' means the natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats, and the ecosystems of which they are an integral part.

132 This definition is of some significance in my fact-finding. I do not consider many of VicForests' contentions on the facts fully reflect the terms of this definition.

133 The whole of Table 1 is not relevant to the issues in this proceeding, but parts of it are and they should be set out:

Table 6: Extract from Table 1 of the Code

Code Principles	Operational Goals	Section
Biological diversity and ecological characteristics of native flora and fauna within forests is maintained.	Timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and implementation. Timber harvesting operations in private native forests specifically address the conservation of biodiversity, in accordance with relevant legislation and regulations, and considering relevant scientific knowledge at all stages of planning and implementation.	2.2.2 and 3.2.2 Conservation of Biodiversity 2.1.1, 2.3.1 and 3.1.1 Forest Planning
The ecologically sustainable long-term timber production capacity of forests	Timber harvesting operations are planned and conducted to maintain a long-term ecologically sustainable timber resource.	2.1.1 and 2.3.1 Forest Planning
	Harvested native forest is managed to ensure that the	2.6.1 and 3.5.1

managed for timber harvesting operations is maintained or enhanced.	forest is regenerated and the biodiversity of the native forest is perpetuated.	Regeneration
Planning is conducted in a way that meets all legal obligations and operational requirements.	Long-term forest management planning maintains an ecologically sustainable timber resource that mitigates the impacts on all forest values. Effective and inclusive planning processes are used for timber harvesting operations to meet the requirements of this Code and the Management Standards and Procedures	2.1.1 and 2.3.1 Forest Planning

134 This last Code Principle also relevantly requires that a "Forest Coupe Plan which specifies operational requirements is prepared in accordance with this Code prior to the commencement of each timber harvesting operation".

135 Chapter 2 of the Code then deals with the application of the Code to State Forests. It begins with the following statement:

> This Chapter applies to the planning, harvesting, roading, tending and regeneration of State forests where timber harvesting operations are conducted, including both native forests and plantation forests that are owned and managed by the State.

136 Chapter 2 is then divided into a number of topics. The second topic is relevant to the issues in this proceeding. It is titled "Environmental Values in State forests", and begins with the statement that:

> Timber harvesting operations in native forests may have local impacts on environmental values such as water quality and biodiversity. Appropriate planning and management through the lifecycle of the timber harvesting operation can minimise these impacts. This section includes requirements that must be observed during planning, roading, harvesting, tending and regeneration of native forests.

137 After dealing with water quality, river health and soil protection, in cl 2.2.2 the Code then deals with "Conservation of Biodiversity". All of that section should be set out:

> **2.2.2 Conservation of Biodiversity**
>
> **Operational Goal**
>
> Timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and management.
>
> Harvested State forest is managed to ensure that the forest is regenerated and the biodiversity of the native forest is perpetuated.
>
> The natural floristic composition and representative gene pools are maintained when regenerating native forests by protecting long-lived understorey species and using appropriate seed sources and mixes of dominant species.

Forest health is monitored and maintained by employing appropriate preventative, protective and remedial measures.

Chemicals are only used where appropriate to the site conditions and are conducted with due care for the maintenance of forest health, water quality, biodiversity and soil values.

Mandatory Actions

Addressing biodiversity conservation risks considering scientific knowledge

2.2.2.1 Planning and management of timber harvesting operations must comply with relevant biodiversity conservation measures specified within the Management Standards and Procedures.

2.2.2.2 The precautionary principle must be applied to the conservation of biodiversity values. The application of the precautionary principle will be consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on forest ecology and conservation values.

2.2.2.3 The advice of relevant experts and relevant research in conservation biology and flora and fauna management must be considered when planning and conducting timber harvesting operations.

2.2.2.4 During planning identify biodiversity values listed in the Management Standards and Procedures prior to roading, harvesting, tending and regeneration. Address risks to these values through management actions consistent with the Management Standards and Procedures such as appropriate location of coupe infrastructure, buffers, exclusion areas, modified harvest timing, modified silvicultural techniques or retention of specific structural attributes.

2.2.2.5 Protect areas excluded from harvesting from the impacts of timber harvesting operations.

2.2.2.6 Ensure chemical use is appropriate to the circumstances and provides for the maintenance of biodiversity.

2.2.2.7 Rainforest communities must not be harvested.

Perpetuating the biodiversity of harvested native forests

2.2.2.8 Long-term (strategic) forest management planning must incorporate wildlife corridors, comprising appropriate widths of retained forest, to facilitate animal movement between patches of forest of varying ages and stages of development, and contribute to a linked system of reserves.

2.2.2.9 Modify bb size and rotation periods to maintain a diversity of forest structures throughout the landscape.

2.2.2.10 Retain and protect habitat trees or habitat patches and long-lived understorey species to provide for the continuity and replacement of old hollow-bearing trees and existing vegetation types within each coupe.

2.2.2.11 Use silvicultural systems that suit the ecological requirements of the forest type.

2.2.2.12 Regenerate harvested areas using seed from overstorey species with provenances native to the area.

Maintaining forest health

2.2.2.13 Implement appropriate vehicle and equipment hygiene precautions when moving from areas of known pest plant, pest animal and pathogen infestations.

2.2.2.14 Implement appropriate control actions where timber harvesting operations have introduced or exacerbated a pathogen or weed.

2.2.2.15 Report the suspected introduction of new or unknown **exotic** agents to DEPI's Biosecurity section.

2.2.2.16 Where Myrtle Wilt (Chalara australis), Cinnamon Fungus (Phytophthora cinnamomi) or Root Rot (Armillaria) is known to exist, apply appropriate measures to minimise the spread of these pathogens.

138 The precautionary principle is a defined term in the Code, and its meaning and operation is a central issue of dispute between the parties. The Glossary to the Code provides:

> '**precautionary principle**' means when contemplating decisions that will affect the environment, careful evaluation of management options be undertaken to wherever practical avoid serious or irreversible damage to the environment; and to properly assess the risk-weighted consequences of various options. When dealing with threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

139 I explain my conclusions about the meaning of this definition later in these reasons. However, it should be immediately noted that, as a legislative instrument, where the Code provides that a term "means" something, then subject to any express or implied contrary intention, the Court should construe that as being an exhaustive definition: *Wotton v State of Queensland (No 5)* [2016] FCA 1457; 352 ALD 146 at [1121], and the authorities there cited. See also Dennis Pearce, *Statutory Interpretation in Australia* (9th ed, LexisNexis Butterworths, 2019) at [6.5].

140 I also note that cl 3.2.2 of the Code regulates the conduct of timber harvesting in private native forests for the conservation of biodiversity. In other words, it is the equivalent of cl 2.2.2, but for private native forests. The salient point is that there is no equivalent of cl 2.2.2.2: that is an obligation imposed only on the State agency.

The Management Standards and Procedures

141 It would appear that the Management Standards and Procedures were issued pursuant to an act of executive power, and were made by the Land Management Policy Division under the authority of the Minister for Environment and Climate Change. By s 31(2) of the CFL Act, the

Management Standards and Procedures are able to be incorporated into the Code. Section 31 should be reproduced in full. It provides:

> **31 Power to make Codes of Practice**
>
> (1) The Minister, in accordance with this Part, may make Codes of Practice which specify standards and procedures for the carrying out of any of the objects or purposes of a relevant law.
>
> (2) A Code of Practice may apply, adopt or incorporate any matter contained in any document, standard, rule, specification or method, formulated, issued, prescribed or published by any person whether—
>
> (a) wholly or partially or as amended by the Code of Practice; or
>
> (b) as formulated, issued, prescribed or published at the time the Code of Practice is made or at any time before then.

142 The Code states:

> The Management Standards and Procedures are informed by relevant policy documents including policies relating to specific forest values such as threatened species, guidelines and strategies within forest management plans made under the *Forest Act 1958* and Action Statements made under the *Flora and Fauna Guarantee Act 1988*. The Management Standards and Procedures replace any directions relating to timber harvesting operations contained within these documents.

143 It might be observed that despite the Code being one of the primary mechanisms for the "substitute regime" for the purposes of the CH RFA, and the EPBC Act, there is no reference to the Management Standards and Procedures being informed by – for example – Recovery Plans under the EPBC Act, or Conservation Advices.

144 The most critical parts of the Management Standards and Procedures to the issues in this proceeding are located in the Introduction, and should be reproduced:

> **1. Introduction**
>
> **1.1 Scope**
>
> 1.1.1.1 The Management Standards and Procedures apply to all commercial timber harvesting operations conducted in Victoria's State forests where the Code applies.
>
> **1.2 Role**
>
> 1.2.1.1 This document provides standards and procedures to instruct managing authorities, harvesting entities and operators in interpreting the requirements of the Code.
>
> 1.2.1.2 These Management Standards and Procedures do not take the place of the mandatory actions in the Code.
>
> 1.2.1.3 Where there is a conflict between the Code and these Management Standards Procedures, the Code shall prevail.

1.3 Application

1.3.1.1 Notwithstanding clause 1.2.1.3, operations that comply with these Management Standards and Procedures are deemed to comply with the Code.

1.3.1.2 Requests for exemptions or temporary variations to these Management Standards and Procedures will demonstrate to the satisfaction of the Minister or delegate that they are consistent with the Operational Goals and Mandatory Actions of the Code.

145 One of VicForests' arguments is based on cl 1.3.1.1 of the Management Standards and Procedures. It will be apparent that some reconciliation between the terms of that clause and the terms of cl 1.2.1.3 is required.

146 The Management Standards and Procedures contain specific prescriptions for some threatened fauna species, but not all threatened fauna species. Relevantly this is provided for by cl 4.2:

4.2 Fauna

4.2.1.1 Apply management actions for rare and threatened fauna identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 13 (Rare or threatened fauna prescriptions).

147 One then turns to the specific prescriptions in Appendix 3 at Table 13, relevant to the Central Highlands:

Table 7: Extract from Management Standards and Procedures Appendix 3, Table 13

FMA	Common name	Scientific name	Management Action
Central Highlands FMAs	Leadbeater's Possum habitat	*Gymnobelideus leadbeateri*	Exclude timber harvesting operations from areas of Zone 1B habitat where there are more than 12 hollow bearing trees per 3 ha in patches greater than 10 ha and wattle density exceeds 5 m2/ha. This prescription applies until either of the two Zone 1B attributes: 1. the presence of dead mature of senescent living trees; or 2. wattle understorey no longer exist. Where evidence of Zone 1A habitat is found in the field follow clause 2.1.1.3 of this document using table 4 in Appendix 5 the Planning Standards for information.
Central Highlands FMAs	Leadbeater's Possum colony	*Gymnobelideus leadbeateri*	Where evidence of this value is found in the field follow clause 2.1.1.3 of this document using table 4 in Appendix 5 the Planning

			Standards for information.

148 I note, and it is common ground, that there is no timber harvesting prescription in Table 13 (or anywhere else) for the Greater Glider in the CH RFA region, or the Central Highlands Forest Management Area (**CH FMA**) region (which for the purpose of the coupes in issue in this proceeding are accepted to be co-extensive). There is a specific prescription for the Greater Glider in the East Gippsland Forest Management Area, which requires complete protection of 100 ha of suitable habitat where more than two Greater Gliders are reported per hectare, more than 10 Greater Gliders are recorded per kilometre, more than 15 Greater Gliders are reported per hour of spotlighting or where "substantial populations are located in isolated or unusual habitat". No real explanation was given in the evidence as to why a prescription was made in respect of the Greater Glider for the East Gippsland region but not for the Central Highlands. I do note, however, that Appendix J to the East Gippsland FMA, which was in evidence, comprises a table entitled "Species with conservation guidelines in State forest" that records the state of the Greater Glider as "S2". Below the table, "S2" is defined as follow:

> S2 = population will be severely reduced by timber harvesting and will not use regrowth, therefore unlikely to persist at the site …

149 This is consistent with the evidence of Dr Smith and the Greater Glider Conservation Advice, but there remains no explanation as to why, recognising that to be the case, there is no prescription for the Greater Glider in the CH RFA region. There was certainly no evidence to suggest the statement could only apply to the East Gippsland population of Greater Glider, and I find it is unlikely there is a conservation-based reason for the absence of the prescription in the CH RFA region.

The role of the EPBC Act Conservation Advices, despite any State regulatory regime

150 In the context of assessing the application of the exemption in s 38, and the applicant's contentions about the precautionary principle, I consider the terms of the Conservation Advices for each species to be highly material. While the legislative scheme of the EPBC Act, as I explained in the Separate Question reasons, contemplates the regulation of forestry operations through a substitute regime at State level, it does not contemplate that in enacting, and more importantly implementing, that regime responsible State agencies (such as VicForests) can ignore, and not act upon, the biodiversity conservation measures and recommendations which are prescribed pursuant to the very same statutory scheme. As I have explained, Conservation Advices are a mandatory instrument of regulation under the EPBC Act. They, together with

any Recovery Plans, are foundational sources for what steps are necessary and appropriate to work towards the conservation and recovery of threatened species. That is their function. The s 38 exemption does not entitle State agencies like VicForests to set such instructions and recommendations to one side. Indeed, the exemption contemplates that whatever is done "on the ground", pursuant to a substitute regime, will be at least consistent with the content of Conservation Advices and Recovery Plans. Otherwise, the objectives of the dominant scheme in the legislative structure for the conservation of matters of national environmental significance (including threatened species) in Australia – which is the EPBC Act – are fundamentally frustrated.

THE COUPES IN ISSUE

151 The applicant's case is divided into two parts, in relation to VicForests' forestry operations. The first part concerns the Logged Coupes. There are 26 of these.

152 The second part of the applicant's case concerns the Scheduled Coupes. As their name suggests, these are coupes listed as proposed for forestry operations on the Timber Release Plan, but for which there may or may not be individual coupe plans. There are 41 of these. There is one coupe named Hairy Hyde, which is identified as both a Logged Coupe *and* a Scheduled Coupe, because it has only been partially harvested.

153 In the second further amended statement of claim filed on 18 January 2019, the Camberwell Junction coupe was moved from the Scheduled Coupe into the Logged Coupe category, because the evidence established that timber harvesting operations in that coupe had completed. However, the evidence of Mr Paul also establishes that some of the coupes identified by the applicant as Scheduled Coupes have in fact been subject to partial harvesting. Those coupes are identified at [176] of his second affidavit. They are Gun Barrel, Chest, White House and Vice Captain. At this point it should be noted that Gun Barrel, Chest and White House remain identified as "scheduled" on the maps at Court Book items 7.1A, 7.25D, 7.16D and 7.4D. Vice Captain is correctly identified as "scheduled" but "logging commenced" on the maps at Court Book items 7.1A and 7.9D. I also note that Camberwell Junction remains identified as "scheduled" but "logging commenced" on the maps at Court Book items 7.1A and 7.9D despite it now being classified as a Logged Coupe.

154 The parties produced a number of lengthy and detailed tables about the 66 coupes, which were of assistance to the Court but which pose some challenges in terms of describing their content in reasons for judgment. Since at least a part of the applicant's case (but not all of it) is based

on a coupe-by-coupe analysis, it will be necessary to descend to that level at some points in these reasons. In substance, VicForests sought to have the Court remain, in its analysis, at coupe level. However, that is not how the applicant's case has been pleaded and argued, and a broader assessment needs to be made.

155 It can be seen from the maps in the Court Book that the impugned coupes are, as a matter of geography, grouped. The groups are identified in the first column in Table 8 below. This issue has some significance for the parties' arguments. The aggregation of the coupes is said by the applicant to increase the likelihood of serious threat to the species' habitat, and the impact on the species.

156 A map showing the Logged Coupes and Scheduled Coupes in sufficient detail to identify them and their coupe "groups" is Attachment A to these reasons.

157 There are other divisions of the coupes which will also need to be considered, in particular as between those coupes where forestry operations are contended by the applicant to affect the Greater Glider, and those contended to affect the Leadbeater's Possum. As I have already noted, the habitat needs of the two species are quite different, and therefore it is not surprising that forestry operations in different areas of the Central Highlands forest are identified as having an impact, or posing a threat, to one species rather than both.

158 Table 8 indicates the coupes where the applicant alleges VicForests' forestry operations are likely to have had, or are likely to have, a significant impact on the Greater Glider (see the column headed "GG") or Leadbeater's Possum (see the column headed "LbP") or both. In these reasons:

(a) Logged Coupes where the applicant alleges VicForests' forestry operations are likely to have had a significant impact on the Greater Glider are called "Logged Glider Coupes";

(b) Logged Coupes where the applicant alleges VicForests' forestry operations are likely to have had a significant impact on the Leadbeater's Possum are called "Logged Leadbeater's Possum Coupes"; and

(c) Scheduled Coupes where the applicant alleges VicForests' forestry operations are likely to have a significant impact on the Leadbeater's Possum are called "Scheduled Leadbeater's Possum Coupes".

The applicant alleges that in each of the Scheduled Coupes VicForests' forestry operations are likely to have a significant impact on the Greater Glider, so there is no need to have a separate definition delineating those coupes from other Scheduled Coupes.

159 There are 17 Logged Glider Coupes, 15 Logged Leadbeater's Possum Coupes and 23 Scheduled Leadbeater's Possum Coupes. As stated above, there are 41 Scheduled Coupes, including 18 where the applicant only alleges significant impact on the Greater Glider.

160 It is not contested that Greater Gliders have been detected in or bordering each of the Logged Glider Coupes and all of the Scheduled Coupes, which includes Hairy Hyde, the coupe classified as both a Logged Coupe and a Scheduled Coupe. Leadbeater's Possums have been detected in or nearby each of the Logged Leadbeater's Possum Coupes and each of the Scheduled Leadbeater's Possum Coupes (again including the coupe Hairy Hyde). The detections are recorded on the map which is Attachment B to these reasons.

161 I note that Guitar Solo, one of the Logged Leadbeater's Possum Coupes, does not appear in the applicant's Annexure D to its closing submissions ("Assessment of harvest impacts on Leadbeater's Possum in Coupes subject of Leadbeater's Possum pleading"). However, I take this to be an inadvertent omission, as the Guitar Solo coupe plan records a Leadbeater's Possum colony within the coupe boundary.

162 At trial, VicForests did not contest any of the applicant's evidence about the detections of either species in any of the impugned coupes.

Table 8: List of coupes in issue in the proceeding

Coupe Group	Coupe Number	Coupe Name	Logging Status	GG	LbP
Acheron	309-507-0001	Mont Blanc	Logged	Yes	No
Acheron	309-507-0003	Kenya	Logged	Yes	No
Acheron	307-507-0004	The Eiger	Logged	Yes	No
Acheron	309-507-0007	White House	Scheduled	Yes	No
Ada River	348-517-0005	Tarzan	Logged	Yes	No
Ada River	348-518-0004	Johnny	Scheduled	Yes	Yes
Ada River	348-519-0008	Turducken	Scheduled	Yes	Yes
Ada Tree	344-509-0009	Ginger Cat	Logged	Yes	Yes
Ada Tree	348-506-0003	Blue Vein	Logged	Yes	Yes

Ada Tree	344-509-0007	Blue Cat	Scheduled	Yes	Yes
Baw Baw	483-505-0002	Rowels	Logged	Yes	No
Baw Baw	483-505-0018	Diving Spur	Scheduled	Yes	Yes
Beech Creek	300-524-0002	Waves	Scheduled	Yes	Yes
Beech Creek	300-539-0001	Surfing	Scheduled	Yes	Yes
Big River	290-527-0004	Camberwell Junction	Logged	Yes	No
Big River	290-525-0002	Vice Captain	Scheduled	Yes	No
Cambarville	312-510-0007	Bromance	Logged	Yes	No
Cambarville	312-510-0009	Lovers Lane	Logged	Yes	No
Coles Creek	297-538-0004	Home & Away	Scheduled	Yes	Yes
Hermitage Creek	307-505-0011	Guitar Solo	Logged	Yes	Yes
Hermitage Creek	307-505-0001	Drum Circle	Scheduled	Yes	No
Hermitage Creek	307-505-0009	Flute	Scheduled	Yes	No
Hermitage Creek	307-505-0010	San Diego	Scheduled	Yes	No
Kalatha Creek	298-509-0001	South Col	Scheduled	Yes	Yes
Loch	462-507-0008	Estate	Logged	Yes	No
Loch	462-506-0019	Brugha	Scheduled	Yes	No
Loch	462-507-0009	Jakop	Scheduled	Yes	No
Matlock	317-508-0010	Swing High	Logged	Yes	Yes
Mount Bride	345-526-0003	Louisiana	Scheduled	Yes	Yes
Mount Bride	345-526-0004	Bourbon Street	Scheduled	Yes	Yes
Mount Despair	298-516-0001	Glenview	Logged	Yes	No
Mount Despair	298-519-0003	Flicka	Logged	Yes	No
Mount Despair	298-502-0003	Chest	Scheduled	Yes	No
Mount Despair	298-510-0003	Bridle	Scheduled	Yes	No
New Turkey Spur	348-515-0004	Greendale	Logged	No	Yes
New Turkey Spur	348-504-0005	Gallipoli	Scheduled	Yes	Yes
Nolans Gully	297-505-0001	Goliath	Scheduled	Yes	Yes
Nolans Gully	297-509-0001	Shrek	Scheduled	Yes	Yes

Nolans Gully	297-509-0002	Infant	Scheduled	Yes	Yes
Nolans Gully	297-511-0002	Junior	Scheduled	Yes	Yes
Noojee	462-504-0004	Skerry's Reach	Logged	Yes	Yes
Noojee	462-504-0009	Epiphanie	Scheduled	Yes	No
Noojee	462-504-0008	Loch Stock	Scheduled	Yes	Yes
Rubicon	288-516-0007	Golden Snitch	Logged	No	Yes
Rubicon	288-516-0006	Hogsmeade	Logged	No	Yes
Rubicon	287-511-0006	Houston	Logged	No	Yes
Rubicon	287-511-0009	Rocketman	Logged	No	Yes
Salvage Creek	463-504-0009	De Valera	Logged	No	Yes
Snobbs Creek	288-505-0001	Dry Spell	Scheduled	Yes	No
Snobbs Creek	288-506-0001	Dry Creek Hill	Scheduled	Yes	No
South Noojee	462-512-0002	Backdoor	Scheduled	Yes	No
South Noojee	463-501-0005	Lodge	Scheduled	Yes	No
Starlings Gap	345-503-0005	Bullseye	Logged	No	Yes
Starlings Gap	345-505-0006	Hairy Hyde	Part logged, part scheduled	Yes	Yes
Starlings Gap	345-506-0004	Opposite Fitzies	Logged	No	Yes
Starlings Gap	345-504-0003	Smyth Creek	Scheduled	Yes	Yes
Starlings Gap	345-504-0005	Starlings Gap	Scheduled	Yes	Yes
Starlings Gap	345-505-0009	Blacksands Road	Scheduled	Yes	Yes
Sylvia Creek	297-526-0001	Gun Barrel	Scheduled	Yes	Yes
Sylvia Creek	297-530-0001	Imperium	Scheduled	Yes	Yes
Sylvia Creek	297-530-0002	Utopia	Scheduled	Yes	Yes
The Triangle	317-508-0008	Professor Xavier	Logged	No	Yes
Torbreck River	312-007-0014	Skupani	Scheduled	Yes	No
Torbreck River	312-508-0002	Splinter	Scheduled	Yes	No
Torbreck River	312-503-0002	Bhebe	Scheduled	Yes	No
Torbreck River	312-002-0006	Farm Spur Gum	Scheduled	Yes	No

THE PARTIES' CONTENTIONS IN SUMMARY

163 The parties' positions were explained in their outlines of submissions provided before the trial, and in oral openings. Aside from one matter, there was no dispute that the applicant's case remained the same after the closure of the evidence and in final submissions. VicForests' defence substantially altered shortly before the original dates set for trial. Thereafter, its position has remained consistent.

164 The pleadings are somewhat challenging. That is no criticism of the pleaders, but rather a recognition of the factual complexity of the issues, and of the complicated regulatory regime which surrounds the conduct of forestry operations in Victoria, together with the constructional challenges presented by provisions in the EPBC Act.

165 The parties then developed their respective positions in lengthy closing written submissions, with multiple annexures. The applicant's closing written submissions occupied 262 pages, including annexures. VicForests' closing written submissions occupied 264 pages, including schedules. The parties filed written replies of 25 and 23 pages respectively. In addition, the parties had addressed orally for two days, after the conclusion of the oral evidence and prior to the filing of closing written arguments. It is neither possible nor necessary in these reasons to refer to every point made by the parties, but I have attempted to capture the substance of their positions, and to deal with the detail in making the findings of fact and law necessary to resolve the allegations made by the applicant in its pleadings.

166 One matter which has made the Court's task rather more challenging is that in their substantial written closing submissions, neither party gave the Court any kind of summary of its key arguments, and how one flowed from, or into, another. This has meant the Court has needed itself to piece together the parties' submissions to understand not only their overarching framework, but also where there are disputes between the parties and where there are not.

167 In this section of my reasons, I do no more than highlight the main arguments made by the parties, and some of the key points at which their arguments diverged. It will be necessary later in these reasons to return to the more granular aspects of the parties' arguments. There are many twists and turns, and subtleties in the parties' arguments, in relation to s 38(1) in particular.

The applicant's case in summary

168 The key aspects of the applicant's allegations are as follows.

169 Following from the Separate Question reasons, and the wholesale re-pleading of the applicant's case, the applicant accepted that, in order for VicForests' forestry operations to lose the benefit of the exemption in s 38(1) of the EPBC Act, it needed to establish that VicForests did not undertake its forestry operations or did not propose to undertake its forestry operations "in accordance with" – that is, in compliance with – the substitute regime implemented pursuant to the CH RFA, located in the CH RFA itself and in the suite of applicable State regulatory schemes and instruments.

170 The applicant's case focused on two categories of non-compliance with the substitute regime:

(a) In relation to the Greater Glider only, non-compliance by VicForests with the obligation contained in cl 2.2.2.2 of the Code, being the requirement in its forestry operations to apply the precautionary principle to the conservation of biodiversity values. VicForests is required to comply with the Code by reason of s 46 of the SFT Act. The non-compliance with cl 2.2.2.2 was pleaded as non-compliance in relation to *each* of the individual coupes, and – alternatively – in relation to "*some or all*" of the coupes: see [113A] and [113H] of the third further amended statement of claim. These are the pleadings which are challenged by VicForests for their uncertainty. VicForests contends the applicant fails to identify – in the pleadings or even in its closing submissions – what are the particular forestry operations not undertaken "in accordance with" the CH RFA to which its allegations relate.

(b) Non-compliance with cll 2.2.2.4, 2.5.1.1 and 2.2.2.1 of the Code, which in turn refer to mandatory obligations arising under the Management Standards and Procedures. The parties referred to this collection of alleged non-compliant forestry operations as the "miscellaneous breaches", and I shall do the same. This category of non-compliance is coupe-specific, although some of the allegations involve a comparatively large number of coupes.

171 The focus of the applicant's case on s 38(1) was the argument in [170(a)] above. The miscellaneous breaches arguments played a somewhat secondary role in the trial, although they are fact-intensive to resolve, and it is necessary for the applicant to succeed in some of them in order for the s 38(1) exemption to be lost in all of the 66 impugned coupes.

172 The parties made competing submissions about the meaning, operation and effect of the precautionary principle itself, and cl 2.2.2.2. Much of this debate revolved around the approach

to the precautionary principle taken by the Supreme Court of Victoria in the *Brown Mountain* case, and whether that approach was correct and ought to be adopted by this Court.

173 Much of the expert evidence was devoted to supporting the parties' respective cases about whether (if, as the applicant contended and VicForests disputed, VicForests was required to) VicForests had complied with cl 2.2.2.2 in its forestry operations in the Logged Glider Coupes and Scheduled Coupes and the effects of those operations on the Greater Glider. At [371] of its closing written submissions, the applicant summarised its contentions on this key issue:

> a. The allegation is that VicForests will use the method of silviculture that it has designated in its own TRP as the method that will be used in each coupe, i.e. clearfelling, seed tree retention and regrowth retention harvesting, will not survey for Greater Glider or its habitat, and will not apply any protective prescriptions to detections of Greater Glider or high quality habitat identified in the coupes;
>
> b. VicForests has used the clearfell, seed tree, or regrowth retention harvesting method in all of the logged coupes, surveyed none of them for Greater Gliders or their habitat, and applied no effective prescriptions to detections or Greater Glider habitat;
>
> c. VicForests has, while this proceeding has been on foot, continued to harvest coupes in the Central Highlands with Greater Gliders and Leadbeater's Possums present using clearfelling, seed tree retention and regrowth retention harvesting, and has no proposal to apply any effective prescriptions to Greater Glider detections, to survey for Greater Gliders or their habitat, or to protect high quality habitat.

174 At [37] of its closing written submissions, the applicant summarised its case about s 38(1) in the following way (with my emphasis in bold to delineate the three categories of allegation, and underlining in the original):

> The manner in which the Applicant's case is pleaded is that:
>
> a. The **management of and harvesting of the trees in the <u>logged</u> coupes** failed to comply with a number of provisions of the Code and therefore was not undertaken in accordance with the RFA and was not exempt under s 38;
>
> b. The **management of the trees in the <u>scheduled</u> coupes** has failed and continues to fail to comply with cl 2.2.2.2 of the Code, such that those forestry operations have not been and are not being undertaken in accordance with the RFA and are not exempt under s 38;
>
> c. The **proposed harvesting of the trees in the <u>scheduled</u> coupes,** like the actions that have preceded such harvesting, will fail to comply with cl 2.2.2.2 of the Code, and therefore will not be undertaken in accordance with the RFA and will not be exempt under s 38.

175 VicForests contends that, to the extent the above summary of the applicant's case targets the *management* of trees in the Logged Coupes and Scheduled Coupes by reference to the Timber

Release Plan, the Pre-harvest Biodiversity Survey Instruction and the Interim Greater Glider Strategy, it is not covered by the applicant's pleadings and is a "new case". I address this issue in further detail later in these reasons.

176 At [577] of its closing written submissions, the applicant explained its contentions about the consequences of the loss of the s 38(1) exemption in the following way (again with my emphasis in bold, and underlining in the original):

> The exemption is lost for the whole of the forestry operation which is affected by the breach.
>
> a. Where it is a **breach of cl 2.2.2.2** in relation to the identification of coupes on the TRP, Pre-Harvest Biodiversity Survey or the Interim Greater Glider Strategy, **the exemption is lost for all coupes in which the Greater Glider is or may be present** (or, alternatively, seriously or irreversibly damaged) (here, the evidence is clear, Greater Gliders were <u>actually present</u> in 56 of the coupes in issue, no question of "may be present" arises);
>
> b. Where it is a **breach only in relation to the planning or harvesting of a particular coupe** – i.e. the failure to identify and protect a particular biodiversity value, **the exemption is lost for that coupe** because the breach affected the planning or harvesting of that coupe.

177 In written reply submissions, the applicant contended (at [92]):

> Sections 18 and 38(1) are not co-extensive: see [8]-[9] above (cf VCS [493]-[494]). A series of forestry operations may lose the exemption under s 38(1). The Court can then consider that series of activities (or project, or undertaking) as one action having one significant impact.

178 In other words, the applicant contends that once the s 38(1) exemption is lost, for whatever reason, then the whole of VicForests' forestry operation(s) (as that terms applies on the facts – either in a particular coupe or more broadly) is exposed to the prohibition in s 18 of the EPBC Act for all purposes: that is, not just in relation to how that forestry operation might impact on, for example, the Greater Glider.

179 On the contended basis that it had proven loss of the s 38(1) exemption in relation to all of the Logged Coupes and Scheduled Coupes, the applicant then submitted that VicForests' forestry operations in all of the 66 coupes were exposed to the prohibitions in s 18 of the Act. It was common ground there was no approval given by the Minister to VicForests under Pt 9 of the EPBC Act. Therefore, the question was, the applicant contended (and as if s 38 "did not exist"), whether VicForests' forestry operations in the Logged Coupes and Scheduled Coupes were likely to have had, or were likely to have, a significant impact on the Greater Glider and on the Leadbeater's Possum, so as to engage the prohibition in s 18.

180 The initial question, and one to which the parties brought competing approaches, was how VicForests' forestry operations were to be assessed for the purposes of s 18, which does not use the language of forestry operations, but of "action". This is another key issue between the parties. At [586]-[589] of its closing submissions, the applicant put its argument in the following way:

> The Applicant's case in respect of significant impact has been pleaded on multiple levels: the Applicant has pleaded that forestry operations in each, some or all coupes, logged or scheduled or logged and scheduled, constitutes a single action (third further amended statement of claim CB 11A at [17-17A], [31-31A], [41-41A], [72-72A]). Thus, for example, the Court may consider as one impact the impact of:
>
> a. one logged coupe; or
>
> b. all the logged coupes; or
>
> c. one scheduled coupe; or
>
> d. all the logged coupes and one scheduled coupe; or
>
> e. all the logged and all the scheduled coupes.
>
> VicForests has admitted that forestry operations in each, some or all coupes, logged or scheduled or logged and scheduled, constitute an action (Further Amended Defence to Second Further Amended Statement of Claim CB 1.14 at [17-17A], [31-31A], [41-41A], [72-72A]).
>
> Contrary to that position, VicForests attempted to argue in oral closing submissions that the Applicant had only pleaded its case on the basis of establishing significant impact in individual coupes. That is clearly not the case when regard is had to the pleadings, and the Applicant submits that VicForests cannot now resile from the admissions made in the pleadings.
>
> The Applicant's position is therefore that there is no need to make further submissions in relation to the word "action" given the admissions made by VicForests.
>
> (Original emphasis.)

181 In respect of s 18 and the Greater Glider, the applicant relied heavily on the evidence of its species expert Dr Smith (as it had in its s 38(1) arguments). Its argument proceeded, as its argument on s 38(1) had done, on the premise that VicForests had carried out, and proposed to carry out, forestry operations in the Logged Coupes and Scheduled Coupes which were properly described as "high intensity forestry operations". The points the applicant made in relation to significant impact were set out at [604] of its closing written submissions, and included matters such as:

(a) the listing of the Greater Glider in the Vulnerable category under the EPBC Act for reasons of population decline, read with the population decline nationally as described

in the Conservation Advice (including the estimated 87% decline in the Greater Glider over a 22-year period);

(b) Dr Smith's opinion that forestry operations are primarily responsible for the species' decline in the Central Highlands;

(c) there is no protective prescription for the Greater Glider in the CH RFA area (in contrast to the East Gippsland RFA region);

(d) the current Reserve System (including Special Protection Zones (**SPZs**)) has not been effective to protect the Greater Glider, given the decline in the Greater Glider population since the introduction of the Reserve System;

(e) the 2009 fires had the effect of reducing the available habitat for the Greater Glider and thereby increasing the value of the remaining habitat;

(f) there were/are significant numbers of Greater Glider in the Logged Coupes and Scheduled Coupes (with detections in 56 out of the 66 coupes), indicating that – regardless of what habitat mapping might say (and this was another issue between the parties) – the Greater Glider was in fact using the forest in these coupes;

(g) by reference to Dr Smith's field observations, each and every coupe contains habitat that is of high value to the Greater Glider;

(h) that recent intensive harvesting shown in the parties' agreed logging history maps is both extensive and intensive in proximity to the coupes the subject of the proceeding and across the Central Highlands, and Dr Smith's opinion that "'overharvesting' by clear-felling and ecologically unsustainable harvesting methods" (namely, conversion of uneven aged Mixed Species forests to even age stands) is the "greatest" threat to the future recovery of the Greater Glider. Further, Dr Smith's opinion in relation to Ash forest, in which he noted a historic low of old growth (3%) that is causing declines of hollow-dependent fauna including Greater Glider and threatening their persistence in the long-term. In order to re-balance this age structure to provide for hollow-dependent fauna (including the Greater Glider), Dr Smith's opinion is that it is necessary to protect remaining 1939 Ash stands, which (like the Mixed Species stands) are the targets for forestry operations in the Logged Coupes and Scheduled Coupes;

(i) Dr Smith's account of VicForests' significant non-compliance with existing prescriptions for forestry operations. This is the departure between policy and reality, on which the applicant placed considerable reliance in its case;

(j) a general decline in hollow-bearing trees in the CH RFA area as a result of fire, natural decay and forestry operations, and the correlating need to preserve what hollow-bearing trees remain, in a way which would best ensure their continued use by hollow-dependent fauna (including the Greater Glider, and the Leadbeater's Possum);

(k) a lack of accurate mapping information as to Greater Glider habitat, its critical resource (hollow-bearing trees), and forest age classes in the CH RFA area;

(l) the inability of the Greater Glider to move into new areas of forest and the low reproductive output of the Greater Glider;

(m) the scientific uncertainty relating to the total Greater Glider population, genetic diversity, important populations, and the existence and distribution of habitat critical to the survival of the Greater Glider; and

(n) interference of forestry operations with the recovery of the species.

182 The applicant submitted:

> That context renders the Greater Glider far more vulnerable (than if, for example, the species or its habitat was present in abundance, there were protections in place to protect the Greater Glider, it was able to move into new forestry or [it was] of high reproductive output). Given that context, the Applicant submits that there can be no question that the impact on the Greater Glider of forestry operations in the logged and scheduled coupes has been and will be, notable, important or of consequence, and is indeed "significant" for the species' long term survival.

183 As to the Leadbeater's Possum, the applicant relied heavily on its species expert, Professor Woinarski. The applicant contended that VicForests' logged and scheduled forestry operations were likely to (or would):

> a. lead to a long-term decrease in the size of the population;
>
> b. adversely affect habitat critical to the survival [of] the species;
>
> c. modify, destroy, remove, or decrease the availability or quality of habitat to the extent that species is likely to decline;
>
> d. interfere with the recovery of the species.

184 The applicant's submissions about the significance of the impact on the Leadbeater's Possum were set out at [629]-[717] of its closing written submissions, and included matters such as the following:

(a) Leadbeater's Possum as a species has a small population in rapid decline, declining at a rate of 80% over three possum generations from 1997-2015, and with a projected future decline of at least 80% over the next three possum generations from 2016-2034.

These projections take into account the current prescriptions for timber harvesting as they apply to Leadbeater's Possum.

(b) In Professor Woinarski's opinion, the most important threat to the Leadbeater's Possum is loss, fragmentation and reduction in quality of suitable habitat. Principal causes for this are wildfire and timber harvesting. Other threats include climate change (likely to have direct and indirect impacts through increasing the probability and frequency of severe wildfire events), decreased genetic diversity (leading to inbreeding depression) arising from fragmentation of the population into small isolated subpopulations, and predation by feral cats.

(c) Current prescriptions (the existing Reserve System, 200 m buffers, protection of forest mapped as Zone 1A and 1B habitat) are not sufficient to prevent impacts from timber harvesting. In particular, the 200 m buffer is insufficient as it may not encompass all the area in which individuals of that possum colony move, or all of the habitat area on which that colony depends.

(d) The existing Reserve System (whether considered together or separately from timber harvesting prescriptions) is not stopping or slowing the species' decline, let alone allowing recovery of the species. In particular, reliance on the Reserve System takes no or insufficient account of the reality of increasing extensive and severe wildfires, including in particular the 2009 fires in Victoria (which, Professor Woinarski opined, burnt about 45% of the Leadbeater's Possum Reserve System).

(e) The fact that after timber harvesting food resources for the Leadbeater's Possum (Acacia) regenerate relatively quickly does not mitigate or reduce the significant impact, because food resources alone are insufficient for the Leadbeater's Possum unless accompanied by suitable numbers of hollow-bearing trees. Preserving suitable numbers of hollow-bearing trees means restricting harvesting of the 1939 regrowth (being the cohort of trees which will provide the next major source of hollows in the future), and which is a key target for harvesting.

(f) Presence of Leadbeater's Possum in, or in proximity to, each of the coupes identified by the applicant as the subject of the Leadbeater's Possum allegations, and Professor Woinarski's opinion that harvesting in *any* coupe in which Leadbeater's Possum occurs modifies, destroys, removes and decreases the availability or quality of habitat immediately and into the future, in circumstances where all current and prospective suitable habitat is critical for the survival of the Leadbeater's Possum, and

necessary for its recovery, given its current status as Critically Endangered, and its predicted severe ongoing decline, including significant risks of extinction.

VicForests' response in summary

185 While accepting, for the purposes of the trial at least, that s 38(1) has the operation identified in the Separate Question reasons, VicForests challenged the applicant's identification of the two categories of non-compliance with the substitute regime in different ways. In other words, VicForests did not accept that either category of alleged non-compliance could result in the loss of the s 38(1) exemption.

186 In relation to cl 2.2.2.2, VicForests contended that the obligation in cl 2.2.2.2 was "in a different category to those prescriptions capable of clear and objective practical application". It submitted cl 2.2.2.2 does not direct any particular outcome, and this makes it an evaluative standard, not susceptible to being the kind of matter which could lead to the loss of the s 38(1) exemption.

187 In the alternative, if, against its primary submission, cl 2.2.2.2 did impose an obligation which, if there was sufficient non-compliance, was capable of resulting in the loss of the s 38(1) exemption, then VicForests made a number of contentions about the nature, operation and application of the precautionary principle to the impugned forestry operations. First, it contended that the correct approach to the meaning and application of the precautionary principle was set out by the Supreme Court of Victoria in *Brown Mountain*, including by reference to what was said by Preston CJ in *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; 67 NSWLR 256 (***Telstra***). This in turn meant, VicForests submitted, that the applicant has to establish the two cumulative "preconditions" to the precautionary principle are engaged in relation to its forestry operations in the Logged Coupes and Scheduled Coupes: first, that there is a threat of serious or irreversible environmental damage; and second, that there is scientific uncertainty as to the environmental damage.

188 VicForests then contended the applicant's evidence did not establish either of the two preconditions were met in relation to the Greater Glider. Relying in large part on the opinions of its expert Dr Davey, it made submissions about why there was no threat of serious or irreversible environmental damage, including the following:

(a) The Greater Glider was listed as a threatened species under the EPBC Act because it met only one listing criterion, namely population size reduction.

(b) The species has a wide distribution along the east coast of mainland Australia, occurring over a large area, estimated at 1,586,870 km², and occupying an estimated 16,164 km². VicForests submitted the total nett area of the Scheduled Coupes constitutes a very small percentage of the total area of habitat occupied by the Greater Glider (said by VicForests to be 0.056%). VicForests contended Dr Smith did not take account of the species' wide distribution, adequately, or at all. Even if the Greater Glider population in the CH RFA region was "important", VicForests contended there was no evidence that "a threat to an important population will nevertheless constitute, or is likely to constitute, a threat of significant or irreversible harm to the Greater Glider across its total distribution and range".

(c) There are no "robust" estimates about population size or population trends across the species' total distribution, and any estimates of total rates of decline are the product of "extrapolations from declines in numbers, occupancy rates and extent of habitat at individual sites".

(d) Any threat cannot be described as "irreversible" because there is no evidence that VicForests' proposed forestry operations are likely to result in the extinction of the Greater Glider across its species range or distribution.

(e) According to Dr Davey, the preferred habitat of the Greater Glider – high elevation mature and old-growth Mountain Ash and Mixed Forests – is well-represented in the CAR reserve system in the Central Highlands, as are other Ash forest types and low elevation Mixed Species forest, where the Greater Glider is also found.

(f) In Dr Davey's opinion, Victoria's "systems and processes for conservation and management of biodiversity and ecologically sustainable forest management" are "good", including the draft Greater Glider Action Statement and Interim Greater Glider Strategy, which are "providing guidance and enhancing those systems and processes pending finalisation of a Greater Glider Recovery Plan".

(g) Finally, and a major plank of VicForests' response to various aspects of the applicant's case:

> [I]n respect of the Scheduled Coupes, VicForests' primary position is that there are no sufficiently advanced plans in respect of VicForests' forestry operations in those coupes that enable this Court to properly analyse any threat of serious or irreversible damage such as to engage the precautionary principle.

189 On VicForests' argument, there was also no, or no considerable, scientific uncertainty, being the second of the two preconditions to the engagement of the precautionary principle.

Somewhat ironically, on this part of its case, VicForests relied on the evidence of Dr Smith, whose evidence it otherwise urged the Court to discount or disregard. Somewhat counter-intuitively, it submitted (at [357]-[358] of its closing written submissions) that:

> If the Court accepts this evidence of Dr Smith, then the second condition precedent is not satisfied and the precautionary principle has no application. The threat of serious or irreversible environmental damage would be found to be relatively certain because (accepting Dr Smith's evidence) it is possible to establish a causal link between an action or event and environmental damage.
>
> Such a finding would not preclude appropriate action being taken, but these would be *preventative* measures to control or regulate the relatively certain threat of serious or irreversible environmental damage, rather than *precautionary* measures which are appropriate in relation to uncertain threats. Preventative measures could include an authorised officer issuing a direction or suspension notice under the SFT Act if they form the view that continuation of a timber harvesting operation would cause imminent damage to the environment.
>
> (Original emphasis; footnote omitted.)

190 Further, relying again on *Brown Mountain*, and the adoption of the approach of Preston CJ in *Telstra*, VicForests' submissions appeared to involve the proposition that even if those preconditions were satisfied, cl 2.2.2.2 obliged VicForests only to take precautionary measures which were proportionate to the anticipated threat, and the measures the applicant proposed, especially through Dr Smith, were disproportionate, and did not reflect the balance struck between the economic and social objectives inherent in permitting timber harvesting in native forests, and the protection and conservation of biodiversity values.

191 In substance, VicForests appeared to contend that the existing measures, reflected in the Code and the Management Standards and Procedures, were and are proportionate and sufficient in the circumstances, especially when considered through the prism of it moving "towards a more adaptive suite of silvicultural practices and the [Forest Stewardship Council] certification process and that VicForests' own high conservation values identification and management process is undergoing change". The precautionary principle should not be used to avoid all risks, it submitted.

192 VicForests adopted the same approach to that I have set out above in its submissions concerning whether it did not comply with cl 2.2.2.2 in the Logged Glider Coupes, noting that it maintains no relief can flow in respect of the Logged Coupes (generally) unless the Court grants injunctions under s 475(2) in respect of the Scheduled Coupes: see [202]-[213] below. In these arguments, it also relied on Dr Davey's opinion that there had been a relatively limited impact on the Greater Glider arising from its forestry operations in the Logged Glider Coupes.

193 VicForests also made several distinct arguments as to why there was no non-compliance with cl 2.2.2.2 which could result in the loss of the s 38 exemption.

194 First, that there are no sufficiently advanced plans concerning any forestry operations in the Scheduled Coupes for the Court to make findings about the seriousness or irreversibility of any threat, for the purposes of then making findings about whether cl 2.2.2.2 is engaged in relation to the Scheduled Coupes, or whether VicForests is likely not to comply with cl 2.2.2.2 in any proposed forestry operations in those coupes. This was a substantial aspect of VicForests' response to the applicant's main case on the loss of the s 38(1) exemption, and VicForests foreshadowed that it would form a major part of its case on relief, if the applicant succeeded on s 38(1) and s 18 in relation to the Scheduled Coupes. In its submissions, VicForests drew parallels with the circumstances and outcome of the case of *MyEnvironment*. An appeal of that decision was dismissed in *MyEnvironment Inc v VicForests* [2013] VSCA 356; 42 VR 456.

195 Second, and contrary to the applicant's reliance on evidence about VicForests' forestry operations in a range of previously logged coupes in the CH RFA, VicForests submitted:

> To the extent that this Court uses evidence as to the method and manner of timber harvesting in the Logged Coupes, and 19 coupes harvested since 31 August 2018 which are not the subject of this proceeding, to draw inferences as to the method and manner by which the Scheduled Coupes would be planned, surveyed and harvested using the "existing systems", that would impermissibly involve speculation in circumstances where the applicant cannot establish that is the more probable inference to be drawn.
>
> (Footnotes omitted.)

196 In the alternative, VicForests contends that the evidence which has been adduced does not prove that the manner in which VicForests conducted those forestry operations posed any threat of serious or irreversible damage to the Greater Glider, from which an inference about how it would conduct its forestry operations in the Scheduled Coupes could be drawn. The evidence is not capable of supporting that inference for the additional reason, VicForests submits, that its "planning and harvesting methods are in the process of changing from the traditional or 'existing systems', towards a more adaptive suite of silvicultural practices". It also submits that, as part of these changes, the Court can also infer the Scheduled Coupes will in fact be surveyed for Greater Glider (and other species).

197 Third, VicForests relies on the operation of cl 1.3.1.1 of the Management Standards and Procedures, which it describes as a deeming provision, and which it contends:

> provides that operations that comply with the Management Standards and Procedures

are deemed to comply with the Code, and thus cl 2.2.2.2 itself.

(Footnote omitted.)

198 As to the miscellaneous breaches, while its overall position (see VicForests' closing written submissions at [121]-[134]) would appear to lead to acceptance that such conduct could lead to loss of the 38(1) exemption because the prescriptions invoked by the applicant in this category were "clauses that constitute specific and practical regulation of timber harvesting", VicForests contended either that there was compliance, or substantial compliance, with the identified prescription; that the allegation of breach was based on a misunderstanding or misconstruction of the prescription itself; that the weight of the evidence established there was no breach; or that the applicant's evidence was insufficient to establish the alleged breach.

199 At various points in its submissions, VicForests makes something of the way in which the applicant pleads its case. Where necessary, I deal with those submissions in the context in which they arise. It also alleges the pleadings lack clarity, to the point of contending, in reliance on the Full Court's decision in *Oztech Pty Ltd v Public Trustee of Queensland* [2019] FCAFC 102; 269 FCR 349 at [29]-[32], that neither VicForests nor the Court knows "which coupes form part of a particular coupe group at any point in time, and therefore whether the concept of an action for the purposes of s 18 of the EPBC Act applies to forestry operations in a coupe group".

200 For my own part, I have no difficulty in understanding how the applicant has framed its case, and I do not accept that VicForests has experienced any such difficulty. It met the legal arguments, and developed arguments of its own. It met the applicant's evidence, and adduced evidence with the focus it considered, as a forensic matter, would best advance its position. Aside from the "coupe group" issue mentioned above, and an issue about the applicant's reliance on the Timber Release Plan, the Pre-harvest Biodiversity Survey Instruction and the Interim Greater Glider Strategy (see [987]-[1075] and [1118]-[1126] below), it did not complain that it was taken by surprise, or unable to deal with any evidence or argument. The applicant's case has always been put on the basis that VicForests' forestry operations in all or some of the impugned coupes are, first, not subject to the s 38 exemption and, second, likely to have a significant impact on each of the species. It has also always made it clear that it could prove its case by reference to individual coupes. It is inherent in the nature and subject-matter of the manner in which VicForests' forestry operations are conducted by reference to coupe-by-coupe harvesting, and the operation of the EPBC Act, that these allegations were likely to

be pleaded in several alternatives, and without the applicant placing all its eggs in the basket of one particular combination of impugned coupes.

201 There is a point at which submissions about the details of pleadings do no more than make lawyer's points, which may obscure the real issues in dispute between the parties, rather than assist to identify them. I note the observations I made in *Wotton (No 5)* at [61]-[64], by reference to the approach of Allsop J (as his Honour then was) in *Baird v Queensland* [2006] FCAFC 162; 156 FCR 451: in particular, the ease in which a Court may "get lost in the detail of a proceeding" and "pay insufficient attention to the real controversy between the parties" and, as Allsop J stated, the importance of the Court striving to ascertain what is "thrown up for debate and consideration" by the case as it has been framed, whilst acknowledging the importance of holding a party to the party's "case". That is, in part, why the Court now encourages the use of concise statements in many proceedings. While this was a proceeding which certainly required pleadings, it would not do justice as between the parties, nor address the real issues in dispute between the parties, for the Court to accept VicForests' invitation to take a magnifying glass to the text of the third further amended statement of claim, and dissect it.

THE RELIEF SOUGHT

202 Although in general terms the trial proceeded on the basis that the parties would be given an opportunity to address questions of relief if and when those issues arose after the Court had made its findings on the applicant's allegations of fact and law, the parties did address questions of relief in their respective submissions, and their positions should be outlined. In particular that is because of the debate about how the relief available under the EPBC Act may affect the cause of action available. The debate centres on the operation of s 475 of the EPBC Act.

203 By amendments made to its originating application prior to trial, the applicant seeks declaratory relief, as well as the injunctive relief it has always sought. It seeks:

> A declaration of right pursuant to s 21 of the *Federal Court of Australia Act 1976* (Cth) that:
>
> a. the Respondent has breached s 18(2) of the EPBC Act by reason of its forestry operations in the Logged Leadbeater's Possum Coupes (as defined in the Third Further Amended Statement of [Claim]); and
>
> b. the Respondent has breached s 18(4) of the EPBC Act by reason of its forestry operations in the Logged Glider Coupes (as defined in the Third Further Amended Statement of [Claim]).

204 VicForests did not dispute the Court had jurisdiction to grant declaratory relief, although it submitted there were no "foreseeable consequences" for the parties from such relief and it should not be granted.

205 The applicant also seeks two orders requiring VicForests to mitigate the damage it alleges has occurred by reason of VicForests' contraventions of s 18 of the EPBC Act:

> An order pursuant to s 475(3) of the EPBC Act that the Respondent set aside an area of forest that is protected from logging in order to mitigate the significant impact on the Leadbeater's Possum caused by the Respondent's contraventions of s 18 of the EPBC Act.
>
> An order pursuant to s 475(3) of the EPBC Act that the Respondent set aside an area of forest that is protected from logging in order to mitigate the significant impact on the Greater Glider caused by the Respondent's contraventions of s 18 of the EPBC Act.

206 As to the injunctive relief, the applicant seeks:

> An injunction pursuant to s 475(2) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) restraining the Respondent from:
>
> a. undertaking; or
>
> b. authorising;
>
> any forestry operations in the scheduled coupes in contravention of s 18 of the EPBC Act.

207 VicForests contends no injunctive relief can be granted in respect of the Scheduled Coupes based on contraventions of s 18 in the Logged Coupes. That is because, VicForests submits, the scope of s 475(2) is limited to restraining "the conduct" which constitutes the contravention of s 18. Due to the lack of precision surrounding the proposed forestry operations in the Scheduled Coupes, the applicant cannot demonstrate the conduct sought to be restrained is the same allegedly contravening conduct engaged in by VicForests in the Logged Coupes.

208 Similarly, VicForests submits that to the extent the applicant seeks to secure an injunction in relation to the Scheduled Coupes on the basis VicForests proposes to engage in contravening conduct in the Scheduled Coupes, the applicant must, VicForests contends, prove contraventions of s 18 and it will only be in relation to coupes where there are proven contraventions that injunctive relief will be available.

209 To this, VicForests adds the submissions that because the evidence shows VicForests' forestry operations in the future will be conducted on a quite different basis, and because plans for proposed forestry operations in those coupes are "incomplete, undeveloped or hypothetical",

the elements of the proposed conduct "cannot be ascertained with sufficient certainty". VicForests contends that, as a consequence, the Court cannot assess whether the proposed conduct will attract the s 38 exemption or contravene the EPBC Act, and as such it has no jurisdiction to grant an injunction on this basis.

210 The applicant puts forward a broader construction of s 475. It submits s 475(2), read with s 475(1), engages this Court's jurisdiction in relation to

> past conduct ("has engaged"), present conduct ("engages") or future conduct ("proposes to engage").

211 Injunctive relief is available under s 475(2), the applicant submits, if the Court is satisfied a person has engaged *in any one* of those three kinds of conduct. This is critical because if VicForests is correct, then the Court's findings about the Logged Coupes could not, on VicForests' construction of s 475, sound in any relief under the EPBC Act, and the applicant would be left to persuade the Court to grant relief under s 21 of the Federal Court Act, and (possibly) s 23 of the Federal Court Act in relation to injunctive relief, which might face a number of discretionary hurdles if no relief under the EPBC Act is available.

212 The applicant disputes both VicForests' submissions on the law, and on the evidence, to the effect that there is too much uncertainty about its proposed forestry operations to found injunctive relief. At [13] of its closing written submissions, the applicant contends:

> The fact that the conduct has not yet occurred is no bar to an injunction under the Act. That is particularly so when much of the purported uncertainty is generated by VicForests itself as a deliberate, but unattractive strategic attempt to shield its conduct from the scrutiny of the Courts. VicForests halted *planning* due to the case but plans to harvest the scheduled coupes after the case (Paul, T212.25-213.9 and 303.25-.32).
>
> (Original emphasis.)

213 It is not appropriate in these reasons to make any findings about whether injunctive relief should or should not be granted. However, it is appropriate to make findings about the parties' competing constructions of s 475(2), as this will assist the parties in discussing and agreeing, if possible, on appropriate orders to reflect the Court's reasons. The availability of injunctive relief and its scope as a matter of law under s 475(2), as opposed to *whether* it should be granted, was a matter fully addressed by the parties and on which the Court should express its conclusions at this stage.

THE EVIDENCE

214 The evidence is voluminous, but the parties did their best to reduce the material which was ultimately tendered.

The documentary evidence

215 The documentary evidence included documents relating to the CH RFA, the Victorian regulatory framework, the process of allocating timber resources in native forests, and VicForests documents such as its relevant policies and procedures, its planning documents for the Timber Release Plans and for the harvesting of individual coupes, its post-harvesting documentation and documentation relating to the proposed changes in its silvicultural practices, stemming from assessments and audits conducted in 2014 and 2017/2018 in its attempt to obtain Forest Stewardship Council (**FSC**) certification. The applicant adduced considerable documentation, as well as photos and videos, relating to detections of both the Greater Glider and the Leadbeater's Possum in or around the impugned coupes. There were a considerable number of maps (ranging from coupe to broader landscape level), relating to various aspects of VicForests' forestry operations, to vegetation and topography, and also detections of Greater Glider and Leadbeater's Possum. Despite some minor inaccuracies about which coupes were scheduled or logged or partially logged, the accuracy of all maps tendered was eventually agreed between the parties, which was no small task and the Court is grateful to the parties for that level of cooperation. There was also a range of what could be described as biodiversity conservation materials, including documents produced under the EPBC Act or the State conservation legislation, DELWP or VicForests documents relating to biodiversity conservation and secondary sources concerning the status of and threats to the Greater Glider and the Leadbeater's Possum.

The tendency evidence

216 On the first day of the trial, the applicant filed a notice of intention to adduce tendency evidence under s 97(1) of the Evidence Act. The notice identified the tendency as:

> 2. The Applicant seeks to rely upon the tendency of the Respondent to act in a particular way, namely:
>
> a. to conduct forestry operations in the Central Highlands Regional Forest Agreement Area (**CH RFA Area**), using Clearfell and Seed Tree Retention and Regrowth Retention Harvesting methods (**the existing systems**).

217 The applicant identified the issues in the proceeding to which VicForests' alleged tendency was relevant as follows:

> 3. The issues in the case to which Tendency Reasoning applies are:
>
> a. the Respondent's assertion that it has determined to shift from the predominant use of the existing systems to a more adaptive suite of silvicultural systems and regeneration treatments;
>
> b. the claim by the Applicant for injunctive relief in respect of the scheduled coupes.
>
> 4. The tendency set out at paragraph 2 is relied upon in support of the Applicant's contention that the Respondent will continue conducting forestry operations in a way that:
>
> a. does not adhere to the *precautionary principle* as defined in the Code of Practice for Timber Production 2014 and as required by cl 2.2.2.2 of the Code (**the first critical question of fact in the proceeding**); and
>
> b. will or is likely to have a significant impact on a listed threatened species (**the second critical question of fact in the proceeding**); and
>
> c. as a result, requires injunctive relief from the Court (**relief sought**).

218 The evidence relied upon by the applicant to support the alleged tendency was summarised in a table contained in the notice. In substance, the evidence concerned detections of Greater Glider and Leadbeater's Possum in coupes, the reporting of those detections to DELWP and VicForests, evidence establishing the silvicultural methods used to harvest the coupes, and the absence – on the applicant's case – of any or any adequate prescriptions and protections reflecting those detections. It included evidence about a range of coupes not otherwise the subject of the proceedings. For the purpose of the tendency arguments, the parties accepted that a ruling on the admissibility of three affidavits contained in the notice would flow through to the other tendency evidence: the affidavit of Jake Ross McKenzie of 24 March 2019, the affidavit of Hayley Samantha Forster of 24 March 2019, the affidavit of Andrew Stephen Lincoln of 25 March 2019 and certain annexures to those affidavits.

219 VicForests objected to the applicant relying on this evidence, but that objection was overruled with reasons given at the time. The applicant placed some considerable weight on this evidence in its submissions both about s 38 and about s 18, and I consider it below.

The applicant's evidence

220 There was no oral evidence adduced from any lay witnesses on behalf of the applicant, but there were several affidavits filed. In particular, as I have noted, these affidavits dealt with

detections of the two species in the impugned coupes (as well as coupes not the subject of the proceeding), and the reporting of those detections to DELWP and VicForests.

221 The deponents of these affidavits about detections were:

(a) Jake Ross McKenzie;

(b) Blake Thomas Nisbet;

(c) Nathan Paul Wainwright;

(d) Andrew Stephen Lincoln; and

(e) Hayley Samantha Foster.

222 The applicant read more than one affidavit from several of these witnesses. Many of the affidavits had photos and video files annexed to them, as well as maps showing the location of the detections in and around various coupes.

223 The applicant also read several affidavits from the solicitor for the applicant, Danya Jacobs. These affidavits generally dealt with correspondence with VicForests and its solicitors, and also with DELWP, and documents obtained from VicForests, such as the Interim Greater Glider Strategy and coupe plans for the impugned coupes.

224 The applicant's expert witnesses were:

(a) Dr Rodney van der Ree, an ecologist;

(b) Mr Stephen Mueck, a botanist;

(c) Dr Andrew Peter Smith, an ecologist;

(d) Dr Dean Nicolle, a botanist;

(e) Mr Mark Shepherd, an environmental scientist with expertise in Geographic Information Systems; and

(f) Professor John Casimir Zichy Woinarski, a conservation biologist.

225 Mr Mueck, Dr Smith and Professor Woinarski were the only expert witnesses required for cross-examination.

226 Mr Mueck gave opinion evidence about the presence of Tree Geebungs in Skerry's Reach coupe in relation to one of the miscellaneous breaches of the Code for which the applicant contended. He also gave some evidence about retained vegetation and gaps required by the Code between retained vegetation, another of the miscellaneous breaches of the Code alleged

by the applicant. There was very limited cross-examination of his evidence, and no challenge to his expertise. I found him a reliable witness.

VicForests' evidence

227 VicForests' lay witnesses were:

(a) William Edward Paul, the Manager of Environmental Performance at VicForests;

(b) Timothy Charles McBride, the Manager of Biodiversity Conservation and Research at VicForests; and

(c) Andrew McGuire, the Regional Manager, North East Region at VicForests.

228 VicForests also relied on an affidavit affirmed by Natalie Naylor on 8 March 2019. Ms Naylor is General Counsel at VicForests. The purpose of the affidavit was to provide the Court with an explanation for the redactions in documents exhibited to Mr Paul's fourth affidavit.

229 I describe Mr Paul's evidence at [256]-[353] below. He was the key witness for VicForests in terms of how its forestry operations are planned and conducted. Mr McBride's evidence dealt with, in particular, the development of VicForests' Interim Greater Glider Strategy. Mr McGuire's evidence consisted of adducing a particular coupe plan, and describing timber harvesting operations in certain coupes, and he was not required for cross-examination. Mr Paul and Mr McBride were cross-examined.

230 As to Mr McBride, whose qualifications and experience are from the United States, I found him a fairly even-handed witness, who recognised the limits of his knowledge about Australian species and habitat. He clearly had a lot of general experience in conservation and some of his evidence made logical sense: for example, his answers in cross-examination about whether a Greater Glider might glide to a branch of less than 40 cm in diameter, where he in substance pointed out that animals may sometimes do things that are not part of their usual behaviour, and that they may also adapt to changed habitat conditions. He also made some clear concessions based on his experience in the United States. In that sense, I accept that despite now being an employee of VicForests, he had objectively based and independently held views, based on his own quite distinct experience in the United States. There were points during his evidence where it appeared he felt uncomfortable about some of VicForests' policies and practices, and gave an answer about things changing, as if to suggest the current practice was not satisfactory.

231 I deal with Mr McBride's evidence further below, principally when I make findings about the Interim Greater Glider Strategy.

232 VicForests' expert witnesses were:

(a) Dr Stuart Davey, a private forest consultant; and

(b) Professor Patrick Baker, a Professor of Silviculture and Forest Ecology at the University of Melbourne.

233 Both Dr Davey and Professor Baker were required for cross-examination. I discuss and make findings about particular aspects of Professor Baker's evidence, which mostly related to modelling he had carried out in relation to habitat for the Leadbeater's Possum, and what should be considered critical or important habitat for that species, at [455] to [482] below. Overall, I did not find his evidence persuasive. He gave the impression of being committed to his model at all costs, and was initially highly defensive in cross-examination. Ultimately he made some concessions about some aspects of his modelling, but they were grudging. He was too ready to criticise Professor Lindenmayer's studies and work, in circumstances where Professor Lindenmayer's undoubted qualifications and experience are very different to Professor Baker's. Professor Lindenmayer is a renowned expert in the very fields in which the opinion evidence in this proceeding arises. His work is relied on in all the relevant Conservation Advices and Recovery Plans. Professor Baker's readiness to criticise his work did not appear measured, or objective. Professor Baker became argumentative during cross-examination, although it must be said cross-examining counsel was also argumentative, so perhaps Professor Baker's reaction ought fairly to be seen in that context. Ultimately, Professor Baker appeared to admit that his modelling could not be used to predict if Leadbeater's Possums were actually present in certain habitat. That seems to me to be a fatal flaw, and to expose the limits of modelling as a method of protecting and conserving important habitat, as opposed to surveys which are likely to detect where the habitat is which is in fact being used by the species.

234 Further, I do not accept Professor Baker's opinions were given entirely independently of the interests of VicForests. The evidence showed he had been involved in annotating and commenting on VicForests' 13 February 2019 draft of the "Harvesting and Regeneration Systems" document, one of the highly controversial aspects of this proceeding. An email from Professor Baker to Mr McBride was also in evidence, which he sent together with his comments on the draft document. It discloses a level of familiarity and closeness to VicForests and its work which is not consistent with the level of independence the Court expects of an

expert witness. This was not a matter he placed at the forefront of his affidavit or oral evidence by way of any candid disclosure. During his cross-examination, Professor Baker also started using the word "we" when he was talking about his modelling and its purpose to model critical habitat for the Greater Glider, and the Harvesting and Regeneration Systems document (of which there were multiple versions), as if he were part of VicForests. For example:

> The – so the basic idea behind the silvicultural systems project – and this was in response to concerns about management for Leadbeater's Possum in the eighties – was, if we tried different silvicultural systems, what are the regeneration responses. So, by different silvicultural systems, what I mean is the amount of trees that were harvested, and the size of the area that was harvested.
>
> …
>
> And when we think about adaptive management, the idea is we do a bunch of different things; we learn what works, whether it's for, you know, better saw logs or for better habitat; and then we take those lessons and then we apply them more broadly. Here, historically, we've clear-felled – more or less, clear-felled seed tree across all of the sites. If we then say, "Okay. We're going to stop clear-felling and we're going to do silvicultural system X," whether it's regrowth retention, whether it is single-tree selection, and we do that everywhere, all we've done is switch to a different system, right?

235 That is hardly the mindset of an independent expert. In my opinion, some of Professor Baker's defensiveness about his modelling, and his somewhat rigid adherence to conveying the view that it was an important tool, may well stem from the fact that he has been working closely with VicForests on the development of their refined silvicultural systems, and is invested in what they are doing.

Rulings

236 As part of the case management process ahead of trial, I had explained my preferences to the parties in terms of objections to evidence: namely, that the Court would rule on any objections which were material and pressed, but would otherwise hear the parties' submissions on the weight to be given to particular evidence as the principal mechanism of determining the reliability and ultimate probative value of particular evidence. An order was made on 25 February 2019 that, in the week prior to the trial, the parties were to advise the Court of any outstanding objections to evidence which required a ruling. That approach was taken because of the voluminous amount of evidence, and the fact the trial had been adjourned once and the Court had limited time in which to hear the trial. The parties cooperated in that approach and provided documents summarising outstanding objections ahead of the commencement of the trial. It was agreed between the parties and confirmed on the first day of trial that, save for the

tendency issue, the objections could be dealt with by the Court as going to weight. Accordingly, the only evidence on which a ruling was required was the tendency evidence.

237 Both during and after the trial, as part of the preparation for final submissions, the parties were asked to continue to revisit the contents of the Court Book, to ensure that only the documents which the parties contended were necessary for the Court to consider remained as part of the evidence. The parties were given an ongoing opportunity to settle the contents of the Court Book (generally, in relation to items being removed rather than added) until final closing written submissions were filed. On 13 September 2019, the date on which the parties filed closing submissions in reply, the applicant filed an agreed final electronic version of the Court Book, which was subsequently marked as an exhibit. A small number of documents were added to the final version of the Court Book by agreement, including higher resolution versions of certain documents, and they were identified for the Court in the index.

238 After closing written submissions had been filed and served, on 4 September 2019 VicForests' legal representatives wrote to the Court advising that VicForests had recently produced final versions of the following two documents, draft versions of which formed part of the evidence at trial:

(a) the "Harvesting and Regeneration Systems" document; and

(b) the "High Conservation Values Management Systems" document.

239 VicForests sought to have those documents added to the Court Book and requested that the documents, together with the fact they had been finalised, form part of the evidence upon which the Court may rely in reaching its decision in the proceeding.

240 The parties were informed that the Court declined to accept those documents and to admit them into evidence. The reason for that refusal was that the parties had addressed earlier versions of these documents in their submissions, and with the witnesses. My view was that on what was a contentious issue in the proceeding the evidence should reflect what was explored with the witnesses. I noted that VicForests had in any event (and without leave) summarised the final version of the Harvesting and Regeneration Systems document in an annexure to its closing reply submissions. The applicant was given leave to indicate by email whether it objected to the Court taking that summary into account.

241 In subsequent correspondence the applicant confirmed it did object. Accordingly, the parties were directed to refile their closing reply submissions to remove any references to the final

versions of either documents, including the summary in the annexure to VicForests' closing reply submissions. This occurred. Accordingly, the Court has not taken the final versions of those documents into account. Given the findings I have made below about this issue, the particular version of the document is not in any event material.

THE EXPERT EVIDENCE

242 Although there was some considerable common ground on some of the baseline facts, Dr Smith and Professor Woinarski on the one hand, and Dr Davey on the other, were in substantial disagreement on a number of issues central to the resolution of the applicant's allegations. These included:

(a) the level of threat to the species;

(b) the level of threat to their habitat, including whether the suite of current protections, at a regional and coupe level, are sufficient;

(c) the methods by which assessments of the impact of forestry operations on the species are most reliably conducted;

(d) the actual or likely impacts of VicForests' forestry operations in the coupes on the species and their habitat, whether that harvesting is by the silvicultural methods specified on the Timber Release Plan or otherwise; and

(e) what might be the consequences, in terms of any impact (and in terms of VicForests' application of the precautionary principle for the purposes of s 38 and the Greater Glider) of VicForests' foreshadowed adoption of new (and less intense) silvicultural methods as outlined in the draft Harvesting and Regeneration Systems document.

My general findings on the three key experts

243 In the sections of these reasons dealing with my findings on general matters, on s 38 and on s 18, I return to making findings about the evidence of each of Dr Davey, Dr Smith and Professor Woinarski. What appears in this section reflects my general findings about the evidence given by each of them.

Dr Smith

244 I found Dr Smith to be a careful and thoughtful witness with an impressive command of his subject-matter. When propositions were put to him, he asked to see the source, considered what was there and gave a careful, sometimes qualified response to the proposition. I found his

opinions well-considered and backed up, and he brought a scientific, evidence-based approach to his opinions. His particular emphasis on what the evidence "on the ground" shows or does not show reflects an approach to actual, practical measures for protection and recovery of threatened species, which I find to be necessary and appropriate.

245 The opinions he expressed in this proceeding were based on very substantial field work. He had visited 58 of the impugned coupes. His opinions are very soundly based on what is actually in the coupes, not what is mapped or modelled, or extrapolated, or what is hypothetical. This adds to the reliability and probative value of his evidence.

246 I had some reservations about Dr Smith's behaviour on the view, where he was eager to intervene and put his particular opinion forward about what the Court was seeing. On reflection, I have decided that may disclose a passionate commitment to his subject-matter, which is not inconsistent with retaining his independence and objectivity. While his opinions did contend for greater protection for the Greater Glider in particular, that, it seems to me, is likely to flow from his career as an ecologist, rather than any lack of scientific credibility, or any inability to be objective.

Professor Woinarski

247 I found Professor Woinarski to be an expert witness of the highest quality. Just as with his reports, his oral evidence was clear, and understandable. He responded clearly and fully to questions from the Court, as well as in cross-examination. His opinions are measured and both in his reports and in his oral evidence the justifications he gave for them lay in credible and reliable scientific sources. In December 2018, and for the purposes of preparing his expert report in this proceeding, Professor Woinarski visited a number of the Logged Coupes and Scheduled Coupes. Those coupes were:

(a) Ada Tree: logged coupe 348-506-0003 (Blue Vein) and scheduled coupe 344-509-0007 (Blue Cat);

(b) New Turkey Spur: logged coupe 348-515-0004 (Greendale) and scheduled coupe 348-504-0005 (Gallipoli);

(c) Rubicon: logged coupes 288-516-0007 (Golden Snitch), 288-516-0006 (Hogsmeade); 287-511-0006 (Houston) and 287-511-0009 (Rocketman);

(d) Salvage Creek: logged coupe 463-504-0009 (De Valera);

(e) Starlings Gap: logged coupes 345-503-0005 (Bullseye) and 345-506-0004 (Opposite Fitzies), and scheduled coupes 345-504-0003 (Smyth Creek), 345-505-0005 (Starlings Gap), 345-505-0006 (Hairy Hyde) and 345-505-0009 (Blacksands Road);

(f) Sylvia Creek and Kalatha Creek: scheduled coupes 297-526-0001 (Gun Barrel), 297-530-0001 (Imperium), 297-530-0002 (Utopia) and 298-509-0001 (South Col);

(g) The Triangle: logged coupe 317-508-0008 (Professor Xavier); and

(h) Hermitage Creek: scheduled coupes 307-505-0001 (Drum Circle), 307-505-0009 (Flute) and 307-505-0010 (San Diego).

248 In my opinion, the depth and breadth of Professor Woinarski's knowledge and experience in the subject-matter of this proceeding would be difficult to match, a fact illustrated by the reliance placed on his work by the Scientific Committee in its Conservation Advices.

Dr Davey

249 Dr Davey is a person with considerable experience in his field, and subject to my observations below, I accept his independence. He gave considered evidence and was of considerable assistance on the view. However, I was less persuaded by Dr Davey's opinions than I was by those of Dr Smith and Professor Woinarski.

250 Dr Davey's opinions, and his methods, appeared to me to be very much desktop-based (see eg [256] of his first report). His reports, and his oral evidence, appeared more reliant on written information and research of secondary sources. Although his PhD study on arboreal marsupials included the Greater Glider, and involved him undertaking field work (both during and prior to the study), that was some considerable time ago, and my overall impression is that he relied much less on what is "on the ground". He took VicForests' compliance with prescriptions very much as a given it seemed to me, because VicForests is a statutory agency and the prescriptions are legal requirements. The impression I gained from listening to him, and watching him under cross-examination, is that he did not have the depth and deep familiarity with his subject-matter that Dr Smith and Professor Woinarski had, and he presented very much as a person who brought more of a theoretical perspective to the questions in issue in this proceeding. While taking into account his PhD work, it is also my opinion that he does not have the depth, breadth, and consistent experience with the species in issue that Dr Smith and Professor Woinarski have. Further, Professor Woinarski's pre-eminence as a conservation biologist, including his national role in threatened species research, all of which is apparent from his curriculum vitae and was not challenged, persuaded me to place greater weight on his opinions.

251 At times, I also found Dr Davey somewhat reluctant to make concessions, especially where it was apparent the concession might be adverse to VicForests. For example, during cross-examination Dr Davey appeared reluctant to make a concession about the consequences of the purported unreliability of modelled habitat distributions of the Greater Glider in Victoria, which modelling he referred to in [231] of his first report (at pp 479-80 of the transcript):

> Now, could we go, please, in the same document to PDF page 103 – which we're on. I'm sorry. And at paragraph – I've had another numbering error. Can we go, please, to 106 – PDF 106. Thanks. And at paragraph 1-0 – sorry, 231 on that page, you refer to the number of hectares in the CAR reserve system with model habitat. Do you see that?---Yes.
>
> And the – part of that paragraph refers to the model habitat for greater gliders. And you've subsequently agreed that that modelling is inaccurate and unreliable. Is that right?---Well, I've questioned it.
>
> Yes?---Certainly.
>
> Well, doesn't that mean that, if it isn't accurate or it's questionable, that it's not really reliable enough that one could then draw on it to establish percentages in terms of habitat that might or might not be suitable for greater gliders?---I would – its reliability is certainly – from my perspective and opinion, it's questionable and I would have difficulty drawing conclusions from it.
>
> Sorry. I didn't quite catch your last answer?---I would have difficulty drawing those conclusions.
>
> Okay. And, obviously, that is a change from the position that – well, perhaps I will put it another way. 231 more or less sets out the facts as you understood them?---That's - - -
>
> Whereas what you've just said in evidence now is your opinion?---231, basically, is using the information in that report.
>
> Yes?---And, you know, from my perspective, it's based on Victoria's best information, and the – the modelled habitat, like Andrew Smith has said – I would agree with Andrew that the modelled habitat – the reliability is questionable.
>
> Okay?---But that's – that is a fact, that's the facts - - -
>
> No, I understand?--- - - - that I have to actually – yes.
>
> And that was in the fact part, if you like, of your report - - -?---Yes.

252 Similarly, I consider Dr Davey was, at least initially, reluctant to answer whether or not he agreed or accepted that VicForests' forestry operations in the impugned coupes are inconsistent with certain objectives of the Draft National Recovery Plan for the Greater Glider (at pp 497-9 of the transcript):

> Okay. So can we go, please, to the draft plan, which is court book 4.10.4.3. And this is the – as I understand it, the current draft. And I think – am I correct in saying you might have been involved in one of the workshops concerning this?---Yes. I was involved in a workshop that was associated with this recovery plan.

…

And, now, the – if we look at the page on the screen, the approach in the draft to critical habitat is to look to forest patches of at least a certain number of hectares concerning at least a certain number of hollow-bearing trees per hectare. Do you see that?---Yes, that's correct.

And then the objectives are to increase the number of greater gliders in the wild and reverse the long-term declining population trend and also to enhance the condition of habitat across the glider's range. Do you see that as well?---Sorry. Which - - -

That's the second dot point under 1.3?---Yes.

And do you accept that forestry operations in both the logged and scheduled coupes are inconsistent with both of those objectives?---The – my understanding from the workshop was that basically there was a reconsideration of what constituted critical habitat in 1.2.

No, I've moved down to 1.3. I was asking you – I'm sorry. I might have gone a bit too quickly, and I'm sorry.

…

But, Dr Davey, can you just repeat that answer for me, please?---Yes. My understanding is that the – the workshop that I attended post the draft of – which was post-October 2016, it – we discussed the issues around critical habitat, and I understand that it's going to actually broaden out to – to forests that aren't necessarily Montane as well. So in terms of what this dot point represents, my understanding is that it's going to be changed.

To broaden it, you said?---To actually be more precise.

MR DELANY: Can you just - - -

THE WITNESS: So that it actually includes some of the habitats found in – in Queensland.

MR DELANY: Would - - -

THE WITNESS: Because basically the way this was actually written, it was ambiguous.

MR DELANY: Is Montane – is that a reference to – is it because it's referring to Montane?---It's referring to Montane. It didn't include the coastal even though you've got elevational range of zero to 12, and the number of hollow-bearing trees per hectare varies geographically in terms of what would constitute important or critical habitat.

And just – if you can just assist me, I'm sorry, but does Montane include ash and mixed forests as we've been discussing throughout - - -?---That's my understanding.

- - - the Central Highlands?---That would be my understanding.

They're within that?---Yes.

Okay. And then the objectives of the recovery plan are set out under 1.3, and I'm sorry. I was at cross-purposes with you before. Just take a minute to just have a look at those and look at them to yourself?---Yes. My understanding is those two dot points are unlikely to change.

And would you agree or accept that forestry operations in the logged and scheduled

> coupes are inconsistent with those objectives?---There would be issues, I would suspect.
>
> And would your answer be the same – and I will just ask you to look and read to yourself under the next heading 1.4 Recovery Strategies for the first three dot points and the fifth dot point there, namely, what I'm suggesting is that forestry operations in the logged and scheduled coupes would be inconsistent with the strategies that are there in those dot points put forward as strategies to achieve the plan's objectives?---I believe that basically the – the harvesting of the scheduled coupes would actually – could be done in ways that wouldn't – would meet both – all of those objectives.
>
> That would depend, I take it from the answer you've just given, on what particular silviculture method was employed?---It certainly would be – would depend on the silviculture regimes and what the – the suitability of the habitat that – that would be logged.
>
> And, presumably, also, as you've said elsewhere, surveys being carried out and so on?---Yes.
>
> Yes. Okay. So – and in terms of the criteria for success in the next – on the next page, 1.5, what I would suggest to you is that the success or otherwise of the recovery plan measured as the criteria of success as an achievement where overall numbers have stabilised or increased, all critical habitat to survival have been identified and protected and adequate areas of high-quality habitat are maintained, and then the second-last dot point there:
>
> > *There's adequate habitat connectivity to allow for greater glider movements across the landscape.*
>
> Can I suggest to you that the conduct of forestry operations in the logged and scheduled coupes is not consistent with being able to match and achieve those criteria that I have identified for success?---I believe that basically the harvesting of forests in the Central Highlands could – could be undertaken and those four dot points that you've outlined could still be met.

253 When cross-examined about VicForests' compliance with the precautionary principle, Dr Davey accepted that, given the Greater Glider is listed as a vulnerable species, guidance should be provided and systems put in place to manage detections of the species in coupes. However, Dr Davey did not accept this could constitute non-compliance with the precautionary principle, again giving the impression that he was reluctant to make a concession adverse to VicForests. At one point, somewhat surprisingly, he also indicated he was not aware of who had reported detections of Greater Gliders in coupes (at pp 520-21 of the transcript):

> But, Dr Davey, that surely can't be the case if, as you just said a moment ago, that the greater glider wasn't mentioned at all in some of the coupes. And what I suggest to you, where it was mentioned, there's no system in place or identified to take into account how, for example, the recorded identification of greater gliders in a particular coupe should be considered and brought into account when determining what forestry operations should be conducted?---The coupes – some of the coupes – coupe plans and the documents that I saw referred to the finding – the identification of greater gliders in the particular coupes. And I can't remember the particular individual coupe plan, but they actually considered the harvesting around those records.

> Yes, but those records are not detections as a result of anything done by VicForests, are they, with the exception of the one survey after - - -?---I must admit, I haven't actually – I didn't find out – I didn't look at who had – worked out who had found those glider records.
>
> And, you see, what I - - -?---There are – I know that they're a mixture of public records found by the public and records found by VicForests, is my understanding.
>
> Well, would you accept that in order for the precautionary principle to be applied in respect of a couple where there were reported detections, it will be necessary that VicForests, have in place guidelines or a system that said, "If you find them, this is how you should assess the risk"?---I believe that that's something that needs to be put in place - - -
>
> Yes. And - - -?--- - - - is that, basically, the records of greater gliders in coupes, if they're actually identified, there needs to be consideration of how they have been managed.
>
> Yes, and if there's no system for – in place that says if there are greater gliders detected in this couple, this is how one should go about assessing the risk to the greater glider. What I suggest to you is that that must mean that, if that's the case, there's a failure in respect of those coupes to comply with the precautionary principle?---I don't believe if there's a system failure in that context that it would actually be a failure of applying the precautionary principle. The noting that, basically, the – there are systems that have been put in place by VicForests to manage – and that's actually in their – some of the documentation that I saw in terms of the updating of their – of the application of the precautionary principle in the context of greater gliders.
>
> Are you thinking about the - - -?---I'm actually thinking in the context of - - -
>
> - - - the draft silvicultural documents?---There was some reference – it was certainly in the draft silvicultural documents, but also in terms of their approach on the FSC certification that I saw in, I think, it was Paul's affidavit.
>
> It's the case, isn't it, that if, at a coupe level, VicForests doesn't have any guidelines that tells its operators or its contractors or its staff what to do when there are detections of greater gliders, that it's simply not possible in coupes where that circumstance arises for the precautionary principle to be complied with because it's simply – there's simply no guidance as to how one – if at all – one is to carefully evaluate management options to take into account the recorded presence of the glider. That's got to be right, doesn't it?---I would agree with that there needs to be guidance. Whether the lack of that guidance actually constitutes a non-compliance with the precautionary principle I would – it would be – my opinion is that that would actually not constitute non-compliance, but with the greater glider being placed – being identified as a vulnerable-listed species, systems need to be put in place to manage the greater glider in those – in forests that are going to be logged.

254 To the extent there were unambiguous breaches by VicForests, Dr Davey appeared to be willing to overlook them and instead focus on regeneration. An example is in his first report at [263]:

> I note that harvesting has taken place in some coupes where subsequently a declaration of a THEZ has included some of the logged area of the coupe. Some post-harvest maps indicate harvesting prior to a new LBP THEZ being applied with no subsequent rehabilitation of harvest area being applied in the new colony buffer zone. An example

> is found in the postharvest map (FOR.055.011.0009 in WEP-35) for the Blue Vein coupe (9.12). It is my opinion that harvest areas found in THEZ should be properly regenerated to help secure future habitat for Leadbeater's Possum.

255 Therefore, where there are choices to be made between the evidence and opinions of Dr Davey and the evidence and opinions of Dr Smith and Professor Woinarski, I prefer the latter two experts.

VICFORESTS' FORESTRY OPERATIONS

256 It is necessary to set out a description of VicForests' forestry operations, both as to the silvicultural methods used and proposed to be used, the evidence about how the planning for forestry operations occurs, and how they are conducted "on the ground".

257 The vast majority of the evidence about VicForests' forestry operations was given by, or through, Mr Paul. At the time of affirming three of his affidavits, he deposed he was the Manager, Community Forestry (Western Victoria) at VicForests. In his fourth affidavit, he deposed that on 13 November 2018, he was appointed to the role of Manager, Environmental Performance at VicForests. In his second affidavit (at [10(h)]) he deposed that since 1 July 2018, the majority of his time was occupied giving instructions in this proceeding. In cross-examination, he stated that since taking on the new role of Manager, Environmental Performance, around 50% of his time has been spent giving instructions in this proceeding.

258 VicForests made a forensic decision not to adduce any evidence from any of the contractors who actually carry out the forestry operations in the coupes; nor from any of its own foresters who are working in the coupes before, during and after the forestry operations. The Court met one such forester on the view, Mr Jarrod Logue. It was clear he had a great deal of "on the ground" knowledge about how forestry operations were in fact conducted in the CH RFA region, and had been and were being carried out in the coupes the subject of this proceeding. It is curious that no person such as him was called to give evidence. Indeed, even Mr Owen Trumper, who Mr Paul deposed is VicForests' General Manager of Operations (which includes "on the ground" operations), was not called as a witness. Instead, Mr Paul was put forward – as the applicant submitted – as the sole "face" of VicForests in the proceeding.

259 Mr Paul was placed in a difficult position. As the primary witness from VicForests, he was expected to give, and therefore be cross-examined on, a tremendously wide range of evidence. That is apparent from his affidavits. It was clear during cross-examination that he was more familiar with some of the subject-matters of his affidavit evidence than he was with others.

That is not said critically: no one person in an organisation such as VicForests can be deeply familiar with all aspects of its operations. I accept that in some of his previous positions within the Victorian forestry industry (and prior to the establishment of VicForests in 2004), Mr Paul performed roles that meant he did have some direct involvement in forestry operations. However, that experience is now more than 15 years old.

260 The fact that there was no person called to give evidence from VicForests who was at a day-to-day level involved in conducting forestry operations in the impugned coupes, or in the Central Highlands region where they are located, has meant, in light of the evidence adduced by the applicant, there was an overwhelming amount of evidence that VicForests' conduct of forestry operations "on the ground" does not match its policy and procedure documentation and is not, in fact, effective in delivering the kind of protection its documentation purports to assure the reader occurs. In the absence of such a person from VicForests, there was direct evidence from people such as Dr Smith, who had undertaken a coupe-by-coupe analysis of VicForests' forestry operations, and who gave evidence about the gaps between what was put forward in documents as effective protection of the Greater Glider and Leadbeater's Possum, and what he saw "on the ground". There was similar evidence from Professor Woinarski in relation to a large number of coupes. There was the evidence of those witnesses who had been in the forest detecting the species before and during forestry operations, and who gave evidence of what they observed about the actual conduct of VicForests' forestry operations, and of the presence of the species concerned. And further there was documentary evidence sourced from VicForests itself, such as coupe plans, which supported the applicant's contentions on a number of matters, and (understandably) about which Mr Paul could give little or no direct evidence.

261 It was also, for example, not possible for the Court to form views about the capacities of VicForests' contractors to implement the protective measures and prescriptions which VicForests contended were sufficient. Nor was it possible for the Court to ascertain how much attention they paid to the environmental purpose of the prescriptions. An obvious example is the identification of habitat trees in each coupe. In cross-examination, Mr Paul suggested that identification of habitat trees is generally undertaken by foresters, but that contractors are also trained to identify them as well. As some of my later findings reveal, I am not entirely persuaded that the direct evidence from individual coupe plans reflects this position. Nevertheless, it is apparent that contractors do play a critical role in whether or not habitat trees are properly identified, and then whether or not they are protected from forestry operations, both logging and regeneration burns. Yet the Court heard no evidence from any such persons.

In contrast, the Court has evidence from Dr Smith, and on the view, that the identification appears to have been unsatisfactory, and in any event that many so-called habitat trees did not appear to survive the forestry operations and the post-harvest burning. There was no evidence from any contractors of VicForests who performed the identification, the burning and the felling, to counterbalance the evidence of Dr Smith and what the Court itself observed on the view. Neither was there evidence from any foresters directly responsible for identifying habitat trees in coupes.

262 Another example is Mr Paul's oral evidence about VicForests' silvicultural policy changes, reflected in its High Conservation Values Management Systems document and its Harvesting and Regeneration Systems document, both of which are directed towards its efforts to obtain FSC certification. While I accept Mr Paul did his best to answer the questions put to him, it was clear he lacked some knowledge about the actual likely decision-making within VicForests about this new policy direction. I gained the impression that, rather than having direct knowledge, he was being given information by others.

263 During his cross-examination, Mr Paul was asked whether he could undertake to the Court, on behalf of VicForests, that VicForests will not use "method 1" in the Scheduled Coupes. "Method 1" was a reference to "Silvicultural system 1", described in the Harvesting and Regeneration Systems document as being based on clear-felling and seed tree operations: that is, current VicForests methods. Mr Paul said he was not able to give any such undertaking. The cross-examination had something of a forensic flourish about it, and it is unsurprising that Mr Paul could not, on behalf of a Victorian statutory agency, give such an undertaking immediately in the witness box. However, the better underlying points to emerge from this line of challenge to his evidence are twofold. First, he was not the appropriate person within VicForests to be giving evidence to the Court about the certainty attaching to VicForests' policy changes and the difference it was likely to make on the ground to its forestry operations. Second, no other witness from VicForests, who might have been sufficiently senior to do so, gave the Court any reliable evidence that VicForests' previous dominant practices of the use of clear-felling and other harvesting methods which were damaging to the habitat of threatened species would not continue, or would indeed be phased out altogether from native forest where threatened species were known to be present.

The evidence about harvesting methods

264 In his second affidavit, Mr Paul describes the three principal types of silvicultural methods which are relevant to the Logged Coupes and the Scheduled Coupes. They are clear-fell, seed tree harvesting and regrowth retention harvesting. Clear-fell is defined in the Code (with different spelling) as:

> **'clearfall'** means a silvicultural method of harvesting a coupe whereby all merchantable trees, apart from those to be retained for wildlife habitat, are removed.

265 At [147] of his second affidavit, Mr Paul describes a forestry objective to the clear-fell method:

> Based on my knowledge, training and, particularly, my 27 years' experience in the forestry industry, the key objective of clearfelling is to successfully regenerate light-demanding tree species through the removal of shading and competition. Mountain Ash and Alpine Ash are examples of light-demanding forest types.

266 There is no real debate that from a forestry perspective there may be such an objective. However, this proceeding is not about forestry objectives: it is about what, in the context of a forestry operation, does or does not need to be done to comply with the environmental protection and conservation objectives and provisions in the EPBC Act.

267 Mr Paul describes "regrowth retention harvesting" in the following way (at [152]-[154]):

> "Regrowth retention harvesting" is not defined in the Code. It is a relatively new silvicultural system adopted by VicForests for Ash forests following the recommendations of the LBPAG. VicForests also uses this silvicultural system in mixed species forests but it does not count towards the 50% target referred to in paragraph 153 below.
>
> In January 2014, the LBPAG recommended that from July 2014, retention harvesting be undertaken in at least 50% of the areas of Ash forest harvested within the Leadbeater's possum range (see section E above). Regrowth retention harvesting is a type of retention harvesting.
>
> Regrowth retention harvesting involves the retention of forest patches so that more than 50% of the harvested area is located within one tree length of retained forest. The relevant retained forest must be at least 50 years old. The rotation length in Ash forests is nominally 80 years.

268 Mr Paul deposes to this method being introduced largely as a result of the recommendations of the Leadbeater's Possum Advisory Group, specifically to enhance the retention of Leadbeater's Possum habitat. At [136(d)] of his affidavit, Mr Paul deposes that "VicForests has transitioned to retention harvesting in at least 50% of the area of Ash harvested within the Leadbeater's possum range". The term "Leadbeater's Possum range" is defined in the Management Standards and Procedures:

> **'Leadbeater's Possum range'** means an area of approximately 70 x 80 km in the

> Central Highlands to the northeast of Melbourne and a small, lowland area east of Melbourne in the Yellingbo Nature Conservation Reserve, along the Cockatoo and Macclesfield Creeks (Menkhorst and Lumsden 1995; Harley et al. 2005; Harley and Antrobus 2007). Three distinct habitat types: montane ash forests (Mountain Ash *Eucalyptus regnans*, Alpine Ash *Eucalyptus delegatensis* and Shining Gum *Eucalyptus nitens* and adjacent areas of Cool Temperate Rainforest and riparian thickets); sub-alpine woodland (Snow Gum *Eucalyptus pauciflora*); and lowland floodplain forest (dominated by Mountain Swamp Gum *Eucalyptus camphora* in the Yellingbo Nature Conservation Reserve) (Harley 2004c; Lindenmayer et al. 1989). There are approximately 204,400 hectares of potential ash or Snow Gum woodland habitat within the range of Leadbeater's Possum, the majority of which is ash forest (96 %), with only 4 % Snow Gum woodland.
>
> (Footnotes omitted.)

269 Mr Paul's evidence in the table in his second affidavit (at [161]) suggests that of the Logged Coupes in this proceeding which were identified as Ash forest, a majority of them were logged using the regrowth retention harvesting method. I do not understand the applicant to dispute this evidence: its contention, based on Professor Woinarski's expert opinion, is that even if this is the method adopted, first, the survival of the retained habitat is questionable, and second, this method does not result in any qualitatively different outcomes for the Leadbeater's Possum.

270 At [156] of his second affidavit Mr Paul deposes:

> The key objective of regrowth retention harvesting is to apply the system to 50% of coupes in the Leadbeater's possum range to support the recovery and persistence of the species in those areas.

271 It would seem that in evidence such as this (which is not isolated) VicForests appears to accept the objective of *recovery* of threatened species is an objective its forestry operations should pursue. That is certainly consistent with the terms of the "operational goals" in cl 2.2.2 of the Code, which is extracted at [137] above. As my later findings reflect, this does not appear matched by its practices on the ground.

272 Mr Paul deposes that "seed tree harvesting" is defined in the Code:

> **'seed tree harvesting'** means an even-aged silvicultural system in which all live trees are felled apart from a number of uniformly distributed trees retained to provide seed for regeneration and habitat. Seed trees generally comprise 10-15 % of the basal area of the original stand.

273 At [149] of his second affidavit, Mr Paul describes the key objective of seed tree harvesting:

> Based on my knowledge, training and, particularly, my 27 years' experience in the forestry industry, the key objective of the seed-tree system is to retain sufficient seed-bearing trees, representative of the pre-harvest species composition, to provide a natural seedfall to establish regeneration. This system retains between 5 and 15 seed-

> bearing trees per hectare and is applied where a viable seed crop is expected to be present at the time of, or soon after, harvest. This system is most often used in mixed species forests where seed crops are more reliable however it may also be used in Ash forests.

274 These are the three methods which are listed on the applicable Timber Release Plans for the impugned coupes. Each of the Logged Coupes was harvested using one of these methods. On the 2019 Timber Release Plan, each of the Scheduled Coupes is identified to be harvested by one of these methods, save for the Dry Creek Hill coupe which is to be harvested on the basis of "Road alignment – improvement". As I have noted, on the 2019 Timber Release Plan, the majority of the Scheduled Coupes (32 out of 41) are still identified for harvesting by way of clear-felling.

275 There is a debate between the parties whether use of either of the two methods other than clear-felling, in particular regrowth retention harvesting, in fact produces more protection for the Greater Glider or for the Leadbeater's Possum (noting there are specific prescriptions in place for the Leadbeater's Possum in the CH RFA region). There is also a debate about whether the new methods proposed by VicForests are likely, in fact, to offer any greater protection to either species, putting to one side the other debate between the parties about whether the Court has a sufficient probative basis to make any findings about what silvicultural methods will be used in the Scheduled Coupes, and whether the Scheduled Coupes will in fact even be harvested in the foreseeable future.

The evidence about Timber Release Plans and coupe planning

276 VicForests relies on its Timber Release Plans and coupe planning processes, as explained by Mr Paul in his affidavit evidence (especially his second affidavit), as part of the evidence which it contends demonstrates the careful planning which occurs in relation to the timber harvesting of each coupe, including identification of habitat for threatened species and identification of the presence of threatened species through that aspect of the coupe planning process which picks up any "biodiversity values" present in a particular coupe.

277 As to the decisions about which parts of the Central Highlands native forest to include on a Timber Release Plan, Mr Paul deposes that this is the responsibility of a "Tactical Planning" team within VicForests. He deposes (in his second affidavit at [59]) that throughout the year this team undertakes "coupe reconnaissance", in summary with the objective of producing "viable, risk assessed coupes that identify potential environment and operational risks prior to being included in the timber release plan".

278 At [62]-[66] of his second affidavit, Mr Paul describes the steps taken by VicForests prior to the release of a proposed Timber Release Plan:

> The Manager of Tactical Planning is responsible for finalising the list of coupes nominated on the proposed timber release plan change. Factors relevant to inclusion in that list include:
>
> (a) coupes that have not been field assessed should generally not be included (I explain the field assessment process in section G.1 below);
>
> (b) coupes that have not undergone the quality assurance process will not be included;
>
> (c) any gaps in the alignment of proposed harvesting areas with contracted sales, harvest and haulage commitments may require alterations to the nominated list of coupes.
>
> The Manager of Tactical Planning is then responsible for preparing a brief outlining the scope, purpose and risk management issues for the proposed timber release plan change. That briefing is provided to the General Manager Stakeholders and Planning for endorsement.
>
> Following endorsement, there follows an extensive period of internal (i.e. within VicForests) and external stakeholder consultation. That process is described in section 6.2 of the 2017 TRP Instruction: pages 11 and 12.External consultation can include briefings and liaising with organisations such as local shire councils, regional Departmental offices, Parks Victoria, Aboriginal Victoria, Melbourne Water, Catchment Management Authorities and specific community groups or environmental non-government organisations.
>
> The timber release plan is then finalised in accordance with the process described in section 6.3 and section 6.4 of the 2017 TRP Instruction: pages 13 to 15. That process culminates in the Tactical Planning Manager endorsing that all documentation is up-to-date, verified and correct: see section 6.4.8.

279 At [143] of his second affidavit, Mr Paul deposes that decisions about which silvicultural method to use are usually made during the coupe reconnaissance process (that is, prior to the finalisation of a Timber Release Plan), by reference to a number of factors which he sets out and which it is not necessary to reproduce. At [144] he states:

> Decisions about silvicultural systems may change after the coupe reconnaissance process is completed based on new information (such as following public consultation, receipt of new biodiversity information or seed crops available on the site).

280 However, it was not this kind of change which occupied the debate between the parties. Rather, the focus was on Mr Paul's evidence at [82] of his second affidavit:

> Each of the Scheduled Coupes is listed on the Approved TRP with a nominated silvicultural method that represents the most intensive silvicultural system that may be used for each coupe (a less intensive silvicultural system may be used).

281 Mr Paul gave further evidence about this ability of VicForests to depart from the silvicultural method identified on the Timber Release Plan at [179]-[181] of his second affidavit:

> In respect of the Scheduled Coupes, VicForests' present position is that they will be harvested using the silvicultural method denoted on the TRP and as set out in the table at paragraph 176 above, however they may be harvested using a less intense method if information warranting such a change came to light before or during operations. Any such plans have not yet been finalised and planning is on hold pending the resolution of this proceeding.
>
> For example, a coupe identified as clearfall might end up being harvested using the regrowth retention harvesting silvicultural system because of operational constraints on the ground (for example, a biodiversity value that requires exclusion from timber harvesting or to meet the 50% regrowth retention harvesting target described at paragraph 136(d) and 153 to 155 above).

282 In these circumstances, with the exception of Camberwell Junction coupe 10.37 (which has been harvested) VicForests' position is that the designated silvicultural method for each Scheduled Coupe is subject to change in the future. The proposition in parentheses at [82] of Mr Paul's second affidavit, and Mr Paul's other evidence which I have extracted, became a major factual issue in the proceeding.

283 One of the annexures to Mr Paul's second affidavit is a VicForests document which explains how VicForests assesses its obligation to apply the precautionary principle in its timber harvesting operations. Its title is "VicForests' Precautionary Approach to Biodiversity Management", and it was created in January 2014. It refers to the *Brown Mountain* case at p 5 in section 2, which is titled "VicForests Interpretation of the Precautionary Principle". In my opinion this document should be given some weight in assessing the question of how VicForests has applied the precautionary principle in the conduct of its forestry operations, as it represents VicForests' policy about that concept, albeit apparently not a publicly available policy.

284 The first part of section 2 should be set out:

> VicForests considers that the precautionary principle is applied through a risked based approach to forest management and seeks to communicate the precautionary measures being undertaken and their basis. VicForests application of the Precautionary Principle derives from Justice Osborne's judgment in the case *Environment East Gippsland v VicForests* [2010] VSC 335, at [212]. In respect to environmental management this principle is engaged where:
>
> (a) there is a real threat of serious or irreversible damage to the environment; and
>
> (b) the threat is attended by material scientific uncertainty as to the damage to the environment.

> If, when planning to undertake timber harvesting operations VicForests determines both (a) and (b) are apparent, then consideration is given to the following questions in determining whether activities may commence (or resume):
>
> (a) is the threat of serious or irreversible damage to the environment negligible?;
>
> (b) is the threat of serious or irreversible damage to the environment able to be addressed by adaptive management?; and
>
> (c) is the measure proposed to be implemented proportionate to the threat?
>
> Consideration of these questions when assessing whether areas planned for harvest are conducted in a manner that is consistent with the precautionary principle is central to VicForests biodiversity management framework.
>
> The precautionary principle has been embedded in Australian environmental legislation, through a range of policies and statutes, while also being incorporated into a number of international treaties and agreements that Australia is a signatory to (Peterson, 2006). The regulatory framework governing forest management and instruments within it has been developed and is designed to be implemented in a manner that is proportionate to the threat of serious or irreversible damage to the environment. Therefore, the compliance and implementation of these regulatory instruments are inherently precautionary. The Policies, Strategies Acts and Agreements, as well as regulatory Instruments, Codes and Procedures that VicForests complies with are outlined in Appendix 1. In addition to these requirements, VicForests has developed a supplementary internal biodiversity management framework which builds on the existing regulations in place. This framework considers each of the questions below:
>
> (d) is the threat of serious or irreversible damage to the environment negligible?;
>
> (e) is the threat of serious or irreversible damage to the environment able to be addressed by adaptive management?; and
>
> (f) is the measure proposed to be implemented proportionate to the threat?
>
> If there remains any residual risk of irreversible damage to the environment, after the State and Federal legislation has been followed, VicForests policy is to take further measures to ensure there is a proportionate adaptive management response.

285 The document then continues its discussion of VicForests' approach to the precautionary principle, and states (at p 6):

> VicForests understanding of the precautionary principle of environmental management is based on the interpretation of the risk of causing irreversible harm or damage to the environment **being that of causing a species or vegetation community extinction**.
>
> (Emphasis added.)

286 As will be seen, this is not an accurate reflection of how the precautionary principle operates – whether as expressed in the Code, or otherwise. It may, however, be an accurate reflection of the approach of VicForests, given VicForests in this proceeding denied the precautionary principle was engaged in relation to the Greater Glider in the Logged Glider Coupes or Scheduled Coupes.

287 The document then outlines what is said to be VicForests' application of the precautionary principle at a "landscape" level, at a "forest management area" level (of which there are 13 in Victoria, including five forest management areas within the Central Highlands region), and with respect to "threatened species management". In the latter section (section 4.3), there is no reference at all to the listing of threatened species (or communities) under the EPBC Act, nor to Conservation Advices, nor to Recovery Plans. There is only a reference to the State legislation, the FFG Act. In section 3 there is a passing reference to the listing process under the EPBC Act, but that is all. In this section, and by reference only to Action Statements made under the FFG Act, the document states:

> Action Statements also in some cases provide protective requirements for detections of the species in areas outside of National Parks and reserves. The requirement to comply with Action Statements is made effective through the Code of Practice for Timber Production (2007). Typically, those prescriptions require the establishment of protection zones to minimise the impacts of harvesting on the long-term survival of species where an individual plant or animal is detected or where certain habitat features are found in or around logging coupes.

288 In relation to threatened species, required compliance with State-based Action Statements appears to be the only circumstance the document contemplates for the application for coupe-level prescriptions.

289 Section 5 of the document is entitled "Application of the Precautionary Principle by VicForests". This section commences with the following statements:

> VicForests relies on the extensive landscape reserve system, forest management plans and protective legislation as the key adaptive management required to proportionately manage the threat of harvesting in areas where there is a risk to cause irreversible environmental damage. These landscape wide zoning and protective requirements are inherently precautionary in their approach; and have the application of the precautionary principle embedded within them. Where there may be a residual threat to the threatened species and/or communities in areas planned for timber harvesting, VicForests has developed a threatened species management framework that is complementary to the measures described above, which seeks to further reduce any residual risk of causing irreversible damage to the environment.
>
> This section outlines the hierarchical approach that VicForests takes to ensure that all coupes harvested have had an appropriate survey process and strategy for the identification of threatened species and/or their habitat, and specific vegetation communities. VicForests employs a range of survey methods to ensure that it appropriately protects key habitat as well as recognising risks to individual species and the need for longer term targeted research.

290 There then follows a flow chart, and description of what is called a "hierarchy of pre-harvest surveys", commencing with a "desktop assessment", moving to a "coupe transect" (where the coupe itself is inspected) and then to what are called "targeted species surveys". This latter

section is relevant to the issue in this proceeding about VicForests' approach to the Greater Glider in the Logged Coupes and Scheduled Coupes, and should be set out:

> Targeted species surveys, or pre-harvest surveys, are undertaken in some areas planned for harvest and carried out after coupes have had a desktop assessment and coupe transect. The decision process that results in a coupe being targeted tor this additional level of survey for biodiversity values is set out below (and in itself is designed to be a proportionate response to any residual threats to threatened species): The coupe displays rare and limited characteristics, meaning the area is modelled as 'Old Growth'.
>
> **And**, one of the following is also triggered:
>
> 1. The coupe is subsequently found to be within a 'Wet' Ecological Vegetation Class, which in relation to VicForests operations is typically represented by EVC's 16, 18, 29, 30, 31, 32, 35, 38, and 39. This represents the primary habitat for a number of target species, including the Long-Footed Potoroo (*Potorous longipes*).
> 2. The coupe subsequently displays threatened fauna habitat or has records of previous species sightings as identified in the coupe overlay process (as per approved data layer *VBAfauna*).
>
> **Or**, alternatively to points 1 to 2 above:
>
> 3. The coupe displays characteristics which VicForests considers warrant a survey.

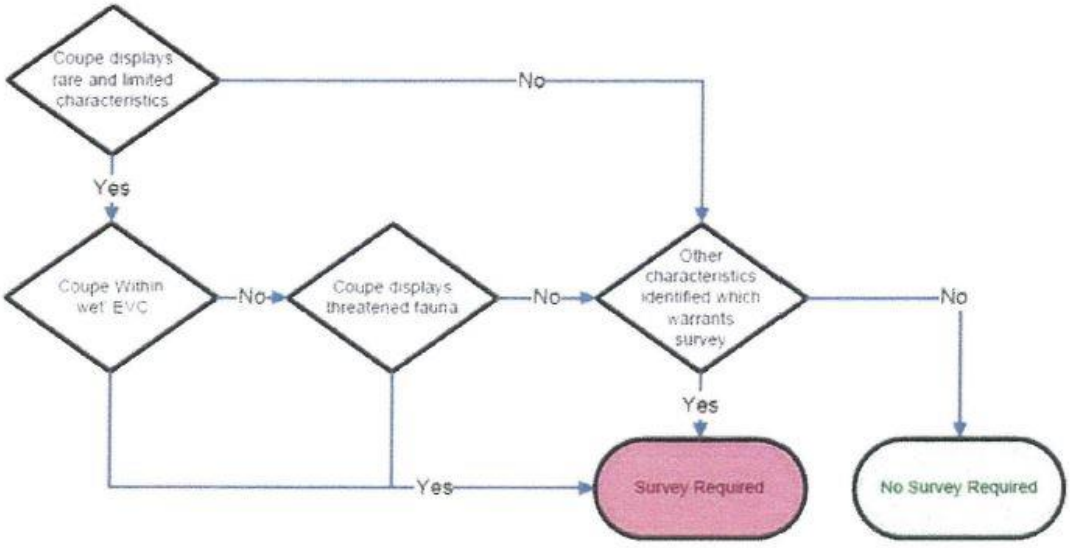


Figure 2: Targeted Survey site selection framework

Where a coupe is selected for a survey, only those species likely to be present within the coupe will be the target of the survey. The species likely to be present within a given coupe will be determined in accordance with specific site conditions, for example if the coupe does not contain appropriate conditions or streams for target Crustaceans or Amphibians, surveys for these species will not be carried out. Pre-harvest surveys provide a mechanism for managing the risk of uncertainty as to the presence of biodiversity values that may be threatened or endangered, within areas planned for harvesting. This precautionary approach to the management of biodiversity

> is a measure that further adds to the existing precautionary regulatory requirements for protection of biodiversity across the landscape, managing the risk of causing irreversible damage (such as contributing to the extinction of a species) and ensuring the highest level of scientific certainty is afforded. The extent to which VicForests will conduct pre-harvest surveys as outlined above has been designed to reflect the requirement to implement proportionate adaptive measures to any residual threat.

291 Later in the document, there is a section (5.6) on "targeted research and monitoring". It describes the need for ongoing "landscape scale monitoring and research" which focuses on the distribution of threatened species who occupy and use the forests in which VicForests conducts its forestry operations, their habitat requirements and the investigation of "the broader scale impacts of timber harvesting on the functional integrity of the landscape". This section then states:

> Targeted landscape scale monitoring is managed by VicForests Conservation Biologist and is often carried out in collaboration with other research institutes.

292 During cross-examination, Mr Paul was asked about the Conservation Biologist role. He stated that the Conservation Biologist would be in the team he now manages, and would previously have been in Mr McBride's team, but that "some changes have been made to titles". When asked who VicForests' Conservation Biologist was in June 2018, Mr Paul could not recall who occupied the role, but suggested it may have been Mr McBride or another staff member who had since resigned. Mr McBride, the Manager, Biodiversity Conservation and Research at VicForests, did give evidence.

293 Like Mr Paul, Mr McBride holds a managerial position. Mention was made in Mr McBride's evidence of Dr Elizabeth Pryde (Biodiversity Research Scientist at VicForests) and Dr Maria Cardoso (Field Ecologist at the Orbost office of VicForests). During the cross-examination of Mr McBride, the applicant relied on some email correspondence from Dr Cardoso regarding VicForests' draft "Greater Glider Interim Management Response" document. I return to some of the views VicForests employees have expressed about the conservation needs of the Greater Glider in the Central Highlands later in the reasons.

294 The "VicForests' Precautionary Approach to Biodiversity Management" document also endorses the need for VicForests' decision-making about its forestry operations to be based on science:

> Research is a fundamental component of good forest management, as science-based decision making should be at the forefront when considering forest practices and the best way in which to manage forest values.

295 In summary, VicForests' own policy document suggests a commitment to adherence to the precautionary principle, and a clear recognition of the need for conservation and protection of biodiversity values within native forests open to forestry operations, especially the need for conservation and protection of threatened species which occupy and use that forest. The theme of VicForests' first line of defence in this proceeding on the s 38 issue – namely that the precautionary principle is not engaged – is somewhat at odds with the overwhelming theme of this document, which implies the precautionary principle is consistently applied by VicForests in all of its forestry operations, both in planning and "on the ground". However, as I have noted there are some parts of this document which suggest an approach to the precautionary principle narrower even than that advanced by VicForests in this proceeding.

296 A later document is also relevant. This document was exhibited to one of Ms Jacobs' affidavits. It is called the "Pre-Harvest Biodiversity Survey Instruction", and is dated 24 June 2016. The general approach is set out at section 4.1 of that document:

> Every coupe proposed or approved on the TRP is subject to a range of surveys aimed at identifying and addressing biodiversity conservation risks associated with timber harvesting. These surveys are collectively termed 'pre-harvest surveys'. Pre-harvest surveys focussed on identifying significant biodiversity values, including threatened species, their habitat and threatened vegetation communities are termed 'Pre-harvest Biodiversity Surveys'.
>
> A risk-based approach is used for every coupe to determine what and when biodiversity values are to be surveyed for, what the most appropriate survey method(s) are, and what management options are to be considered. Whilst the value identification process has a high degree of focus at the operational scale, the risk evaluation decisions regarding biodiversity management will consider existing conservation representativeness of biodiversity values at much broader scales.

297 Mr Paul's evidence at [215] of his second affidavit, incorporating passages from his first affidavit, also addresses these additional surveys, by reference to another section of this document:

> I note at paragraph 16 of the Third Jacobs Affidavit a portion of that section has been extracted. However, the following section is not extracted, and the text occurs in the document between the table and the dot points on page 9 of the Third Jacobs Affidavit:
>
> "4.4.2. High Risk Coupes
>
> High-Risk coupes are selected on the basis of a coupe meeting a number of criteria designed to indicate increased likelihood of a particular threatened species or group of threatened species inhabiting the forests within or within close proximity to the proposed coupe area.
>
> VicForests currently use three sets of Criterion when considering 'high-risk' coupes. These criterion are specific to the target species (or group of target species) and the region the coupe is located as Indicated

> within Table 2.
>
> Coupes requiring a targeted species survey are generally selected after considering the information resulting from the desktop assessment or coupe transect stages of the Pre-Harvest Biodiversity Survey process. Information received from third-party threatened species detection reports may also be considered as part of the decision to undertake or not undertake a targeted species survey (See section 4.6 for more details on Third-party detection reports)." (emphasis added).

> Therefore, whilst it is true that the document does not require surveys for Greater Gliders in the Central Highlands RFA area (because there is no management prescription for Greater Gliders in the Central Highlands as opposed to East Gippsland), where a coupe is identified as having higher overall risk through the desktop assessment and/or coupe transect stages, VicForests will undertake a targeted species survey and information received from third parties may inform the decision to undertake or not undertake a targeted species survey.
>
> (Original emphasis.)

298 As Mr Paul's evidence indicates, it was common ground that VicForests does not, as a matter of course, carry out pre-harvest surveys for the Greater Glider in the CH RFA region because (unlike in East Gippsland) there is no specific management prescription for the Greater Glider which must affect timber harvesting in a coupe where the Greater Glider is detected.

299 However, Mr Paul's evidence in his first affidavit, and quoted in his second affidavit, was (at [67] of his first affidavit):

> Therefore, whilst it is true that VicForests is not required to survey for Greater Gliders in the Central Highlands RFA area, in practice, Greater Gliders observed during the course of threatened species surveys or otherwise observed during the course of pre~ harvest surveys are recorded and reported, following which VicForests will give consideration to implementation of the Interim Greater Glider Conservation Strategy (**Interim Strategy**) within a particular coupe. The Interim Strategy is annexed to the Third Jacobs Affidavit as annexure "**DJ-33**".
>
> (Original emphasis.)

300 I deal with the Interim Greater Glider Strategy at [866] to [942] below.

301 There are a number of specific prescriptions for the Leadbeater's Possum, which Mr Paul describes in his second affidavit, and therefore in some circumstances VicForests does undertake pre-harvest surveys for Leadbeater's Possum colonies. VicForests has a document entitled "Leadbeater's Possum Pre-Harvest Survey Instruction" (dated September 2017) and also a survey instruction for the identification of Leadbeater's Possum Zone 1A and 1B habitat. The adequacy of surveys carried out pursuant to these instructions, and how their results are taken into account in VicForests' forestry operations, are live issues on the s 18 aspects of the case in relation to the Leadbeater's Possum, and I return to them below.

302 After a coupe is harvested, a post-harvest map is produced. Mr Paul describes this in his second affidavit at [163]-[164]:

> One document that is usually kept on a Coupe File for a particular coupe is a post-harvest map. Post-harvest maps are a standard template map produced by VicForests from Cengea. Post-harvest maps are produced to show the net harvest area of a coupe. Post-harvest maps are typically kept on the Coupe File for the particular coupe but can also be generated at any particular point in time.
>
> The key inputs are the shapefiles of the net harvest areas generated by relevant supervising foresters walking the harvested coupe boundary and taking GPS waypoints along the way. Those GPS waypoints are entered by the foresters into Cengea to generate the net harvested area shapes.

303 Mr Paul then deposes to some errors in some of the post-harvest maps he had reviewed, and to the correct areas which were harvested in a number of the Logged Coupes.

304 At this point two defined terms in VicForests' 2016 Coupe Reconnaissance Instruction document (annexed to Mr Paul's second affidavit) should also be set out. First, the definition of "Estimated Harvestable Area/Nett area/Nett":

> The approximate area expected to be harvested within the gross coupe area boundary. It is the gross coupe area minus any Code, FMP or other exclusion areas and all retained habitat areas.

305 Second, the definition of "Gross coupe boundary":

> The area within which any individual coupes or road-line coupe's harvesting and roading operations will be conducted. It is represented spatially by the 'proposed coupe boundary' that is mapped in CENGEA and approved on a TRP.

VicForests' habitat mapping

306 Mr Paul gave evidence about VicForests' mapping and information systems in his second affidavit.

307 He deposed that VicForests undertakes its planning and analysis with digital mapping technology using Geographic Information Systems or "GIS", and that it uses a variety of GIS software programs for the purpose of "remote identification" of particular features and characteristics of the forest estate.

308 Mr Paul deposed that for Timber Release Plans and coupe planning purposes, VicForests uses a system called Cengea. His first affidavit (at [36]-[41]) explained the Cengea system, and it is not necessary to set out that explanation. Relevantly to the issues in this proceeding, it is through Cengea that VicForests staff can "layer" information sourced from GIS data to create maps and view spatial maps which it uses to plan and implement its forestry operations, and it

is in Cengea that information about flora and fauna detections is stored. Mr Paul deposed that some examples of typical "layers" that VicForests uses include streams, roads, terrain (contours), vegetation types, biodiversity values, cultural values, land tenure and aerial photographs.

309 A material issue in the s 38 aspect of the applicant's case was the unreliability of the mapping used by VicForests, in particular a layer called "Greater Glider High Quality Habitat Class 1", which VicForests uses in its "Glider Habitat Model" to predict where high quality habitat which has been modelled as suitable for the Greater Glider may be present. Both Dr Smith and Dr Davey agreed the Class 1 Habitat modelling was not reliable. When Mr Paul was cross-examined about this, his evidence was that it was not data that VicForests created but that it was data created by DELWP and utilised by VicForests. That is consistent with what he deposes in his second affidavit, about some of the "layers" in Cengea being created by DELWP. However, the material issue is not whose fault it is that the habitat mapping is unreliable: the material issue is that it *is* unreliable. Mr Paul did not seek to say otherwise, accepting that it "had problems". I make findings about this matter at [420]-[454] below.

Mr Paul's evidence about whether the Scheduled Coupes will be placed back into the harvesting schedule

310 A feature of VicForests' defence was based on Mr Paul's evidence that the Scheduled Coupes have been taken out of the harvesting schedule because of this proceeding. His evidence in cross-examination was:

> We've halted all planning on the scheduled coupes due to this court case.

311 He was then asked if it was VicForests' desire to carry out forestry operations in those coupes, and his evidence was:

> It would be subject to us rerunning our planning on those, and we will replan them in light of FSC as well, given that we expect that to be in place by mid-July, we will rerun all our planning over those coupes with that new process and principles.

312 He was then reminded that only five of the Scheduled Coupes were subject to the injunction granted on 10 May 2018 and the following exchange occurred:

> So there's no reason why anything about the proceedings stopped the development of further coupe plans, is there?---No theoretical reason, but we didn't want to raise problems for ourselves to start planning and then have to stop again.
>
> Well, you could have raised problems or you might have found solutions. Did you think about that?---We felt it better to let the court case run its course.

> Or was it decided that you thought uncertainty was better suited to your case?---No, we just decided it was inappropriate to continue with the planning of the coupes while the court ran and rescheduled other coupes instead.
>
> It remains the case, isn't it, that VicForests would wish to carry out forestry operations in those 42 scheduled coupes because they've been relisted on the 2019 TRP. They haven't been removed, have they?---No, they haven't.
>
> And that means that they're scheduled to be the subject of forestry operations between 2019 and 2022?---That's there, yes, but I guess, as I said, we are not planning to harvest any at this stage until after the case has run its course.

313 What weight should be given to this evidence, and what its effect is, are critical issues on which the parties made opposing submissions. As I explain, neither VicForests' voluntary decision not to harvest in coupes affected by this proceeding, nor Mr Paul's other evidence about the contended "uncertainty" attaching to which coupes VicForests will harvest, are factors I have found persuasive against the applicant's case.

VicForests' policy changes about its silvicultural methods

314 In the fourth affidavit of Mr Paul, which was the cause of the adjournment of the trial, Mr Paul deposed to some changes in VicForests policies concerning timber harvesting. The reason for these changes, Mr Paul deposed, was that VicForests was seeking certification from the FSC, an international certification body which certifies forest management systems, and has developed an international standard for forest management. He deposed it has also developed a national forest management standard for Australia, and that VicForests is seeking to secure certification from the FSC. At [53] of his fourth affidavit, Mr Paul extracted a passage from the FSC's website, to demonstrate (I infer) the function of FSC certification:

> When timber leaves an FSC - certified forest we ensure companies along the supply chain meet our best practice standards also, so that when a product bears the FSC logo, you can be sure it's been made from responsible sources. In this way FSC certification helps forests remain thriving environments for generations to come, by helping you make ethical and responsible choices at your local supermarket, bookstore, furniture retailer, and beyond.

315 At [57]-[58] of his fourth affidavit, Mr Paul deposes that FSC certification permits businesses selling wood-sourced products to attach a certification label to a product. He identifies one such label (which I infer is a label VicForests is aiming to be able to use) as the "FSC Mix Label", which is not a full FSC certification. Rather it certifies the product is a mix of "a minimum of 70% FSC certified and/or recycled material, and at most 30% 'controlled wood'". It is the FSC definition of controlled wood which, in effect, Mr Paul deposes is causing VicForests difficulties in achieving FSC certification. That is because to be "controlled wood", wood must *not* be sourced from any of the following five sources:

(a) illegally harvested wood;

(b) wood harvested in violation of traditional and civil rights;

(c) wood harvested in forest in which high conservation values are threatened by management activities;

(d) wood harvested in forests being converted from natural and semi-natural forest to plantations or non-forest use; and

(e) wood from forests in which genetically modified trees are planted.

316 It is apparent that VicForests has been attempting to secure FSC certification, and thus meet the Controlled Wood Standard, for some time. At [67] of his fourth affidavit, Mr Paul describes a 2014 "gap audit" which was "conducted to identify elements within VicForests' forest management system that did not meet the Forest Management Standard and the Controlled Wood Standard that applied at that time".

317 Mr Paul deposes at [71] of his fourth affidavit that, in relation to the term "high conservation values" in criterion (c) of the list at [315] above (which I infer from Mr Paul's evidence has been the stumbling block for VicForests, rather than the other criteria), there are six categories of high conservation values that are described as HCV 1 to HCV 6. They reflect the global nature of FSC objectives and certification:

> **HCV 1**: Forest areas containing globally, nationally and regionally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia).
>
> **HCV 2**: Forest areas containing regionally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
>
> **HCV 3**: Forest areas that are in or contain rare, threatened or endangered ecosystems.
>
> **HCV 4**: Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
>
> **HCV 5**: Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).
>
> **HCV 6**: Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

318 In 2017 a document was prepared by VicForests in furtherance of its attempt to achieve FSC certification. That document was called "VicForests Management for High Conservation Values" and was, I infer, directed at criterion (c) of the "controlled wood" definition and the six categories of high conservation values. Mr Paul deposes that in this document, amongst

other matters, VicForests identified Leadbeater's Possum habitat and Greater Glider habitat as high conservation values falling within HCV 1.

319 I note that at p 25 of that document, under a section entitled "HCV1.2: Threatened species", VicForests states that:

> Every coupe proposed or approved for possible harvesting is subject to a range of surveys aimed at identifying and addressing biodiversity conservation risks associated with roading, timber harvesting and forest regeneration. Surveys are focussed on identifying significant biodiversity values, including threatened species, their habitat, and threatened plant communities.

320 And then towards the end of this section (after a discussion about desktop assessments and coupe transects as the two methods used by VicForests to determine the potential occurrence and existence of certain values in a proposed coupe, including threatened species, and the conduct of targeted species surveys in certain circumstances), the following statement appears:

> When a positive detection for a species occurs at a coupe, the appropriate regulatory prescriptions must be determined, recorded within the Forest Coupe Plan and fully implemented. Threatened species prescriptions are outlined in VicForests Procedures - Regulatory Handbook (VicForests 2016a), which incorporates regulatory requirements from The Code of Practice for Timber Production (2014), Action Statements linked to the *Flora and Fauna Guarantee Act*, DELWP Forest Management Plans and other relevant legislative instruments or Instructions.

321 The reader might consider this statement suggests VicForests will invariably conduct surveys for threatened species, and will invariably protect habitats occupied and used by threatened species which are detected. That, as the evidence discloses, is not the case.

322 Mr Paul deposes at [62] of his fourth affidavit that in 2017, VicForests engaged SCS Global (an FSC accredited auditing body) to "conduct an audit of VicForests' forest management system for its eastern operations against the Controlled Wood Standard". Mr Paul's evidence is that after the audit was completed in early December 2017, he was told that VicForests did not meet the requirements of the Controlled Wood Standard at that time. After an exchange of correspondence which need not be described, the auditor prepared a written report dated 21 May 2018 entitled "Forest Management Controlled Wood Certification Evaluation Report". The Controlled Wood Report is in evidence. The key passages should be set out:

> **Non-Conformity** *(or Background/Justification in the case of Observations)*:
>
> If VF's efforts to comply with FSC's requirements regarding high conservation values are judged solely on the basis of their *Management of High Conservation Values* document, the likely conclusion would be that of conformity to Indicator 5.2 of 30-010. But, on the basis of stakeholder consultations during the field audit, review of written materials submitted by stakeholders as well as interviews with VF field

personnel, the audit team has concluded that there remains a considerable gap between design/intent and implementation of VF's HCV strategy. Factors contributing to this conclusion include:

- None of the stakeholders that the audit team interacted with prior to and during the field audit indicated that they had been contacted by VF in the context of the company's HCV strategy; this conflicts with the written commitment that VF has consulted with stakeholders as part of their HCV strategy;

- Stakeholders who made contact with the audit team were strongly of the opinion that VF's forestry operations-particularly clear felling of mature stands of ash followed by site preparation burn-are adversely impacting high conservation values such as old growth and habitat for protected species;

- The HCV assessment relied primarily and sometimes exclusively on Modelled Old Growth whereas stakeholders submitted evidence and the audit team observed numerous locations where old growth values are present in areas that are not delineated as Modelled Old Growth

- VicForests did not demonstrate to the audit team that the Old Growth models had been tested with field data or verified sufficiently by other means such that the Old Growth Model could be used as a surrogate for assessment on site;

- Stakeholders were of the opinion, and provided evidence supporting their opinion, that the identification and delineation of plant communities is inadequate and that rainforest communities, in particular, are not adequately recognized in the field and in planning documents. Consequently, the data layers used in harvest coupe planning do not adequately reflect reality. Operations personnel in the two Regions forming the scope of the audit revealed essentially no awareness of the company's HCV strategy nor their roles in the strategy;

- The audit team's own conclusion that the even-aged management prescriptions (clear fell and burning) employed by VF are in fact adversely impacting high conservation values such as old growth and habitat for species such as the Leadbeater's Possum and the Greater Glider; and

- The encroachment of harvesting operations outside the delineated harvest boundaries coupled with circumstances where VF personnel have not accurately delineated areas near planned harvests that possess special values are creating instances where high conservation values are being adversely impacted (threatened).

So, while the content of the HCV Strategy document, completed just a few weeks prior to the audit, suggests that VF–at least in design–is intending to hew a course that could well be in compliance with FSC's HCV requirements, there is a substantial gap between stated intent and what has thus far been accomplished/implemented. More work and further modifications in key practices such as clear felling and burning as well as delineation of special values, including but not limited to old growth, is required for VF to be able to demonstrate conformance with this Indicator.

Corrective Action Request (*or Observation*):

VicForests must build upon the November 2017 *Management of High Conservation Values* document in order to demonstrate that: a) areas and resources that meet the FSC definition of High Conservation Values are being effectively and competently detected and delineated; and, b) the company's forest management operations are, in fact, avoiding adverse impacts (threats) to high conservation values present on its forest

estate.

323 On the following page, this observation was made by the auditor:

> **Observation**: The audit team observed that there was very limited knowledge of and familiarity with the HCV term and HCV protocols among field staff (who were, in all other respects, found to be top quality staff and highly motivated people). Additional training with respect to the FSC concept of high conservation values would be beneficial.

324 The similarity between this aspect of the Controlled Wood Report, and themes in the applicant's case, can be observed.

325 Not for the only time in these reasons, it is apposite to observe also that there is an inevitable tension in fully recognising and implementing strategies designed to protect and conserve matters such as "high conservation values" or – to use the EPBC Act's language – to protect and conserve matters of national environmental significance in Australia's forests, and the continued exploitation of mature native forest for commercial timber harvesting. The incompatibility is rarely expressly articulated, but in my opinion it is real, and it is this incompatibility which tends to give rise to disputes of the kind evident in a proceeding such as this.

326 VicForests then made a decision, on Mr Paul's evidence, to continue to pursue Controlled Wood Certification by 2020 and in doing so, to address the non-conformities identified in the Controlled Wood Report. His evidence was:

> The decision to pursue Controlled Wood Certification was not a new decision of the business. It was a confirmation of a pre-existing goal endorsed earlier by VicForests' Board. This became known within VicForests as the "FSC 2020 Project".

327 In fact, and I find, the pursuit of Controlled Wood Certification has been a goal of VicForests since at least 2014, as I have identified above. The length of time VicForests has been pursuing this objective, and the lack of alteration in its timber harvesting methods, on the evidence before the Court, is a matter emphasised by the applicant and in my opinion correctly so.

328 Mr Paul then describes the process undertaken within VicForests, through a Steering Committee, to work towards the objective of certification in 2020. That process commenced, on Mr Paul's evidence, with a meeting of the Steering Committee in May 2018. This date is of some relevance, because it was approximately nine months before the trial in this matter was originally scheduled to proceed. It was also well before the release of the amended Timber Release Plan, which occurred in April 2019. Despite being well-advanced on this project towards more adaptive and responsive silvicultural systems, as the applicant correctly points

out, VicForests made no changes to the silvicultural method for the impugned coupes in the amended Timber Release Plan published in April 2019. That is a matter to which I give some weight in reaching my conclusions, later in these reasons, that VicForests has shown no real commitment towards changing its silvicultural practices "on the ground" and in the realities of the conduct of its forestry operations. A real commitment would have been demonstrated by amendment of the Timber Release Plan to specify new silvicultural systems or – at the very least – to remove or reduce the nomination of clear-felling as a silvicultural method, given that by this stage VicForests knew there had been Greater Glider detections in all of the Scheduled Coupes in issue in this proceeding.

329 Mr Paul's fourth affidavit then describes the internal processes within VicForests which followed the initial meeting of the Steering Committee. It is fair to say the focus of his evidence is on how VicForests went about developing new documents. That, of course, was not the point made by the auditor: its point was about what happened on the ground, in the forest. However, it is consistent with other findings I make in this proceeding that what Mr Paul describes as VicForests' reaction to the Controlled Wood Report, and its plan for the new FSC 2020 Project, had a focus on documentation. VicForests did not, for example, put as the first priority the need to educate its contractors about how to implement prescriptions, nor did it commence undertaking pre-harvest surveys in every coupe, nor did it design methods to monitor more closely how prescriptions were implemented during harvesting, or how detections of threatened species in coupes would be managed on the ground.

330 Mr Paul describes the establishment within VicForests of a number of "work streams" as part of the FSC 2020 Project. He deposes at [91] of his fourth affidavit:

> One of the work steams identified involved reviewing and assessing VicForests' harvesting and regeneration practices (i.e. its silvicultural practices) (**the Silvicultural Stream**). One stream involved reviewing the 2017 HCV Document and its implementation (**the HCV Stream**). Another stream involved a review of VicForests' stakeholder engagement process. A fourth workstream was developed to measure the potential impacts flowing from the other three streams.

331 At [93] and [111]-[112], Mr Paul deposes:

> The Silvicultural Stream and the HCV Stream are interlinked, as the silvicultural system needs to be adaptive to meet requirements to protect high conservation values. By "adaptive", I mean that the silvicultural system is flexible and responsive to conservation values (and in particular, high conservation values) as they are found on the ground.
>
> …

> As a result of the adoption of these broad guidelines [the "Guidelines for adaptive silvicultural systems"], VicForests will have a clear system to implement adaptive silvicultural systems that are flexible and responsive to the presence of high conservation values.
>
> However, VicForests is already implementing the ideas developed in the guidelines, in the field. That is, foresters have a discretion to implement greater levels of tree retention where high conservation values are identified.

332 Again, the evidence of detections, use of and presence in the impugned coupes of two threatened species in this proceeding might have been thought to provide VicForests with an opportunity to demonstrate, on the ground, its flexibility and responsiveness, and the adaptation of its silvicultural methods, but that was not the approach it took in this proceeding.

333 Through the second half of 2018 and into early 2019, VicForests continued with its work as described by Mr Paul, with one "output" for the "Silvicultural Stream" said to be:

> to update VicForests' documents and practices to provide for adaptive silvicultural systems that avoid adverse impacts on high conservation values.

334 This resulted in the creation of a document entitled "Guidelines for adaptive silvicultural systems". The most current draft of that document at the time of Mr Paul's fourth affidavit was dated 11 February 2019, coincidentally the same date Mr Paul affirmed his affidavit.

335 Mr Paul deposed (at [110]) that:

> The guidelines do not provide instruction to planning and operations staff regarding the decision process in order to implement each adaptive silvicultural system. That work is underway but is not in any final form as at the date of affirming this affidavit.

336 It is unclear on the evidence what implementation has occurred with VicForests' planning and operations staff, save that Mr Paul asserted in cross-examination that VicForests will be "running lots of training" and training its staff "in line" with these policies. Save for the Castella Quarry example put forward by VicForests very much at the last moment, which I deal with in detail below, there was no evidence of such training, nor any evidence about how at a coupe level forestry operation practices had changed.

337 Iterations of the February 2019 document continued to be produced. There was an 8 March 2019 version, entitled "VicForests Harvesting and Regeneration Systems Version 1.0", which was adduced in evidence. In its closing submissions, the applicant made comparisons between this version and the latest version adduced by VicForests at trial, which was "Version 1.1" dated 31 May 2019, of which two versions were in evidence. I agree with the applicant's submissions that the comparisons are telling against VicForests' defence. I

return to this issue later in these reasons. In this section of my reasons, I shall call these two versions the "March 2019 Harvesting and Regeneration Systems document" and the "May 2019 Harvesting and Regeneration Systems document".

338 The following passages from the March 2019 Harvesting and Regeneration Systems document should be extracted:

> VicForests has reshaped its harvesting and regeneration systems within the context of its policy commitment to implementing *adaptive silviculture*. VicForests' use of the term adaptive silviculture is based on the foundation concept of adaptive management and the application of this to the selection of appropriate silvicultural systems for public native forests in Victoria.
>
> *Adaptive management* has been defined as a process of management, planning and decision-making in the face of uncertainty, to acquire and use knowledge as this is created, learn from successes and mistakes, and modify practices to better achieve management goals. In their comprehensive review of the management of Victoria's publicly-owned native forests for wood production, Turner et al observed in 2010:
>
> > *Sustainable forest management must be underpinned by the principle of adaptive management. This involves planning (setting goals and identifying indicators), implementation, monitoring and evaluation (against indicators), and review leading to adapted plans or guidelines. Use of this model will ensure that the forests progressively become better managed.*
>
> …
>
> Most recently, VicForests has committed to adapting and further developing its systems, in ways that are aligned with a shift towards increasing use of variable retention. This includes development of its 'Regrowth Retention Harvesting' (RRH) system, which it has been applying to Ash regrowth stands since 2014. In East Gippsland, VicForests has over the past five years substantially increased the level of retention of hollow bearing trees and trees with other conservation values; and reduced the use of high intensity regeneration burns.
>
> Through these management systems, VicForests intends to continue adapting its silvicultural practices, and the application of these systems, to achieve a balance between forestry and biodiversity across the forest areas in which it operates.
>
> (Original emphasis; footnotes omitted.)

339 Three objectives are identified on p 5 of the document:

> Strengthen HCV management systems: Review and strengthen planning and operational systems for identifying, retaining and protecting HCVs throughout its operations
>
> Increase variable retention levels in harvesting operations: Shift from the predominant use of clear-fall harvesting systems, to a more adaptive suite including more selective and dispersed harvesting systems that will support multi-cohort forest management
>
> Minimise the use and intensity of regeneration burns: Shift from the predominant use of high intensity regeneration burns in all forest types, to a more adaptive suite of regeneration treatments that further reduces risks of any damage to retained trees.

340 Immediately under these objectives, the document states:

> It should be noted these objectives do not preclude the use of clear-fall harvesting systems or a selective use of burning for regeneration. However, VicForests has committed to reducing the predominant use of these systems, with the aim of applying more adaptive regimes that place highest priority on maintaining HCVs.

341 The first (and relevant) High Conservation Values Management Systems document is described in the following terms on p 7:

> *Species diversity*: Concentrations of biological diversity* including endemic species, and rare*, threatened* or endangered species, that are significant* at global, regional or national levels. [The asterisks indicate defined terms in the FSC national standard of Australia.]

342 Again, as with earlier documents (including VicForests' Interpretation of the Precautionary Principle document), the document then emphasises the importance of "landscape level processes" in conservation efforts:

> To a large extent, the identification, retention and protection of HCVs within State forests (in which VicForests operates) is addressed through broader landscape level planning processes that are managed by the State government.

343 Despite this recurrent theme, the document then states at p 8:

> However, following the FSC Controlled Wood evaluation audit completed in 2017/18, VicForests has recognised the need for greater focus on protection measures at the coupe/site level. While landscape level protection measures are largely addressed through RFA and Forest Management Planning processes, coupe level requirements require additional attention through adaptive silviculture and selection of appropriate harvesting and regeneration systems.
>
> Specifically, VicForests has identified the need to focus on identifying hollow bearing trees, and habitat trees more broadly, and incorporating their protection in variable retention silviculture systems.

344 In other words, VicForests did now recognise, at least by March 2019, that its own view of what was required to conserve and protect values such as threatened species had been identified as deficient in the way it was implemented on the ground, where the "protection" was to be delivered.

345 From p 10, the March 2019 Harvesting and Regeneration Systems document identifies five silvicultural systems which constitute its "redefined" suite of systems "for application across State forests in Victoria".

346 Those five systems were: (1) Clear-felling and seed tree operations; (2) Variable retention 20%; (3) Variable retention 40%; (4) Variable retention 50% and (5) Single tree selection. Later in these reasons it will be necessary to discuss what is meant by each system, and what the expert

evidence said about their use "on the ground" in forestry operations. For the moment, it suffices to note that system (2) is said in the document to be based on the regrowth retention harvesting method. Thus it appears the first two systems reflect, broadly, existing silvicultural systems, and the last three are newer variations. For each system, evaluation sites – mostly actual coupes – were identified.

347 The following aspects of the May 2019 Harvesting and Regeneration Systems document should be highlighted.

348 The document has more general background information at the start. The objectives set out at [339] are similar, however the wording "more adaptive suite" in the second and third objectives has been replaced by the wording "a broader suite". Further, the title of the third objective now refers to "controlled burns for regeneration" rather than "regeneration burns". The qualification to the objectives to which I referred in [340] above has been removed, although a similar statement appears a little later in the document, under section 3.2.2.

349 At p 9 of the document, having described in overview the "redefined" range of silvicultural methods, the document states:

> VicForests expects that by 2020, variable retention harvest systems will account for more than 75% (by area) of its annual program of harvesting operations across the State. The use of clear-felling and seed tree systems will be restricted to specific sites with relatively uniform stand features, and VicForests expects that it will account for no more than 25% of its annual program of harvesting operations.

350 The document discusses adaptive management in more detail than in the March 2019 Harvesting and Regeneration Systems document. A relevant example of the kinds of new strategies VicForests puts forward in the document is this statement (on p 11) about habitat tree retention:

> Focus on increasing tree retention levels within harvest areas, beyond Code obligations and HCV management requirements, to enhance habitat resources for the present and the longer term – and in this context, VicForests will:
>
> a. recruit two or more emergent habitat trees for every existing habitat tree; and two or more additional trees with potential to become emergent habitat trees;
>
> b. enhance the protection of retained trees through aggregation in forest patches and connectivity with existing areas of reserved trees where possible; and
>
> c. reduce reliance on the use of high-intensity controlled burns for regeneration of the site, through further development of alternative systems for effective regeneration, including use of 'cool burns' as well as mechanical disturbance across sites or in specific areas.

351 In Annexure A to the May 2019 Harvesting and Regeneration Systems document, four (rather than five) silvicultural systems are specified: (1) Clear-felling and seed tree operations; (2) Variable retention system 1; (3) Variable retention system 2 (which appears to be based on system (3) in the March 2019 Harvesting and Regeneration Systems document); and (4) Selection harvest systems. No percentages are set out in terms of retained forest per coupe for the "Variable retention" systems in the May 2019 Harvesting and Regeneration Systems document in the section specifying "prescriptions" for Ash and Mixed Species forests, although numbers of habitat trees to be retained are specified on an indicative basis. System (4) states that it is based on the principles of "group" and "single tree" selection, rather than just the single tree selection harvesting system.

352 The applicant's submissions, and evidence, spent some considerable time on the May 2019 Harvesting and Regeneration Systems document in particular. The contents of the document are a core aspect of VicForests' defence in this proceeding, as I have outlined, in terms of its contentions about lack of certainty of harvesting methods for the Scheduled Coupes; the proposed move away from clear-fell and other more "traditional" harvesting methods (therefore undermining what VicForests says are many of the assumptions in the applicant's case and evidence); and the generally more flexible and less intensive silvicultural practices which VicForests contends the document foreshadows.

353 This document, and VicForests' quest for FSC certification which has triggered this new policy, were the subject of considerable cross-examination of Mr Paul. I refer to his oral evidence about VicForests' new policy, its content and implementation, when I consider both the s 38 arguments, and the s 18 arguments.

The Castella Quarry coupe as the only current example of "variable retention harvesting"

354 The Castella Quarry coupe is located in a group of coupes to the west of the Nolans Gully coupe group, and north-west of the town of Toolangi. In his fourth affidavit at [4], Mr McKenzie refers to the Castella Quarry coupe being in the "Castella area" of coupes. The coupe was the subject of evidence by Mr McKenzie, concerning detections of Greater Glider in December 2018 in and around that coupe, his recording of those detections and his reporting of them to DELWP. Later in my reasons, I describe the detailed and probative evidence of Mr McKenzie, and that of other witnesses for the applicant who were engaged in detecting Greater Glider and Leadbeater's Possum in the impugned coupes.

355 At a case management hearing on 16 April 2019, VicForests proposed that, on the view the Court was to undertake during the trial, Castella Quarry coupe should be added to the list of coupes to be visited. VicForests contended that Castella Quarry was a then-current example of VicForests employing various silvicultural methods within the one coupe. In correspondence to the Court on 24 April 2019 VicForests stated it no longer pressed for the inclusion of Castella Quarry in the itinerary for the view. However, on the third day of the trial the Court was informed that the parties were proposing to visit Castella Quarry on the view. Senior counsel for VicForests indicated that at Castella Quarry the Court would see an example of the use of the variable retention harvesting methods set out in VicForests' Harvesting and Regeneration Systems document. Mr Paul gave some evidence about the Castella Quarry coupe, agreeing it was an experimental site with a high, and increased, level of engagement by VicForests staff and the contractor. Proportionally to other sites, the Court spent a considerable time in the Castella Quarry coupe on the view.

356 One of the coupe plans for Castella Quarry (entitled "Harvesting Retention Plan") illustrated, on VicForests' argument, the difference with the use of the new, adaptive silvicultural methods. During the trial both parties appeared to proceed on the basis that the silvicultural methods identified in the coupe plan were referring to the silvicultural systems outlined in the March 2019 Harvesting and Regeneration Systems document.

357 The Castella Quarry Harvesting Retention Plan shows the gross area of the coupe to be 56.79 ha, and the estimated nett area to be harvested to be 35.3 ha. It then shows the northernmost part of the coupe as to be harvested by "Silv I" – that is, clear-felling and seed tree operations. Areas towards the centre and south of the coupe (the largest harvesting areas in the coupe) are to be harvested by "Silv II": that is, by "Variable retention 20%". Two small areas totalling 4.7 ha are to be harvested by "Silv III", meaning "Variable retention 40%". Finally, there was an area of approximately 7 ha to be harvested by "Silv V" – that is, "Single tree selection". Later in these reasons I make findings about what can and cannot be drawn from the harvesting of the Castella Quarry coupe: in summary, although the estimated nett harvested area is obviously reduced by the use of different silvicultural methods, what the Court saw "on the ground" suggested that measures such as habitat tree retention were not being effectively implemented. Further, Dr Smith gave what I consider persuasive evidence, consistent with Mr Paul's own evidence in cross-examination, that retained areas were not immune from subsequent harvesting and therefore did not provide any secure habitat. The

closing submissions of VicForests do not address Castella Coupe specifically at all, despite VicForests being the party who initially wished the Court to see it.

THE 2019 REVIEW OF DELWP'S ROLE AS A FORESTRY REGULATOR

358 Included in the material before the Court was a document titled "Independent Review of Timber Harvesting Regulation" dated 24 October 2018, being the report of an independent panel appointed in September 2018 to undertake a five-week review to (as described in the Foreword of the report):

> examine the effectiveness of DELWP's prosecutions and regulatory functions and outline a pathway to strengthen these now and for the future.

359 The review arose out of an unsuccessful prosecution by DELWP against VicForests for an alleged breach of the SFT Act in a coupe in East Gippsland. On p 23 of the report, the panel described the allegation as being that VicForests:

> undertook timber harvesting operations in March 2016 without those operations being "authorised operations." Although not stated in the charge, the allegation was that a VicForests contractor had harvested 0.23 hectares of required rainforest buffer in contravention of the Code of Practice for Timber Production 2014.

360 The report records (at p 23) that VicForests actively defended the allegation, including by challenging the validity of the charge, and that it refused to give an enforceable undertaking as a way of disposing of the prosecution. The case was struck out by a magistrate on 30 August 2018, on the basis that the charge laid did not meet the requirements of the *Criminal Procedure Act 2009* (Vic). It was this outcome which led the Secretary of DELWP to commission the review.

361 The panel consulted widely, if one looks at the appendices, and also looked at a number of case studies. Aside from the failed prosecution, another case study was the *Brown Mountain* case, and yet another was the absence of prescriptions for the Greater Glider despite its listing as a threatened species under the FFG Act. The panel did not appear to consider the EPBC Act listing. On the Greater Glider, the panel concluded:

> As a result, despite being listed as a threatened species since June 2017, the lack of prescriptions means that the Greater Glider has still not received any further protections in state forests.

362 The panel made 14 recommendations, and stated as a general introduction to those recommendations:

> The Department of Environment, Land, Water and Planning (DELWP) is responsible

> for a range of regulatory schemes including for timber harvesting. There is both a need and opportunity to refocus and re-energise its regulatory efforts by articulating a clear, holistic view of the department's regulatory purpose and objectives. To achieve this, DELWP will need to lift its regulatory practice and build its capability by ensuring it has the right people, processes, technology and infrastructure.
>
> Our recommendations have been crafted to add value to the regulatory function in the current policy and legislative environment. The Panel believes that action is required now. We firmly believe that acting now will deliver better outcomes today and prepare DELWP to be a more effective regulator whatever the future requires.

363 Some of the recommendations relevant to the issues in this proceeding included:

> 8. Write and implement procedures including a prosecutions policy, guidance on the application of the precautionary principle, the use of contested tools in the regulatory framework and how to deal with the 'honest and reasonable mistake' defence, a standard operating procedure for section 70 of the *Sustainable Forests (Timber)* Act (SFT Act) and a process for internal review of decisions.
>
> 9. Make better use of the tools available across all the relevant Acts to ensure better outcomes in timber harvesting.
>
> 10. Improve existing regulatory tools including through:
>
> a. Engaging with stakeholders to develop a common understanding of the Code of Practice for Timber Production 2014 (the Code). Where there is any disagreement on interpretation, DELWP should engage expert and/or legal advice to develop guidance.
>
> b. Reviewing sections 45 and 46 of the SFT Act considering the limitations imposed by the availability of the 'honest and reasonable mistake' defence.
>
> c. Reviewing sections 70 and 71 of the SFT Act to make it a more effective administrative compliance tool.
>
> 11. Develop new tools to allow for a more graduated and proportionate response to non-compliance. This may include official warnings, remedial notices and a broader range of sanctions including additional infringements.
>
> 12. Create new powers and protections to assist Authorised Officers in conducting their duties, including a coercive power to obtain information and documents rather than having to rely on clause 20 of the Allocation Order.
>
> 13 Facilitate the creation of a system of shared data between government agencies, environmental non-government organisations and VicForests to improve the environmental and community outcomes for forests and better direct regulatory efforts.

364 The panel stated clearly it did not find any bias within DELWP either for or against the forestry industry, despite the views of industry bodies that it was biased towards environmental groups and the views of environmental groups that it was biased towards the forestry industry. It generally found a commendable level of dedication within DELWP to the performance of its regulatory functions. However, its capacity to be an effective regulator of the forestry industry

in Victorian native forests was what the panel found needed improvement, in a number of respects.

365 DELWP accepted all of the panel's recommendations. Its response to the review (dated March 2019) was also in evidence. In response, DELWP proposed, relevantly to the issues in this proceeding:

(a) to appoint a Chief Conservation Regulator, a senior executive with accountability and independent regulatory decision-making authority for all environmental regulation undertaken by the department;

(b) to establish the Office of the Conservation Regulator, bringing together the parts of the department with regulatory responsibilities into a single division focused on best-practice regulation;

(c) to "publicly share more information about its regulatory role, responsibilities and purpose, and where appropriate … provide opportunities for the community to actively participate in achieving improved regulatory outcomes"; and

(d) to publish a Compliance and Enforcement Policy, finalise an updated Prosecutions Policy, and to publish a Compliance Plan annually.

366 In other words, the responses were to create new policies and procedures, new offices, and to engage in some structural reforms. There was no evidence before the Court whether any of those steps have in fact occurred. There was some cross-examination of Mr Paul about the implementation of the recommendations, in particular recommendation 13, and his evidence was that he was not aware of any work to progress that recommendation. There was no evidence, for example, that the Office of the Conservation Regulator was functioning, or what, if anything, it was doing in relation to VicForests' forestry operations.

367 The independent review and DELWP's response are referred to in the applicant's closing written submissions at [259] and [272]. There was no submission the review and DELWP's response should play a central role in the resolution of the issues in the proceeding, and they have not been given great weight in the conclusions I have reached. The evidence otherwise suggests VicForests still gives DELWP no or little notice of its planned forestry operations, and while it may engage with DELWP at an "on the ground" level if a particular issue arises (eg a third-party detection of a Greater Glider or Leadbeater's Possum in a coupe) VicForests does not always appear to act consistently with the substance of DELWP's recommendations.

The Leadbeater's Possum Zone 1A habitat debate in the miscellaneous breaches allegations is a good example.

DELWP SURVEYS

368 There was a live issue between the parties, arising from Mr Paul's oral evidence, about pre-harvest surveys which Mr Paul stated were being introduced by DELWP, including in the CH RFA.

369 The existence of pre-harvest surveys being carried out by DELWP in coupes proposed to be the subject of forestry operations by VicForests was not addressed in the (voluminous) affidavit evidence filed by Mr Paul, despite affidavits from Mr Paul being filed right up until 31 May 2019.

370 Rather, the matter emerged in oral evidence, during cross-examination, in the following way:

> And then if there's identified suitable habitat, then there will be a targeted species survey?---So we will do that in those cases where there's a high likelihood we will find those species. The department also has a survey program that aims to cover 80 per cent of all coupes that we plan to harvest as well for biodiversity values.
>
> That might be the aim. The department hasn't found a glider yet, has it, in any of the coupes in issue in this case?---They haven't looked in this case because they're no longer on our schedule for harvesting.

371 He added, a little later, when asked about who carries out pre-harvest surveys in the coupes in the CH RFA:

> The pre-harvest surveys might be carried out by our staff or contractors that we employ, but now DELWP are surveying 80 per cent of all coupes as well.

372 This was, to say the least, a rather surprising revelation by Mr Paul. Surveys for the two species in issue in this proceeding – the Greater Glider and the Leadbeater's Possum – had been a central and important issue in the proceeding since its (re)inception after the Separate Question reasons. It was acknowledged on both sides that the question of whether coupes are surveyed for threatened species prior to forestry operations being carried out was critical to some of the issues the Court needed to resolve. The omission by Mr Paul, and by VicForests, to lead evidence about a "new" DELWP pre-harvest survey program gives the Court no confidence that VicForests was being entirely forthcoming with the Court, or with the applicant, about the current state of its planning for forestry operations.

373 Mr Paul was further cross-examined about his assertions, by reference to the contents of the DELWP website at the time he was giving his evidence. That website extract is in evidence. It

revealed the survey program, described as the "Forest Protection Survey Program", has existed since July 2018. He was also cross-examined about the program by reference to the "Forest Protection Survey Program Survey Design Summary", dated October 2018, which is also in evidence and states:

> While species with prescriptions are the focus of the FPSP, taking a precautionary approach, other threatened species impacted by timber harvesting but without prescriptions, are also being considered. Such species have been prioritised for survey based on their threatened status, impact of timber harvesting, overlap with areas planned for harvesting and likelihood of being detected and their community profile.
>
> As of October 2018 there are 353 coupes on the ROP, of which 337 (excluding the roading coupes) will be the focus for the first year of the FPSP. The target set for this program is to survey 80% of the coupes planned for harvest.

374 This document contains a table which assesses the impact of timber harvesting on both the Greater Glider and the Leadbeater's Possum as "high", which is the highest rating assigned in the section of the table addressing timber harvesting impact. I note Dr Lumsden, whose work is cited often by the experts, in the Conservation Advices for both species and the draft Leadbeater's Possum Recovery Plan, is one person acknowledged as contributing to this document.

375 DELWP describes the main reasons for implementing the program in the following terms:

> The main reasons for conducting forest protection surveys are to:
>
> - improve the management and protection of species impacted by timber harvesting, by increasing the chances that threatened species are detected
> - decrease the likelihood of disruptions to timber harvesting within coupes by early detection of threatened species, where present
> - improve the confidence of environmental stakeholders in DELWP's ability to meet the environmental objectives of the Code

376 The document also states:

> Given the scale of the program, clear guidelines are being developed to establish how data are to be collected, standards of data required, and how these data will be organised, managed, stored and shared with other data systems within DELWP, such as the Victorian Biodiversity Atlas (VBA). Processes are being developed to ensure timely transfer of data between DELWP and VicForests to allow new findings to be incorporated into their coupe planning and timber harvesting scheduling processes.
>
> Species detections provide the basis for revisions to Habitat Distribution Models, which will lead to improved short and longer-term outcomes for threatened species, while minimising disruptions to harvesting operations. This survey program provides an opportunity to collect significant amounts of new data that will be highly beneficial in improving understanding of the distribution, habitat requirements, impact of disturbance and overall status of threatened species throughout the forest estate of

> eastern Victoria.
>
> …
>
> The Code states that 'The advice of relevant experts and relevant research in conservation biology and flora and fauna management must be considered when planning and conducting timber harvesting operations.' Scientific experts from the Arthur Rylah Institute (ARI) have conducted the principle design of this program.

377 There was also this aspect of Mr Paul's evidence on this matter:

> And if you go down to the next middle paragraph, the short paragraph, the department expressly says:
>
> > *The Forest Protection Survey Program does not replace the need for VicForests to undertake its own assessment of biodiversity values on coupes before harvesting.*
>
> That's the attitude of the department, isn't it?---Yes.
>
> So the attitude of the department is, "We are ultimately aiming to survey 80 per cent of coupes, but you, VicForests, should do your own surveys." Correct?---Correct.

378 I make findings about this aspect of Mr Paul's evidence, and the relevance of DELWP's survey program, in the s 38 section of these reasons.

RESOLUTION: SOME GENERAL FINDINGS

379 The structure of this part of the Court's reasons for judgment is as follows. First, it is necessary to resolve VicForests' contention that the applicant has made arguments about the Timber Release Plan, and also the Pre-harvest Biodiversity Survey Instruction and Interim Greater Glider Strategy, which are outside its pleaded case and new, and that the Court should not allow the applicant to rely upon them.

380 Next, there are a number of what can be described as "general findings", which form part of my reasoning on the factual and evidentiary aspects of both the s 38 arguments and the s 18 arguments. In relation to the Greater Glider, there is considerable overlap in the evidence between the s 38 issues and the s 18 issues, and therefore overlap in the Court's fact-finding task. That is, there is overlap between whether the precautionary principle is engaged, and if engaged whether VicForests failed to apply it to its forestry operations as they might affect the Greater Glider, and the question of significant impact on the Greater Glider from VicForests' impugned forestry operations. Of course, each of the s 38 issues and the s 18 issues arise in a different legal context, but for the purposes of these general findings, that evidence has relevance, and weight, in the resolution of all those three issues.

381 After identifying and making these general findings, the reasons then deal with the s 38 issues specifically, and with the s 18 issues. Questions of relief are then addressed, and some final observations made.

Whether the applicant's arguments about the Timber Release Plan, Pre-harvest Biodiversity Survey Instruction and Interim Greater Glider Strategy involve a new case

382 VicForests first raises these arguments under a heading in its closing written submissions entitled "Present case fundamentally different in nature from that originally alleged". In that section, two different points are made. One concerns the fundamental change in the applicant's case after the delivery of the Separate Question reasons. The second concerns the applicant's arguments in closing oral submissions about the Timber Release Plan.

383 In the Injunction reasons at [2]-[3] I said:

> The amended statement of claim raises, as I note in the relief reasons, an entirely new basis for the relief sought against VicForests, one which the applicant contends reflects the Court's decision on the separate question.
>
> I note at the outset that VicForests made no submissions that the framing of the applicant's contentions on this interlocutory application fell outside the parameters of the Court's decision on the separate question. To the contrary, its submissions appeared to accept as a premise that the applicant's contention was available on the basis of the Court's separate question judgment.

384 VicForests has made a concession to the effect of [3] in it closing written submissions, as I have noted.

385 Further, in the Relief reasons, I noted that VicForests (and the interveners) had sought orders dismissing the applicant's originating application. VicForests and the Commonwealth argued that the amended statement of claim filed after the delivery of the Separate Question reasons raised an entirely new case. The Relief reasons noted (at [54]) the reasonableness of the apprehension of VicForests, and the interveners, that if their arguments about cl 36 of the CH RFA were successful (as they were), orders of a final nature could be made. However, as I also observed at [37] of the Relief reasons, after the Separate Question ruling, the applicant was able to take advantage of two events. First, of the cooperation between the parties in having the separate question identified quickly, and listed for hearing in a short period of time, removing the usual next step of VicForests filing a defence. It is the fact that this step had not occurred which enabled the applicant to rely on the terms of r 16.51 of the Federal Court Rules, and to amend its statement of claim without leave, which is what it did, to raise the allegations on which it moved at trial. The second event the applicant was able to take advantage of was the

time given for submissions on orders following the delivery of the Separate Question reasons. The parties were given an opportunity to be heard on the appropriate form of answer to the separate question, and on the matters of relief and costs. Had that further opportunity to make submissions not been provided, as I noted at [46] of the Relief reasons, orders on the separate question could and would have been made when the Separate Question reasons were delivered, and had that occurred it was almost inevitable the applicant's originating application would have been dismissed.

386 At [60]-[63] of the Relief reasons, I found:

> Despite this, the applicant having taken advantage of the time during which the Court's affording of procedural fairness to the parties was running, the Court must deal with the circumstances as they now exist.
>
> I have found the question of whether the application should be dismissed a difficult one. As I have explained, I consider VicForests and the interveners are entitled to feel as if the separate question process has been undermined by the applicant's conduct, and – in VicForests' case in particular – that concessions may have been obtained, and agreement secured to a course for the proceeding, which may not have been forthcoming if it was known that the applicant would seek to amend its statement of claim. Although it did not require leave to amend its statement of claim, by the same token the applicant was bound by a set of orders and directions in relation to the separate question that made it clear that process was not completed. None of those orders or directions contemplated that any party would take a step in the proceeding unrelated to the separate question, and indeed one which undermined the finality of that process.
>
> On the other side, the argument presented by the Commonwealth and accepted by the Court did not emerge in a full sense until oral submissions on the separate question. Once the applicant became aware the Commonwealth's approach to s 38(1) and s 6(4) had been upheld by the Court, it acted without delay to amend its claim accordingly. It could, as I have noted, [have] commenced a new proceeding with the same statement of claim it has filed pursuant to r 16.51, and it is difficult to see how that course could have been subject to any substantive criticism. Indeed, the Commonwealth in its submissions recognised that was what the applicant could do. It is clear, from the filing of the amended statement of claim, that the central controversy between the parties is not resolved. The originating application remains in the same form and thus the relief sought has not changed. In those circumstances, it would be difficult to characterise the payment of an extra court fee, together with the expenditure on legal resources necessary to prepare and bring a new proceeding, as a way forward to resolve the dispute between the parties which is consistent with the overarching purpose in s 37M of the Federal Court Act, and with the Court's Central Practice Note.
>
> Accordingly, I consider the applicant has placed the Court in a position where it must proceed with the management of the proceeding towards trial.

387 The matter proceeded to trial on the basis of the amended statement of claim, as further amended in ways which did not alter the fundamental allegations being made on behalf of the applicant, and reflecting arguments said to be consistent with the Separate Question reasons.

VicForests' contentions about this issue appear to be no more than a repeat of its previous complaint. It is not now open to VicForests to ask the Court to withhold final relief from the applicant simply because the applicant re-fashioned its allegations after the Separate Question ruling. I have already found that it was legally entitled to do so. Nothing was gained by VicForests re-agitating this issue in its final submissions.

388 As to the second of VicForests' arguments, about the Timber Release Plan, VicForests' argument is put in the following way at [22] of its closing written submissions:

> In oral closing submissions, counsel for the applicant advanced a further unpleaded mutation to the effect that, in listing the Scheduled Coupes on the TRP "for the designated silviculture methods without any system in place that takes into account the vulnerability of the Greater Glider", VicForests has conducted a forestry operation in breach of the Code and thus lost exemption from Part 3 of the EPBC Act. Not only is such a matter not pleaded, it is also inconsistent with the pleading: "forestry operations" in the third further amended statement of claim has always been used as synonymous with "logging", i.e. the harvesting of forest products, and not the managing of trees before they are harvested. In any event, for reasons set out in section B.3. below, the Code has no sphere of operation in respect of the preparation of, and publication of notice of, a TRP, and thus there has been no breach of the Code leading to a loss of the exemption on this basis.
>
> (Footnotes omitted.)

389 I note also that at [81] of its closing written submissions, VicForests makes this argument about a new, unpleaded case based on the Timber Release Plan, as to both the Logged Coupes and Scheduled Coupes. The reference to oral closing submissions in the above passage cites the following parts of the applicant's submissions at transcript pages 736:43 and 746:34.

390 This is the first excerpt from the transcript (from pp 736-737):

> MS WATSON: For the scheduled coupes, the breach has already occurred. The breach has already occurred in the listing of the coupes on the TRP for the designated silviculture methods without any system in place that takes into account the vulnerability of the greater glider. So there has been no allowance for the presence of and the threat posed by forestry operations to the greater glider.
>
> HER HONOUR: All right. So that's all a point in time that has passed, and indeed had passed at the time the proceeding was commenced.
>
> MS WATSON: Yes, your Honour. Because it's – that's in the management of the treaties, but it will – it's a continuing lost, so it remains lost at the point at which coupes were harvested, and unless and until the greater glider is accounted for by the means that you proposed - - -

391 The word "treaties" is a transcription error. It is clear counsel said "trees".

392 The second cited passage is said by VicForests to commence at p 746 of the transcript, but in order to provide the necessary context, reproduction of some submissions made prior to that passage is required, commencing at p 745:

> MS WATSON: No, your Honour, because at this stage it's simply a question of the loss of the exemption and that can happen at several levels. So that can happen at the management level but it can also happen at the harvesting level.
>
> …
>
> MS WATSON: So we would submit that it's – the exemption is lost. It's already lost at the stage of the TRP but it's also lost on a different basis by reference to a different operation at the harvesting level.
>
> HER HONOUR: Well, don't go to that yet, if you can bear with me. Just follow through with me, please, how you've stepped through the TRP as the forestry operation. So I understand how you've explained it to the way that it gets lost but then are you submitting that if the exemption was lost - - -
>
> MS WATSON: The action.
>
> HER HONOUR: What is looked at as the action for the purposes of section 18.
>
> MS WATSON: The harvesting of the coupes.
>
> HER HONOUR: Not the TRP? So we're only at the TRP - - -
>
> MS WATSON: It's – it's - - -
>
> HER HONOUR: You see, why isn't it – if that's - - -
>
> MS WATSON: The TRP lists - - -
>
> HER HONOUR: - - - if that's the forestry operation - - -
>
> MS WATSON: It's because the TRP lists those coupes and proposes those coupes so it proposes, "Here are the coupes we are going to – and here is the method that – by which we're going to harvest those coupes."
>
> HER HONOUR: So on this argument you have one set of conduct that is the forestry operation for the purposes of section 38 but then you change the focus - - -
>
> MS WATSON: No, your Honour.
>
> HER HONOUR: - - - of the conduct for section 18.
>
> MS WATSON: We simply pitch it at two levels. So our case is about the coupes where the glider, for the purposes of the precautionary principle, is about where the coupes where the glider is present and, your Honour, if I just - - -
>
> HER HONOUR: Yes but we have - - -
>
> MS WATSON: Just – will just make this point. As a matter of legal principle the exemption is lost at the TRP level but because that is a forestry operation because that is the managing of trees before they're harvested but the exemption is also – so that's a continuing exemption unless it's in some way rectified. And then the exemption is also lost because in terms of the harvesting of those coupes and that - - -
>
> HER HONOUR: Well, let me try the question this way. Assume I'm against you about

> the TRP, does the applicant submit that there's another way that the exemption is lost?
>
> MS WATSON: Yes. Yes. So then the forestry operation is the harvesting of forestry products and it's the harvesting of those products that is not in accordance with the code so it's the proposed harvesting and the actual harvesting but we're looking at proposed conduct.

393 In its closing written submissions at [63]-[64], the applicant submitted:

> The precautionary principle is to be applied *at all stages of planning*, including each of the above decisions. The operational goal in the Code to which the Precautionary Principle is aligned is "Timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge *at all stages of planning and implementation*" [emphasis added] (CB 6.9 p27). For the reasons set out at [233]-[360] below, VicForests failed to comply with cl 2.2.2.2 when making these decisions.
>
> The Applicant contends that in all of these decisions VicForests has failed to comply with the precautionary principle.
>
> (Original emphasis.)

394 At [65]-[67] of its closing written submissions, the applicant developed how it contends decision-making at the Timber Release Plan level engages the precautionary principle.

395 It is clear that the applicant has advanced, as part of its case in closing submissions, both written and oral:

(a) at a broad level, that the "management" of trees, as well as the harvesting of trees, in the Logged Coupes and Scheduled Coupes failed or is likely to fail to comply with the Code, resulting in a loss of the s 38 exemption;

(b) the decision-making by VicForests in including coupes in the Timber Release Plan, and the choice of silvicultural method nominated in the Timber Release Plan is an "action" within the meaning of that term in the EPBC Act, and is also a "forestry operation", being an act of managing trees prior to harvesting;

(c) in its decision-making about the content of the Timber Release Plan, VicForests is required to apply the precautionary principle, which requires consideration of how the content of the Timber Release Plan will affect the Greater Glider in the CH RFA region;

(d) it has failed to do so, and thus lost the benefit of the s 38 exemption; and

(e) VicForests' decision-making about the Timber Release Plan has had, and is likely to have, a significant impact on both the Greater Glider and the Leadbeater's Possum.

396 In closing oral submissions, counsel for the applicant clarified that these allegations about the Timber Release Plan are relevant only to the s 38 arguments made by the applicant, and are not carried through to the s 18 aspects of the applicant's case.

397 In this context, the applicant's allegations are confined to the 2017 and 2019 Timber Release Plans as they include the Logged Coupes and Scheduled Coupes. VicForests did not submit that by this argument, the applicant was extending *the coupes* to which its case applied. It did however submit that in addition to the "new" allegations about the Timber Release Plan, there were further allegations made in the applicant's closing submissions to the effect that the Pre-harvest Biodiversity Survey Instruction was drafted without applying cl 2.2.2.2, and the Interim Greater Glider Strategy was made without applying cl 2.2.2.2. VicForests contended these were also allegations made outside the applicant's pleaded case.

398 In its closing submissions in reply, in support of its argument that the preparation of the Timber Release Plan was within the scope of its pleadings, the applicant relied on its pleading at [113] of the further amended statement of claim (which I infer is in fact meant to be a reference to the third further amended statement of claim), of a failure by VicForests to specify "timber harvesting prescriptions" to protect the Greater Glider. It also relied on [113A.4(f)(ii)], [113A.4(f)(iv)] and [113A.4(v)B)].

399 There is no [113] in the third further amended statement of claim. I take this to be an error in the applicant's closing reply submissions. The relevant pleading the applicant relies upon appears to be [113A]. That pleading is based on an allegation about VicForests' "forestry operations" and alleges (omitting the strike-outs and the particulars):

> 113A. Forestry operations in:
>
> 113A.1 each of the Logged Glider Coupes; or, alternatively
>
> 113A.2 some or all of the Logged Glider Coupes;
>
> was not in accordance with cl 47 of the CH RFA because:
>
> 113A.3 in each of the Logged Glider Coupes; or, alternatively
>
> 113A.4 in some or all of the Logged Glider Coupes;
>
> VicForests failed to comply with cl 2.2.2.2 of the *Code of Practice for Timber Production 2014* (the **Code**).

400 The term "forestry operations" is used throughout the applicant's pleadings, but is not defined.

401 Paragraphs 4 and 5 of the third further amended statement of claim allege:

> As part of the principal function of VicForests identified in paragraph 3 above, VicForests plans and conducts, from time to time, forestry operations in specified areas of Victorian State forests.
>
> One of the areas of Victorian State forest in which VicForests plans and conducts forestry operations is the part of Victoria designated as the Central Highlands Regional Forest Agreement Area (the **CH RFA Area**).

402 It is apparent from the amendments to the pleading that the word "logging" was removed and replaced with "forestry operations". That is one indicator of what the applicant means by the term. Another is the wording of [4], namely that VicForests "plans and conducts" forestry operations: that is, the planning is seen as separate to the forestry operations.

403 In my opinion, in the applicant's pleading the term forestry operations is consistently used to refer to the activities which take place when VicForests (whether itself or through its contractors) is engaged in timber harvesting in and around coupes within the CH RFA region, or – to use the language in the CH RFA – "the harvesting of Forest Products … for commercial purposes and includ[ing] any related land clearing, land preparation and regeneration (including burning), and transport operations". That is apparent even from [6] of the third further amended statement of claim onwards, which concerns the Timber Release Plan. The pleading is concerned with activities in the forest itself, taking into account (as I find below) that those activities have been planned and prepared through a series of decisions and instructions, and are regulated by prescriptions and conservation measures. Textually, this is also clear from the use of the phrase "forestry operations *in*" each of, or some or all of, the coupes: the word "in" is about what happens in the forest.

404 In [6], there is no allegation that the preparation and publication of the Timber Release Plan, and the determination of its content, is a forestry operation. Instead, the preparation of the Timber Release Plan is described as an anterior step to VicForests' forestry operations:

> In January 2017, VicForests prepared an "Approved Timber Release Plan Change" (the **Timber Release Plan**), which identified, by map, schedule and coupe number, areas of forest in the CH RFA Area, which are proposed for forestry operations.
>
> 6.1 The Timber Release Plan includes a number of maps and a schedule, which together identify the area proposed for forestry operations as individual "coupes"…

405 Again, the word "logging" was amended to "forestry operations" in this pleading. More importantly, it is apparent that when the applicant alleges the Timber Release Plan identified the areas "proposed for forestry operations", the "forestry operations" here are the timber harvesting activities, to be carried out in areas of forest identified by coupes listed in the Timber

Release Plan, and as defined in the third limb of the CH RFA definition of forestry operations, together with the associated activities.

406 It is correct, however, that at [8] of the third further amended statement of claim, the applicant alleges:

> The identification of coupes proposed for forestry operations in the CH RFA Area by preparation of the Timber Release Plan constitutes an action for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (the **EPBC Act**) ("an action").

407 However, there is no allegation in [8] that the identification of coupes in the Timber Release Plan is a forestry operation.

408 From [17] onwards, the pleading then deals with the effects of past forestry operations on the two species, and this section of the pleading is plainly directed at activities of the kind I have outlined at [403] above, because the focus is on coupe-by-coupe allegations. From [41] onwards, the pleading deals with the Scheduled Coupes. At [41] and [41A], it is alleged that:

> Forestry operations in each of the scheduled coupes will be an action.
>
> Forestry operations in some or all of the scheduled coupes will be an action.

409 Pleadings of the same kind are repeated at [72], [72A], [105A] and [105C] in respect of significant impact on the Greater Glider and the Leadbeater's Possum. These pleadings all concern activities of the kind I have outlined in [403] above, when the pleading uses the term "forestry operations".

410 At [108], the s 38 aspect of the pleading commences. Having pleaded that the forestry operations in the Logged Coupes and Scheduled Coupes are forestry operations for the purposes of the RFA Act ([110]-[111]), the next pleading is [113A], which I have set out above. It can readily be seen, in context, that this pleading is directed only at the activities of the kind I have set out at [403] above. That is so even if one takes account of what is in the particulars.

411 From [115AA]-[115EB], the pleading deals with allegations about contraventions of s 18 of the EPBC Act in relation to past forestry operations in the Logged Coupes. None of the cross-references in those paragraphs include [8], and it cannot be maintained that there is an allegation that the action in [8] is alleged to have a significant impact on either the Greater Glider or the Leadbeater's Possum.

412 From [116BA]-[116BD], the pleading deals with allegations about contraventions of s 18 of the EPBC Act in relation to proposed forestry operations in the Scheduled Coupes. None of the

cross-references in those paragraphs include [8], and it cannot be maintained that there is an allegation that the action in [8] is alleged to have a significant impact on either the Greater Glider or the Leadbeater's Possum.

413 From [119A]-[119B], the pleading deals with allegations about contraventions of s 18(2)(b) and s 18(4)(b) of the EPBC Act, in relation to both past and proposed forestry operations. None of the cross-references in those paragraphs include [8], and it cannot be maintained that there is an allegation that the action in [8] is alleged to have a significant impact on either the Greater Glider or the Leadbeater's Possum.

414 Accordingly, I agree with VicForests' submissions at [22] and [81] of its closing written submissions. The applicant has not pleaded that the preparation and publication of the Timber Release Plan, and the decision-making about its content, in respect of the Logged Coupes and/or Scheduled Coupes, is a forestry operation. Its pleading in [8] that it is an "action" is not carried through to any alleged contravention. While the planning and preparation of the Timber Release Plan conduct may well be *capable* of falling within the definition of forestry operations in the CH RFA, as conduct separate and distinct from what happens in the forest, the point is that the applicant has not put its case in that way, and VicForests has answered the case as put. As the applicant recognised by its concession in closing oral submissions, in any event it does not seek to "carry through" the Timber Release Plan pleading from s 38 to s 18. Identifying a planning decision such as the Timber Release Plan as an action which can have a significant impact on a listed threatened species would be a forensically challenging task. I do not say impossible, but forensically challenging.

415 That is not to say the preparation and publication of the Timber Release Plan, and its content, is irrelevant to the applicant's arguments as pleaded. I consider those matters are relevant. However, contrary to the closing oral submissions of the applicant's counsel, the applicant has not pleaded a case on the alternative basis that the preparation and publication of the Timber Release Plan is a forestry operation, to which VicForests' obligation to comply with cl 2.2.2.2 is subject. Nor has the applicant pleaded that, even if it is an "action" for the purposes of the EPBC Act, that action results in any contravention of s 18 of the EPBC Act.

416 In addition, if by its closing written submissions at [36], the applicant intends to submit, as VicForests has suggested it does, that the making of the Pre-harvest Biodiversity Survey Instruction, and the making of the Interim Greater Glider Strategy, were each "forestry operations" to which the arguments about loss of exemption in s 38 could be applied, then I

would agree with VicForests that such allegations stray outside the applicant's pleaded case and should not be entertained.

417 However, I do not consider that is how the applicant is using these two documents. The Interim Greater Glider Strategy is referred to in the third further amended statement of claim in particular (f) to [113A]: that is, it is used as an example of one of the ways in which VicForests' forestry operations "in" the coupes – that is, its activities in the forest – have not complied with the precautionary principle, because the terms of the Strategy as VicForests has applied it in the conduct of its forestry operations require neither detection activities or surveys for the Greater Glider, nor the application of timber harvesting prescriptions specific to the Greater Glider. To use the Interim Greater Glider Strategy in this way is within the applicant's pleaded case. The Pre-harvest Biodiversity Survey Instruction is not referred to in the third further amended statement of claim, but I have treated the applicant's approach to that, and its contention that its content does not demonstrate any application of the precautionary principle, as just another example of the same kind as the Interim Strategy. That kind of approach is implicitly within the applicant's pleaded case, in my opinion.

418 The Court will not resolve the issues in this proceeding in a way which includes any arguments to the effect that the preparation and promulgation of the Timber Release Plan is "an RFA forestry operation" for the purpose of s 38. Nor (although I have found this is not the applicant's case, contrary to VicForests' apprehension) will the Court resolve the issues in this proceeding in a way which includes any arguments to the effect that the making of the Pre-harvest Biodiversity Survey Instruction, and the making of the Interim Greater Glider Strategy, were each "an RFA forestry operation" for the purposes of s 38.

Some key general findings

419 These general findings are relevant to the issues which arise under s 38 and/or s 18 of the EPBC Act.

Mapping

420 As part of its contention that VicForests has no accurate baseline information that could form the basis of an application of the precautionary principle, the applicant contends that there is no reliable mapping in the Central Highlands for Greater Glider presence or habitat. This contention relates to both VicForests' general mapping in its Cengea system and also to the

"Greater Glider High Quality Habitat Class 1" mapping utilised as part of the Interim Greater Glider Strategy.

421 I accept the submission that VicForests' habitat and presence mapping for the Greater Glider is not adequate to use as a predictive tool for Greater Glider presence and use of the forest. It is "unreliable" in that sense.

422 The same contention is not made in respect of the Leadbeater's Possum, although some of the points made by the applicant may apply equally to mapping for the Leadbeater's Possum. The way in which these findings are relevant to s 18, and the Leadbeater's Possum, is somewhat different. The absence of reliable mapping to predict habitat and presence has a number of consequences. It makes it more difficult to be confident about where populations of Leadbeater's Possum might be, and further the extent of forest likely to provide habitat for them in the foreseeable future although it currently does not do so. It means pre-harvest surveys are more critical, and that appropriate measures must be put in place on the ground where there are detections.

423 Before outlining the basis for my finding at [421], it is necessary to briefly describe the Interim Greater Glider Strategy, and the habitat prediction model developed with it. I deal with the Interim Greater Glider Strategy in more detail in the s 38 section below. Mr McBride gave evidence about the development within VicForests of the Interim Greater Glider Strategy after December 2016 when he first became aware of "the status of the Greater Glider being an emerging issue in forest management and biodiversity conservation in Victoria". Mr McBride deposed that his development of the Interim Greater Glider Strategy commenced from approximately April-May 2017, in conjunction with Lachlan Spencer, who was then the General Manager, Stakeholders and Planning at VicForests.

424 Mr McBride deposed that in the context of discussions between VicForests and DELWP about interim conservation measures for the Greater Glider, pending its listing under the FFG Act and the development of an Action Statement, DELWP provided VicForests with a mapping tool called the Greater Glider High Quality Habitat Class 1 layer. Mr McBride described this as a "spatial data record of high quality modeled Greater Glider habitat that was developed by the ARI as part of a project undertaken by ARI to model Greater Glider habitat more broadly". The abbreviation "ARI" stands for the Arthur Rylah Institute, a research institute within DELWP. At [41] of his affidavit Mr McBride deposes:

> The Greater Glider Model is a predictive model that predicts the likelihood of presence of Greater Glider Habitat based on intersections of the variables used to generate the model. The Glider Habitat Model takes the input variables and spatially maps the variables where they intersect.

425 The figures from the predictions of the Greater Glider Model appear impressively large at first glance. Mr McBride deposes that the Model identified over 1.2 million ha of Victorian State forest and national parks as likely to contain suitable habitat for Greater Gliders, approximately 580,000 ha of which is excluded from timber harvesting because it is in national parks, reserves and other such excluded areas.

426 The Interim Greater Glider Strategy states, as quoted by Mr McBride, that the Greater Glider Model does not predict actual occupancy or presence, and there is likely to be a significant proportion of that 1.2 million ha which may not currently support Greater Gliders.

427 In his first report, Dr Smith outlined (on pp 9-10), the habitat requirements of the Greater Glider:

> The habitat requirements of the Greater Glider may be more specifically summarized as:
>
> 1. scattered emergent (> 1/ha) to abundant (> 12/ha) large diameter living and dead trees with hollows suitable for nesting;
>
> 2. a tall open forest structure with an abundance of large tree stems (> 25 /ha) in the mature size class (40 - 80 cm diameter at breast height (dbh) and a scarcity of dense young regrowth in the understorey, to provide an open structure suitable for movement by gliding;
>
> 3. low maximum mean monthly temperatures that do not exceed about 20 degrees C and moderate to high rainfall (>abut 400 mm /annum);
>
> 4. infrequent disturbance by fire, >10 year intervals in Mixed Species eucalyptus forest and > 40 - 120+ year intervals in wet Eucalyptus forests;
>
> 5. no recent history of high intensity logging (clearfelling) or timber harvesting that has removed more than about 33% (wet forests) to 15% (dry forests) of the natural tree basal area (Dunning and Smith 1985, Howarth 1989, Kavanagh 2000, Eyre 2006).
>
> 6. no recent history of intensive Owl Predation.

428 Having identified those as the habitat requirements, Dr Smith then expressed this opinion (on p 10 of his first report):

> In the Central Highlands there are no maps that show the distribution of forests with the above characteristics. Consequently it is not possible to reliably predict (model) and map the distribution of Greater Gliders in the Central Highlands. At present it is only possible to be certain whether Greater Gliders occur on timber harvesting coupes by undertaking ground surveys before logging. There are no maps of tree hollows, owl predation history or forest age structure for the Central Highlands. These limitations

> not withstanding VicForests has developed a model (Greater Glider Habitat Model) for predicting the occurrence of "Greater Glider High Quality Habitat Class 1" in the Central Highlands. This model has not been validated. It was found in this study to be unreliable and inaccurate (as expected) due to lack of suitable map layers for modelling and prediction.

429 In somewhat more guarded language, at [64]-[65] of his second report Dr Davey essentially agreed with Dr Smith:

> The state-owned database of modelled suitable Greater Glider habitat is likely suitable for current (initial) forest landscape planning, management and regional assessment. The state-owned database of modelled suitable Greater Glider habitat will require validation and, I suspect, improved modelling precision for modelling Greater Glider habitat. A requirement will be improved reliability and accuracy of predicting Greater Glider habitat in forests available for timber harvesting, informal reserves (SPZs) and formal reserves (National Parks and Reserves). The Central Highlands should be a priority for validating the state-owned model and improving the reliability and accuracy of predicting the quality classes of Greater Glider habitat in the public forest landscape of the Central Highlands.
>
> Dr Smith found the use of 'Greater Glider High Quality Class 1' in his study "to be unreliable and inaccurate (as expected) due to lack of suitable map layers for modelling and prediction" (Smith 2019a, p. 8). I agree with Dr Smith's statement and believe similar reliability questions apply to the Greater Glider Occupancy Models reported in Lumsden *et al*. (2013, p. 34) and referred to and used in the Conservation Advice for the Greater Glider (FOR.056.003.0011_0006). Limitations in both models (Greater Glider Habitat Model and Greater Glider Occupancy Models) are further discussed by Dr Smith in Q10.

430 Dr Davey had initially relied on the Class 1 Habitat mapping in his first report, including by plotting the 21 Greater Glider populations against that mapping. However, he accepted in his second report (as I have noted) and also in cross-examination that it was in fact not a reliable source:

> Yes. Now, the second part of your analysis that – as we saw on the screen with exhibit 25, that map, involved you plotting the 21 populations against the class 1 habitat maps; is that right?---That is correct.
>
> And my understanding is that you now accept that those habitat maps are themselves not reliable?---The – I have agreed with Andrew Smith that their reliability is questioned.

431 Dr Smith repeats and expands upon his opinion a little later in his first report, at p 35, when he explains why habitat modelling cannot be reliable unless it is based on reliable mapping:

> The distribution of the Greater Glider in the Central Highlands has been modelled by Vic Forests 2017, and Lumsden et al 2013 (see Maps 7 &8 below) but neither of these models can be considered sufficiently accurate or reliable for conservation planning and management purposes. There is no apparent correlation between the two models and no apparent correlation between actual Greater Glider records and the predictions of either model. Also there is no correlation between the predictions of either model and the occurrence of Greater Glider in scheduled and logged coupes in this study. If

> any reliance was placed on the models for management purposes most of the records shown on the Agreed Maps would have been missed. This is not surprising, models are only as reliable as the mapped layers used for prediction. At present we do not have reliable mapped layers for critical Greater Glider resources such as habitat trees and uneven aged forest structure. The Lumsden model relies on terrain ruggedness and wetness which are only remotely related to the species known ecological requirements. Lindenmayer et al (1995) attempted to model the abundance of greater gliders in detail at a local scale by mapping senescent tree crowns from aerial photographs, but this attempt failed, most probably because many hollows are in trees below the forest crown and other habitat attributes such as tree stocking were not considered.

432 Critically, and as but one example of why I am prepared to place so much weight on Dr Smith's opinions, Dr Smith's careful and thorough review of the circumstances of each of the impugned coupes in the proceeding bears out the inaccuracy of the Class 1 Habitat mapping.

433 Appendix 1 to Dr Smith's first report is a report on and assessment of each of the impugned coupes. The report and assessment is grouped geographically, by reference to the coupe groups I have set out in Table 8 at [162].

434 I will take the first group of coupes as an example, being the Acheron coupes Kenya, The Eiger and Mont Blanc, which are three of the Logged Coupes. Two parts of Dr Smith's report and assessment should be reproduced. The first demonstrates the inaccuracy of VicForests' own mapping:

> Forest Type: Kenya is mapped as a mixture of Ash and Mixed Species. The Eiger and Mont Blanc are predominantly Mixed Species and the White House is mixed species with about 15% Ash. This map type was consistent with species identified from stumps and retained habitat trees.
>
> Forest Structure White House and part Mont Blanc are mapped as 1939 regrowth. Kenya is mapped as mostly 1939 regrowth with about 7 hectares of pre1900 mapped old growth forest (1850-1859). Age class mapping pre-logging is not shown for the Eiger and much of Mont Blanc however, Google Earth shows forest structure prior to logging. Examination of stumps, retained habitat trees and aerial photographs indicates that most of the Mixed Species Forest on logged coupes was high quality mixed species old growth prior to logging.

435 The second demonstrates the inaccuracy of the Class 1 Habitat mapping:

> Glider Abundance. The Greater Glider habitat model (this study) predicts that coupes Mont Blanc and The Eiger were high quality Greater Glider habitat before logging (0.9-1.0 gliders/ha). These predictions are supported by available Greater Glider records which show 2 -10 records of Greater Gliders per coupe prior to logging. This high quality Glider habitat is likely to have been widely dispersed across all or most of the coupes. This finding is not consistent with the VicForests High quality Greater Glider Habitat Class 1 mapping which only identifies about 1 hectare of Greater Glider habitat on the Eiger coupe.

436 For these coupes, Dr Smith records the following opinion under the heading "Key findings":

> Vic Forests Greater Glider High quality habitat class 1 mapping is not reliable as an indicator of the presence of Greater Gliders. If this modelling had been relied upon more than about 90% of the Greater Glider habitat would have been missed. 75% of actual Greater Glider records occurred outside the VicForests modelled habitat. This means that the presence of Greater Gliders can only be reliably determined by pre-logging surveys.
>
> The Vicforests Forest Age Class Mapping is not reliable for Mixed Species Forests. The majority of Mixed Species forests in these coupes has been miss-identified as 1939 regrowth rather than uneven-aged old growth with an overstorey of living senescent trees. This means that Critical and Important habitat for the Greater Glider can only be reliably identified by pre-logging survey and air-photo interpretation.

437 These key findings have substantial relevance to the s 38 issues and to the s 18 issues, and I will return to them later in these reasons. For present purposes they illustrate the fundamental difficulties with both kinds of mapping that could be utilised by VicForests.

438 Turning now to Dr Smith's report and assessment of Scheduled Coupes, the New Turkey Spur Gallipoli coupe is an example. Dr Smith's assessment is:

> Forest Type and Structure: mapped as 1939 regrowth Ash. Site inspection showed the site to have an exceptional abundance of large dead trees with hollows (stags) (11/ha) and at least one living old growth ash with hollows (see photo).
>
> Greater Glider Abundance: The site is predicted to have a high density of Greater Gliders (2.5/ha) and it has been recorded in at least 3 locations on the coupe. Modelled High Quality Class 1 Greater Glider [habitat] is mapped as occurring on about 1.5 ha on the western boundary of the site (not inspected) and aerial photography suggests that old growth Ash could occur in this area and other small patches of the coupe.

439 Another example is the Noojee coupe group, where there is one Logged Coupe (Skerry's Reach) and two Scheduled Coupes (Epiphanie and Loch Stock). Dr Smith's opinions are:

> Forest Type and Structure Mapped as mostly Mixed Species 1939 regrowth with about 15% Ash (Loch stock and Epiphanie) or 1939 regrowth and about 50% 1970's Ash (Skerrys Reach). Site inspection revealed a mixture of Ash and Mixed species with some scattered living old growth trees and dead stags, particularly on Epiphanie. On Skerrys and Loch Stock the habitat was structurally dense in patches highly suitable for Leadbeater's Possum.
>
> The lower portion of Epiphanie was found to have been logged.
>
> Greater Glider Habitat and Abundance. All sites were structurally suitable for Greater Glider with an abundance of trees in the 40-80 diameter size class. Habitat trees were scarce in the site plot on Skerry's giving a low predicted Glider abundance (0.3), but aerial photography indicates that there were large areas of apparent un-even aged old growth on the coupe before logging and 6 Greater Gliders were recorded in the latter areas. Habitat trees including old growth were moderately abundant on Epiphanie and Loch Stock giving high predicted densities (1.4-1.5 /ha) consistent with actual Greater Glider records (5 on Loch stock and 7 on Ephiphanie).
>
> Greater Glider High Quality Habitat Class1 was only mapped on a tiny (1% area of Skerry's) again indicating that this model is not reliable for predicting Greater Glider

Occurrence.

440 Dr Smith expressed the following opinion under "Key findings":

> Vic Forests Greater Glider High quality habitat class 1 mapping is not reliable as an indicator of the presence of Greater Gliders. If this modelling had been relied upon nearly 99% of the Greater Glider habitat and records would have been missed.

441 In some assessments (eg Beech Creek coupe group (Waves and Surfing scheduled coupes)), Dr Smith agrees that the Class 1 Habitat mapping does broadly correspond to Greater Glider presence and to his assessment of forest structure. However, in respect of many of the coupe groups assessed he makes the kinds of findings I have set out above.

442 Mr Paul was cross-examined about VicForests' mapping, and about Dr Smith's opinions. He was asked whether he accepted the proposition that the Cengea database, so far as the modelling of Greater Glider High Quality Habitat Class 1 is concerned, is both unreliable and inaccurate. He replied:

> Look, I couldn't say. It's a model that we were provided by the department. We've just sought to use that.

443 The "model" I take to be a reference to the Greater Glider High Quality Habitat Class 1 mapping layer (which was developed by the ARI as part of its Glider Habitat Model), and not to Cengea, which is a VicForests system. The views of Dr Smith and Dr Davey are then put to Mr Paul:

> Do you accept the accuracy and validity of what he and Dr Smith agree, namely that the modelled Greater Glider high quality habitat class 1 mapping is unreliable and inaccurate?---I accept they've said that and it was all the data that was available around the time of the listing. We expect we will have much more and better data in time.

444 The next passage of Mr Paul's evidence discloses, again, one of what I consider to be the key gaps between the parties' perspectives. On the one hand, theory and modelling as a primary method for decision-making, and what is the situation on the ground on the other:

> So should her Honour understand that – I asked you, but I was really asking you not in your personal capacity, but as the key witness here for VicForests, that VicForests accepts that the modelled Greater Glider high quality habitat class 1 mapping is both unreliable and inaccurate?---I certainly accept it has problems, but I don't have any data to say whether it's – how unreliable or how inaccurate it is.
>
> Well, it was part of the data used to model the coupes in issue in this proceeding, wasn't it?---Yes.
>
> And it didn't find any Greater Glider habitat, am I right, in the coupes in which – of, I think it's 66 and about 56 there were gliders found present?---I accept that.
>
> That suggests it's an absolute fail, doesn't it?---I think it's supposed to be the high

> class best value habitat. It doesn't say you will only find gliders in those locations.

445 This is a finding I repeat in several forms at various stages of these reasons, but I cannot see how a mapping or modelling system that does not tell those who conduct forestry operations where the threatened species is actually present, using and occupying the forest, is a system which is going to be an effective tool in conserving, protecting and recovering that species. Yet the impression given by VicForests' evidence, including that of Mr Paul, is that predictive modelling and mapping is a primary tool used by VicForests for its decision-making about forestry operations, and only once timber harvesting is sufficiently close for a coupe transect to be done is the forest actually in the coupe examined and, if assessed as necessary, a targeted species survey undertaken. By that stage, VicForests has effectively committed to harvesting that coupe. And, as I note elsewhere, it does not routinely do pre-harvest surveys for the Greater Glider. Further, for the Leadbeater's Possum, when it does survey, in those circumstances it is only for the purpose of deciding what must be excluded from harvesting because there is a prescription requiring that to occur. A detection is a setback to forestry operations, and limits what can be harvested.

446 As to the mapping assessed by Dr Smith on which he gave opinions in his first report, and to which Dr Davey referred in his second report, Mr Paul gave the following answers in cross-examination:

> You understand that Dr Smith says that VicForests' age class mapping maps all forests on a single age class when the norm is for mixed species to be uneven aged?---I did read that. I'm not sure exactly what maps he was referring to, but I suspect they were not the same as all the maps that we might use.
>
> Well, you're aware there's a series of agreed maps in this case?---Yes.
>
> And I take it as part of that you and others at VicForests have endeavoured to put forward the maps that you would regard as relevant and that you would like to rely upon to demonstrate your mapping?---Yes.
>
> And of those maps, that is of the agreed map series 3E, Dr Smith says that it's inadequate because the maps map the forest as single age class when the norm is for mixed species to be uneven aged. Would you accept the validity of his criticism?---Potentially for the maps he has looked at.
>
> Well, these are the maps that VicForests has put forward to the court as reliable, aren't they? They're intended by VicForests to be said to be able to be relied on?---I think they were maps that we were asked to provide. I can't remember exactly what was – what was required at the time.
>
> Well, would you accept the proposition that Dr Smith also refers to, that the single age class maps, which are in evidence in this case, often wrongly classify uneven aged forests as 1939 age class forests?---I would accept that might be the case sometimes.

> Would you also accept the proposition that the VicForests' forest type mapping also incorrectly maps mixed species?---I'm not sure which maps you're referring to specifically.
>
> Well, can I just have called up, please, Dr Smith's first report which is 4.2.1. And can we go within that document, please, to page 71.
>
> And if we look towards the bottom of the page, you will see that, in key findings, Dr Smith says that the habitat class 1 mapping is not reliable. I've asked you about that. And then he says VicForests has incorrectly mapped most of the habitat on the coupes as ash rather than mixed species or a mix of the two types. Now, he has gone and looked at these coupes on the ground. Do you accept the validity of that statement?---I don't know. I would need to see the actual details, but I know the maps we provided, which are ash mixed species maps, are only approximations for the purposes of allocating timber – or forests according to mixed species of ash for our allocation audit purpose. We have much more detailed maps that sit behind that.
>
> So are you saying that the evidence that has been filed with the court doesn't include the most reliable maps?---Well, not for that purpose, no.

447 As I have found earlier in these reasons, Mr Paul was faced with a considerable task as the sole "face" of VicForests in this proceeding. His evidence – and therefore his cross-examination – ranged across a tremendous amount of material. However, if the thrust of this evidence is that VicForests had other, more accurate maps that could reliably predict the occurrence of the Greater Glider in native forest which might be scheduled for harvesting, and VicForests consciously elected not to produce those maps in this proceeding, then that position deserves criticism. The agreed maps were, as senior counsel for the applicant put to Mr Paul, put forward to the Court as a reliable, agreed basis for the Court (and for the expert witnesses) to proceed in terms of the information available to VicForests in the conduct of its forestry operations. After this exchange, VicForests did not seek to adduce evidence of any further, allegedly more reliable maps.

448 On the evidence, I accept that Dr Smith's opinions about the shortcomings of the VicForests mapping systems, and of the Class 1 Habitat mapping in particular, have a probative basis in the maps he was given when compared to what he saw in the forest. Mr Paul's evidence does not persuade me otherwise.

449 There was also the following exchange during Mr Paul's cross-examination:

> All right. Now, do you accept the proposition that the Central Highlands forest is highly variable?---Can you explain what you mean by "highly variable"?
>
> Well, yes, I will – if I put it in these terms, just in my simple terms. There's – you've got a very large area of forest, in one part of it you will have ash, in another part you will have mixed species forest, in another part you might have forests that's simply not suitable for harvesting?---Agree with that.

> And if one is looking to identify where there might be Greater Glider habitat within that very broad area of forest, I take it you would accept you need an effective mapping system as a starting point if your aim is to work out, within the greater area of the forest, what parts of it might provide suitable habitat?---A mapping system is one way, but it's not the only way. Ground assessment can also provide that information.
>
> But the way, as I understand it, and tell me if I'm wrong, that VicForests works is it starts with a mapping program, and having then mapped out a coupe there will be a field inspection, transect; is that right?---Correct. Yes.
>
> And what that means is that there is no way of getting – of having an accurate – and I suggest to you that VicForests doesn't have an accurate or even a broadly accurate picture of how much habitat there is in terms of number of hectares that's suitable habitat for the Greater Glider?---I think we do have some indication. I think we flag in the interim conservation strategy that some modelling done by the department through ARI, and there may be something like 1.2 million hectares of potentially suitable habitat.
>
> So that's potentially suitable, is it?---That's what I think I remember from that document.

450 One point to note here is Mr Paul's evidence that ground assessment is part of identifying suitable habitat for the Greater Glider. That is, of course, precisely what Dr Smith did. The other point to note is that all that Mr Paul relies on, in terms of VicForests having accurate mapping, is what the Class 1 Habitat model predicts.

451 Finally, the applicant made the following submissions about VicForests' own mapping (as opposed to the Class 1 Habitat modelling information obtained by VicForests from DELWP):

> VicForests' <u>own forest classification mapping</u>, which might also have been relied upon to ascertain Greater Glider presence and therefore implement discretionary prescriptions, was also established by the evidence to be <u>inaccurate and unreliable</u>:
>
> a. VicForests' **age class mapping** (shown on Agreed Map series 3e (eg CB 7.1.3e)) maps all forest as a single age class when the norm is for Mixed Species to be uneven aged (Smith (1) CB 4.2.1 p9, p58 at [2] and p59 at [9]; and individual coupe assessments at Appendix 1 eg p 81);
>
> b. VicForests' **single age class maps** often wrongly classifies uneven aged forests as 1939 age class forest assumed not to currently contain old growth, senescent and hollow-bearing trees (see individual coupe assessments at Appendix 1 but for example see Mount Despair Flicka coupe mapped as entirely 1938 and 1960 Ash and found to be uneven aged mixed species old growth Smith (1) CB 4.2.1 at p 87);
>
> c. VicForests **forest type mapping** (shown in Agreed Map series 3f (eg 7.1.3f)) is also unreliable. Smith's field inspections found many coupes incorrectly mapped as either Ash or Mixed Species forest (see individual coupe assessments at Appendix 1 but see, for example, Ada River coupes mapped as 1939 Ash and found to be predominantly Mixed Species uneven age old growth (Smith (1) 4.2.1 p 71). **Annexure B** to these submissions sets out Smith's findings relating to forest classification for all scheduled coupes.
>
> (Original emphasis.)

452 I accept that submission. While, as I have noted, Dr Smith's assessment was that sometimes the mapping did correspond to what he observed on the ground, on my count (based on the "key findings" contained in Appendix 1 of his first report) there were more occasions when the mapping did *not* reconcile with what Dr Smith observed in the coupes, than when it did reconcile. That is sufficient to meet the descriptions of "unreliable" and "inaccurate".

453 VicForests' answer in its closing written submissions to these criticisms is modest. It made no positive contentions about the accuracy of its habitat mapping systems, including in Cengea, nor about the Greater Glider High Quality Habitat Class 1 model. It responded in the table annexed to its closing reply submissions to two relevant paragraphs of the applicant's closing written submissions, and submitted the applicant's characterisation of this evidence was incorrect. It made no positive submission about what aspect of its mapping which was in evidence was accurate and reliable. Given that Dr Davey ultimately agreed there were difficulties, perhaps that is not surprising. In the table annexed to its closing reply submissions, it made no submission about [251] of the applicant's closing written submissions.

454 It may well be the case, as Mr Paul stated in cross-examination, that VicForests expects to have "much more and better data in time". However, the Court must act on evidence, and on what that evidence is capable of proving, on the balance of probabilities, about the information VicForests will use in its forestry operations to determine whether areas of forest it proposes to harvest should be harvested at all, or should be harvested differently, because of the need to afford protection to the Greater Glider. A generalised statement such as the one from Mr Paul is not persuasive against the views I have otherwise reached about the inadequacies of VicForests' use of predictive mapping as they relate to the conservation and protection of the Greater Glider.

Modelling versus detection-based methods

455 One of the major areas of difference in the methods adopted by the experts concerned reliance on modelling versus reliance on detections and ground observations and surveys.

456 In my opinion the evidence is persuasive that reliance on detections and ground observations of habitat are a more reliable and accurate method of identifying forest that is habitat or likely habitat for the Greater Glider, and which needs to be conserved and protected. I have already noted how this came through in Dr Smith's evidence, and in his comparisons of what was on the maps he used, and what he saw on the ground in terms of habitat, but also in terms of actual presence of Greater Gliders.

457 The divergence in methodology was also apparent in Professor Woinarski's evidence in cross-examination, at two points at least. The first is the following evidence:

> We might bring up the third Professor Baker report, yes, at 5.5. Thank you. At page – yes, page 9. That's the right one. You will see in paragraph 26 in the last two sentences there, on this issue that we've just been discussing about cost-effective alternatives to the use of representative plots, Professor Baker says:
>
> > *The advent of high-resolution remote sensing imagery for whole landscapes is rapidly changing current approaches to 5 landscape ecology.*
>
> Would you agree with that sentence?---It's certainly improving approaches to landscape ecology, yes, but it's still based on modelling. It's not based on actual demonstration of the occurrence of individual species, for example.
>
> Yes?---Unless you're using infrared or thermal imagery from satellites or whatever to actually find the possums themselves - - -
>
> Yes?--- - - - which I don't think is where you're heading with this.
>
> No, well, it's where Professor Baker is heading, but where I'm putting to you, of course?---Okay.
>
> Yes. Professor Baker goes on to say:
>
> > The high resolution remote-sensing imagery allows us to shift from extrapolation from representative samples to prediction from directly-observed data.
>
> Do you accept that?---It gives one approach, which is using landscape-scale modelling, which is very different to actual knowledge about the occurrence of individual species. So it's a useful tool in the kit, but it's by no means sufficient to demonstrate the population size or its distribution alone.
>
> Okay. But nonetheless, as you say, it's a useful tool in the kit, to use your words?---Yes.

458 The next is:

> But Professor Baker clearly has relied on LiDAR data and a modelling approach to – I think to use his language – to predict what he thinks the modelling shows will be suitable habitat for Leadbeater's Possum in the coupes the subject of this proceeding. Would that be a fair broad-level - - -?---Yes. Yes, correct.
>
> - - - description of how Professor Baker has approached it? And as I understand your approach, you haven't relied on the LiDAR data yourself, have you?---Absolutely not.
>
> And as I understand it, you've relied at a coupe level, at least, on the detections of Leadbeater's Possum that are either in or near coupes to determine questions of impact. Would that be fair?---Largely so, yes.
>
> Yes. And I want to suggest to you that the LiDAR data and the modelling that Professor Baker uses to inform his conclusions provides a more accurate analysis of habitat suitability for Leadbeater's Possum than the analysis that you've undertaken in your report?---Than the real records of Leadbeater's Possum, you mean?
>
> In terms of predicting suitability of habitat in the coupes, the subject of the

> proceedings?---No. I disagree wholeheartedly.
>
> All right?---I mean it's far better to have a real record of a Leadbeater's Possum than a presumed one based on a habitat suitability index which is clearly not always correct.
>
> Well, I wanted to put that to you to give you that opportunity, to see whether you agreed or not?---So – so if I may qualify my answer.
>
> I think, of course. Yes?---Is – is that okay, your Honour?
>
> HER HONOUR: Yes, of course.
>
> THE WITNESS: So it's a useful complement to have that habitat suitability index, and it does provide a predictive intent or inference about the likelihood of Leadbeater's Possum occurring in a site. But it's not as good as a valid real – real-time record of a Leadbeater's Possum with demonstrating that the species actually occurs there.

459 And then, a little later:

> I want to suggest to you that that in light of the correlation between Professor Baker's modelled HSI values and the recorded observations of Leadbeater's Possum in these forests, that Professor Baker's use of LiDAR and the modelling is reliable to predict likely suitable habitat for Leadbeater's Possum. Do you agree with that?---No.

460 Professor Woinarski sought to explain his answer, but was (quite properly) informed he may be re-examined on this. In re-examination he was asked again about his opinion on Professor Baker's modelling. In response, he emphasised the importance of his "on the ground" observations in certain coupes:

> Finally, you were asked some questions about what data information you relied on in your opinion about the suitability or the adequacy of the modelling done by Professor Baker. What I wanted to ask you – and I think you listed a number of those. What I wanted to ask you was what, if any, coupe inspections you had undertaken and, if you had undertaken any, how they informed your opinion, if at all?---Yes, I certainly visited, I think, about 20 to 30 coupes, and that gave me some idea of the extent to which the prescriptions and prohibitions were being actually realised in the field, and I found in at least several cases that there had been logging right up to the retained area boundary, the streamside reserves, including impinging on those reserves. I found that some of the retained trees, Ash trees which were meant to have been retained as habitat trees or hollow-bearing trees, had in fact been killed by post-harvesting regeneration fires.
>
> I see?---And those – you wouldn't get that information unless you actually went out into the field. On the map, it might look very crisp and cleanly protected, but that's not necessarily the case in the field.

461 Dr Smith persuasively explained the difference between the modelling in his report and the kind of modelling on which VicForests relies:

> And you've said that – later you've gone on to say that:
>
> > *Models are only as reliable as the map layers used for prediction and at present we do not have reliable map layers for critical greater glider resources such as habitat trees and uneven aged forest structure.*

> That's your opinion, isn't it?---Yes, that's my opinion.
>
> And I suggest to you that the fact that your model that you prepared for this case did not rely upon map layers for critical greater glider resources such as habitat trees and uneven aged forest structure, that presents a shortcoming in respect of your model, too, doesn't it?---No, it doesn't, because my model is based on measurements on the ground of actual tree density and actual habitat tree numbers. It doesn't rely on any map or predicted – or modelled information at all. It relies entirely on what you measure to be there at the site and it predicts the abundance of greater gliders at a site based on the variables that are there. It's not extrapolation like this modelling is.

462 I accept the opinions expressed by both Dr Smith and Professor Woinarski that habitat modelling based on extrapolation rather than observation can be a useful tool to assist in predicting what parts of native forest a species may inhabit. I also accept their opinions about its limitations. In particular, I accept their opinions about the stronger reliability and predictability which comes from reliance on detections and on "on the ground" examination of the forest and its habitat potential for each of the species. Modelling based on observation may, as Dr Smith suggests, be given more weight. Modelling is no doubt attractive at an organisational and planning level, as it enables much work to be done at the desktop. However, I am satisfied by the opinions of Dr Smith and Professor Woinarski that in the situation of predicting what parts of native forest should be protected and conserved for use by threatened species, modelling is inadequate as a primary method, which in my opinion is how VicForests seeks to use it, and how VicForests sought to present modelling in its defence in this proceeding. "On the ground" searches and surveys, and detection work, may be more labour intensive and time consuming, but it is clearly more reliable. And it does something no amount of modelling can do: it tells those interested in this matter which parts of the forest the threatened species is, in fact, using. Therefore, what can be protected is what the species is using, and – derived from this – what it might use in the foreseeable future. Protection becomes, in this way, a reality and not a theory.

463 It is necessary to explain in a little more detail why I reject Professor Baker's evidence.

464 Professor Baker's academic and professional background is in forestry and forest ecology, in both the United States and Australia. He obtained his academic qualifications in the United States. He states in his first report that his experience with Leadbeater's Possum is as one of the chief investigators on an Australian Research Council project (2015-present) focused on developing forest management prescriptions to accelerate Leadbeater's Possum habitat development. In his first report, he described the technology he relied on to obtain the source data for his modelling:

> In recent years advances in remote-sensing technologies have made detailed assessments of large areas of forest possible. One of these technologies is Light Detection and Ranging, or LiDAR, which can provide centimeter-scale resolution spatial maps of the three-dimensional structure of urban, rural, and wilderness landscapes. LiDAR has been increasingly used to quantify forest structure over large areas for a variety of management purposes. Over the past few years, in collaboration with the Department of Environment, Land, Water, and Planning (DELWP), we have been developing algorithms and analyses that use LiDAR data to identify Leadbeater's Possum habitat in Victoria's Central Highlands.
>
> In this report I use LiDAR data commissioned by DELWP in 2015 to estimate the abundance of 17 live hollow-bearing trees and an index of habitat suitability for Leadbeater's Possum for each of the scheduled coupes identified in the Court proceedings.
>
> …
>
> I used the LiDAR data to assess two aspects of habitat quality in each coupe. First, I estimated the 18 total area within each coupe that would be classified as Zone 1A habitat. Zone 1A habitat is defined as forest with ">N living mature or senescing hollow-bearing trees (comprising Mountain Ash, Alpine Ash or Shining Gum) per 3 ha in patches greater than 3 ha" where N is either 10 or 12 depending on the source. This is an important source of potential future habitat for hollow-dependent species such as Leadbeater's Possum because it is these large, live hollow-bearing trees that will provide nesting sites in the coming decades and centuries. In our analyses, we used the more stringent definition (N=10) to ensure that our assessment was as conservative as possible given uncertainty regarding the regulations.
>
> Second, I estimated a habitat suitability index (HSI) for Leadbeater's Possum based on environmental and structural data obtained from each coupe using LiDAR data and available climatological data. The HSI provides a score on a scale from 0 to 1 describing the suitability of the habitat for Leadbeater's Possum. Scores greater than 0.5 indicate sites with high-quality habitat for Leadbeater's Possum; site scores less than 0.5 indicate poor habitat for Leadbeater's Possum. These analyses were developed by Ruizhu Jiang, a PhD student in my research group, and calibrated and validated using a dataset of >400 study plots that were surveyed for Leadbeater's Possum. An important aspect of these analyses is that they are not based on extrapolations from observations at a subset of study plots or coupes. Rather, they are direct estimates based on data collected remotely for every hectare in every one of the coupes in question. This means that the assessment provided here emerge from site-specific empirical data that covers every hectare within each coupe and every hectare in the surrounding landscape. This allows us to provide a robust evaluation of the current habitat quality and the potential impacts of timber harvesting for every coupe.
>
> (Footnotes omitted.)

465 Despite Professor Woinarski's criticism, Professor Baker maintained in his third report (at p 5 onwards) that his modelling was robust. VicForests pointed in its closing written submissions (at [585]-[586]) to the substantial correlation between the Leadbeater's Possum detections and Professor Baker's modelled predictions of high quality Leadbeater's Possum habitat. It did so taking into account Professor Woinarski's agreement that for the coupes he looked at, except one (Utopia), there were recorded detections of Leadbeater's Possum within 600 m of high quality Leadbeater's Possum habitat as modelled by Professor Baker.

466 VicForests therefore submitted:

> There was no opposing expert on the modelling (despite a lengthy and exploratory cross examination of Professor Baker), and in light of the objective correlation between known records of Leadbeater's Possum modelled suitable habitat within their home range, the modelling is reliable evidence. Given that, there is no basis to depart from Professor Baker's conclusion that timber harvesting was modelled to have no discernible impact on total habitat hectares for most coupes, and where it did have an impact it was typically minor and transient.

467 To be clear, Professor Baker's modelling was relevant only to the Leadbeater's Possum, and not to the Greater Glider.

468 As the applicant submitted in reply, what this submission omits is Professor Woinarski's evidence that:

(a) there were many records of detections in areas Professor Baker modelled as low habitat suitability; and

(b) not enough is known about the movement patterns of Leadbeater's Possums to understand how many of them move up to 600 m (which is the measure VicForests referred to in its submission at [585]). Professor Woinarski's opinion is that movements of up to 600 m may well be exceptional.

469 I accept those submissions. The second submission means the premise in VicForests' submission (that the Leadbeater's Possums detected were using or present in the habitat modelled by Professor Baker as high quality) may not be well founded. Six hundred meters may not seem like a long way to humans, but as Professor Woinarski explained, while the home range size for the possum is poorly understood, the limited studies which have been undertaken suggest a range of between 1 and 3 ha.

470 In my opinion, Professor Woinarski is well qualified to evaluate the modelling developed by Professor Baker. His deep and long-term knowledge of the Leadbeater's Possum adds to the weight that can be placed on his evaluation of any modelling system. So, for example, when he was clear in his opinion that not enough is known about the movement patterns of Leadbeater's Possum to know if they regularly, or generally, move up to 600 m from an area classed as high quality habitat, I am persuaded it is appropriate to give weight to what he says. The 600 m assumption was critical to VicForests' submission that Professor Baker's modelling was "robust". And as I have noted above by reference to the applicant's closing reply submissions, VicForests' submissions passed over Professor Woinarski's evidence that there

were Leadbeater's Possum detections in many areas which Professor Baker had modelled as low-quality habitat.

471 That brings me back to my views on Professor Baker's evidence about detections and about the way the Leadbeater's Possum actually uses the forest. This is a matter of some significance in my conclusion that his evidence and the models he produced are not to be preferred over the evidence of Professor Woinarski.

472 The first example is the following evidence in cross-examination:

> So it's the proximity of the magenta to the northern boundary of the coupe that gives you comfort about your – the reliability of your model for that coupe?---That's correct.
>
> Okay. And again, the assumption you make there is if that is habitat which is used just for foraging for food, it's accurately mapped by your model as low quality habitat?---That is correct. So just to be clear, if it's used for foraging and there are no hollow-bearing trees there, then it is considered low quality habitat.
>
> Okay?---Which isn't to say that it's not necessary. It – the animal needs to forage. But – and I think this is one of the areas where there's, I think, a lot of – confusion is perhaps the wrong word, but I think a lot of the management issues revolve around this, as to whether both of those resources need to be juxtaposed within the same, you know, hectare, for example, or they can be separated, and so you could have, you know, high quality habitat if they're near each other, but that doesn't mean that they can't move out to what you would consider low quality habitat, however it has an important resource that is being exploited or being used.
>
> So do I understand you to say, Professor, that what may be necessary habitat for the Leadbeater's Possum is not necessarily considered to be high suitability habitat under your predictive models?---So the resources that it used may be found in areas that are not high quality habitat.

473 If this was intended by Professor Baker to justify the modelling, I found this reasoning difficult to follow. Like any other animal, the Leadbeater's Possum needs food: its food resources are just as critical to its survival as where it dens and breeds. If the "management issues" of which Professor Baker spoke do not treat forest where the Leadbeater's Possum forages, or may forage, as part of what is considered "high quality habitat", then I cannot see how the decisions that are made are likely to protect and conserve the species, and all its habitat. Similarly, if his modelling shows foraging areas as "low quality" habitat, it is not clear what utility it has.

474 Pressed further by counsel on this issue, Professor Baker explained:

> What definition are you referring to, then, as high quality habitat?---So I'm saying that the resources that the Leadbeater's Possum requires, the Acacia for foraging or the hollow-bearing – the hollow-bearing trees, those are both necessary for the possum. You can have high – so the way that we – effectively, the way we rate high quality habitat is that it's an area that either includes both within the same hectare, or it includes one and the other is within – within 100 metres of it. **But that doesn't meant**

> **to say that you could have Acacia that's 200 metres away and it doesn't use that, because that is a foraging resource that it can benefit from. Similarly, it doesn't say that if you have hollow-bearing trees on their own, it wouldn't use those**. However, the hollow-bearing trees that are on their own without an Acacia understory are harder to access, because they don't have the connected understory to – to get to them. And so it's more likely that you would have high quality habitat as you see here in the pink, and then you would have connected Acacia that they would forage out into and come back – come back to their denning sites.
>
> (Emphasis added.)

475 The Court was not directed to the scientific basis for the assumptions made by Professor Baker in this evidence, in terms of how the Leadbeater's Possum behaves (or does not behave) in its movement patterns. That is the very issue on which Professor Woinarski said little was known. The Court was also not directed to what basis Professor Baker had in the material he relied on to assume that, although the Leadbeater's Possum might "benefit" from foraging resources around 200 m away from an area with sufficient hollows for its nesting, such foraging resources either would be protected from logging or could be logged without adversely affecting those (hypothetical) adjoining populations of Leadbeater's Possum. Again, this was the very issue Professor Woinarski made clear in his evidence and in his third report at [40] was problematic – that is, the establishment of a timber harvesting exclusion zone (**THEZ**) of only 200 m around a detection. It appeared to me Professor Baker was doing no more than speculating about the behaviour of Leadbeater's Possum, that not being his field of expertise.

476 Further, in the above passage Professor Baker seems to be contending that although the Acacia forest used for foraging might be "necessary" for the Leadbeater's Possum, because it does not fit within his model for high-quality habitat (because it does not also have sufficient numbers of hollow-bearing trees), then such areas can be logged without impact on the Leadbeater's Possum, even though the Leadbeater's Possum is using them, because only modelled "high quality" habitat needs to be protected. The counterintuitive nature of this reasoning was highlighted by Professor Woinarski, and I accept his opinion.

477 Professor Baker indeed candidly admitted there was an element of speculation to this aspect of his evidence:

> And when you say it's "supposition on my part", are you effectively saying to her Honour, "I'm speculating as to why there's this – it has been detected here despite the outcome of my model. The best I could do is try and explain it by the presence of magenta"?---So what I'm suggesting is that you have these high-quality habitat hectares here, where I've put – where I've put the cursor, that **we know that the possum can – can move around and forage within 600 metres.** We also know that it **can disperse further** if it is looking for new denning sites and that in both instances those – the actual sighting is well within those distant thresholds. In this case, more

> specifically, because you have a lot of high-quality habitat surrounding the Starlings Gap coupe and you have a lot of observations of possum in the area, it may be – and, again, this is absolutely speculation – it may be that this was a young that was dispersing further out.
>
> And the reason you say it's absolutely speculation is because there's no way to know from that blue dot that I took you to – the 2017 detection - - -?---What – what it was doing.
>
> - - - what that possum was doing at that particular time?---Absolutely. Correct. Yes.
>
> (Emphasis added.)

478 And therein lies one of the serious flaws in the entire theme of Professor Baker's evidence. Modelling for both hollow-bearing trees at a certain (high) density and Acacia resources for foraging may in theory correlate with where the Leadbeater's Possum *should* spend its time. However, it does not correlate sufficiently with where Leadbeater's Possums are detected. As Professor Baker's evidence in cross-examination demonstrated, the theoreticians are then forced into speculation about why the possums are found where they are. As Professor Woinarski emphasised, we do not know enough about the species' movement patterns yet to understand *why* it occupies the forest it does. That is why the opinions of Dr Smith and Professor Woinarski should be accepted: namely, that protection which is based around direct observations of habitat and detections, and understanding the detections in the context of the observed habitat, is a surer guide.

479 Professor Baker then explained how he understood it might be the case that there were detections of Leadbeater's Possum in areas which his model predicted as low- or lower-quality habitat:

> Did you want to say something?---Well, I was just going to add that I think – again, this is one of the issues around Leadbeater's Possum, is that a lot of the research is focused on the optimum habitat for the possum. And in areas that are marginal, it – it – I think it's much less well-understood, their ability to use those. I mean, we certainly know from the possum populations at Yellingbo and the possum populations up in the highland – the higher areas with snow gum that those are not what we would consider to be optimal habitat in the context of the montane ash forest, but they are certainly using them. So if you're given a landscape like this, where the quality of the habitat is generally poor but there's an area that is of higher quality habitat, even though it's – it's not optimal habitat, then it may well be that they use that. Again, that's speculation on my part and I will be very upfront about that.

480 I accept Professor Baker was being appropriately candid. What he was recognising, and what became even more obvious a little later in his cross-examination, is that the Leadbeater's Possum species may – in fact – be found to occupy and use areas that a carefully prepared model does not classify as ideal or "high quality" habitat for it. Nevertheless, it is there. And

the presence of the species is, as Dr Smith and Professor Woinarski explained, the best indicator of what areas should be protected and conserved, because there is reliable and direct information that those are the areas the species is actually occupying. Professor Woinarski explained in his second report (at p 27) why the Leadbeater's Possum might be found in such forest:

> Nonetheless, there are (many) records of Leadbeater's possum in areas of younger aged regrowth (e.g. 5-10 years post-fire or logging). Such regrowth is often dominated by acacias, and characterised by a dense inter-connected layer of foliage, which allows Leadbeater's possum to move around readily. However, Leadbeater's possums obligatorily nest in tree hollows with large internal diameters, which occur only in large old trees. Younger-regrowth vegetation alone does not provide this critical resource, so Leadbeater's possum will occur in younger-aged regrowth *if and only if* there are suitable large old trees scattered within that regrowth (i.e., a mixed-age forest), or where the regrowth occurs adjacent (i.e. within a possum's home range) to older habitat (i.e., in tight juxtaposition). Extensive areas of younger-aged regrowth alone will not provide suitable habitat for Leadbeater's possum.
>
> (Original emphasis.)

481 Professor Baker's evidence in cross-examination also touched on why a modelling solution may be preferred by an organisation such as VicForests. He said, when cross-examined about whether "boots on the ground" was the best method of searching for Leadbeater's Possum habitat:

> The boots on the ground, assuming that you have people who are walking on every hectare, looking at every tree, is fine; the problem **is that's difficult to do. It's expensive**. And this is why coming up with systems that use a balance of those things are much more effective than to try and actually put someone on the ground on every one, in this case, of nearly two and a half thousand hectares of forest.
>
> (Emphasis added.)

482 At least on VicForests' submissions, a factor of this kind may play a part in what is a proportionate response, under the precautionary principle, to the existence of a serious or irreversible threat. However, in terms of the current issue – the reliability of Professor Baker's modelling – whether at a policy level one might "balance" a less reliable method against a more reliable method because one was less time consuming does not affect my findings about the inadequate reliability of Professor Baker's models.

Some issues about habitat

483 There are a number of issues raised by the evidence, and relevant to the resolution of the issues between the parties, about the concept of "habitat" for the Greater Glider and the Leadbeater's

Possum. Some concern what is meant by certain key terms used in the evidence, or how they should be understood and used in resolving the issues in dispute.

Old growth

484 The term "old growth", as a descriptor of the characteristics of a forest, can be found in many sources which provide background to the Regional Forest Agreements and to the EPBC Act. Dr Davey discusses these in his first report. For example, the recitals to the CH RFA identify "old growth" as one of the environmental values to which studies and projects in the CH RFA region relate (others being matters such as wilderness and endangered species). In the CH RFA, the definition of "old growth" which is adopted is taken from the JANIS Report.

485 The JANIS Report, published by the Commonwealth in 1997, has the long title of *Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia: A Report by the Joint ANZECC / MCFFA National Forest Policy Statement Implementation Sub-committee*. This was the report relied on to negotiate and conclude the various Regional Forest Agreements around Australia, and in particular to provide the benchmarks and criteria for the establishment of the CAR reserve system, one of the cornerstones of the Regional Forest Agreement system. In Ch 6, the JANIS report sets out the proposed national criteria for the conservation of forest biodiversity, old-growth forests and wilderness, and for decision-making around what forest should be included in the CAR reserve system. These three criteria of biodiversity, old-growth forests and wilderness all have a subsection of Ch 6 of the JANIS Report devoted to them.

486 At 6.2.1, concerning a discussion of old-growth forest criteria, the JANIS Report states:

> Old-growth forest has a range of biological, aesthetic and cultural values.
>
> The biodiversity attributes attributed to old-growth forest are based on the fact that some plants and animals are restricted to the old-growth stages or are dependent on old-growth forest for some of their habitat requirements. For example, one of the most significant characteristics of the older stages of Australian eucalypts is the propensity for creating hollows and it is well established that the number of tree hollows can be a limiting factor in the abundance of some fauna (Mackowski 1984).
>
> The NFPS defines old growth forest as:
>
> > *Forest that is ecologically mature and has been subjected to negligible unnatural disturbance such as logging, roading and clearing. The definition focuses on forest in which the upper stratum or overstorey is in the late mature to over mature growth phases.*
>
> However, in order to define and map old-growth forests, operational interpretation based on the NFPS definition have been developed in some States, notably Victoria

> and New South Wales, and by the Commonwealth. Given the experience which has been gained in recent years in identifying old-growth forests, the agreed National operational interpretation is now:
>
> > *Old-growth forest is ecologically mature forest where the effects of disturbances are now negligible.*
>
> In applying this interpretation to a forest ecosystem within a region, the following principles will apply:
>
> - Ecological maturity is defined by the characteristics of the older growth stages
> - If data are available on the structural, floristic, and functional qualities that would be expected to characterise an ecologically mature forest ecosystem, these data should be used in the assessment of the significance of disturbance effects.
> - Negligible disturbance effects will be evident in most forests by a significant proportion of trees with age-related features and a species composition characteristic of the ecologically mature forest ecosystem.
>
> This interpretation acknowledges that age-related features and the effect of disturbances will differ between forest ecosystems due to a range of factors including physical setting, fire proneness and species composition …

487 Relevantly, and not without significance, the example given in this section of the JANIS Report relates to the Greater Glider:

> Old-growth forest can have a high value for biodiversity and hence a substantial proportion of the remaining extent will be incorporated by applying the CAR criteria for biodiversity. For example, old-growth forests with high nutrient levels and moderate topography have been shown to be significant habitat for certain fauna, e.g., the Greater Glider *Petauroides volans* (Kerr) (Davey and Stockwell 1991). The actual amount of old-growth forest incorporated under these criteria depends on the remaining extent in each forest ecosystem and its contribution to biodiversity goals.

488 This section of the JANIS Report also makes a point that Dr Smith emphasised in his evidence, as did Professor Baker; namely, that forests are not static:

> In regions which are characterised by a high degree of landscape disturbance and fragmentation, and where old-growth forests are therefore limited in occurrence, old-growth forest will assume increased significance and warrant greater reservation. Conversely, lower thresholds may apply in regions where disturbance and fragmentation are less evident.
>
> It is recognised that old-growth, as part of an ecological succession, is not static and cannot be maintained indefinitely merely through the reservation of existing examples of that age-class. The inclusion of old-growth in the reserve system should be seen in the context of the selection and of an appropriate mosaic of age-classes, which, with ecological processes intact will have the potential to generate the old-growth of the future.

489 In the passages of his first report which I have extracted at [68] and [71] above, Dr Smith explains the habitat preferences of the Greater Glider as "old-growth" eucalyptus forests of one

of the three broad forest types he describes. The failure of VicForests' maps (in the agreed maps used for this proceeding) to identify forest as old growth is a point Dr Smith makes at p 9 of his first report:

> The Agreed Maps provided for this study include a VicForests mapped layer referred to as "Forest Age Class by Decade". Forests mapped as pre 1900 in this layer should be greater than 118 years of age and thus would qualify as old growth. However, it would be incorrect to assume that forests mapped as younger than 1900 in age are not old growth. VicForests Forest Age Class mapping could be interpreted as implying that all forests in the study area are uniform-aged, resulting from a single past fire event. While this assumption may be correct for some Ash forest, it would be incorrect and misleading for all or most Mixed Species forests and some areas of uneven-aged Ash forest. During this study all coupes that were mapped by VicForests as being dominated by 1939 (regrowth) Mixed Species forests were found during site inspection to be uneven-aged old growth. Failure of VicForests to correctly map the age and structure of Forests in the Central Highlands is likely to be/have been a key factor exacerbating the decline of old growth habitat for the both the Greater Glider and Leadbeater's Possum (*Gymnobelideus leadbeateri*) in Victoria.

490 The protection of this old-growth habitat is what Dr Smith sees (at p 20 of his first report) as essential to halting the decline and initiating recovery of the Greater Glider in the Central Highlands. What is required, according to Dr Smith, is:

> protection of all remaining unlogged uneven aged old growth habitat because there is so little left, and because remaining old growth areas are most likely to be found in fire refuge areas (where they have survived both 1939, and 2009 fires without being killed), and linking of these remnants with corridors (including logged areas if unlogged areas are not available) …

491 In discussing why the Greater Glider population in the Central Highlands is an important population, one reason being that it extends over a very extensive area exceeding the maximum extent of any single wildfire or series of wildfire events occurring over the past 150 years or more (and thus meaning there is always likely to be some area of undisturbed habitat), Dr Smith said this about the amount of old growth left in the CH RFA region:

> Much of the remaining forest that would normally have been present as old growth refuge was and continues to be targeted for clearfelling and slash burning regeneration (Lutze et al 1999) to the extent that less than 5% unlogged and unburnt old growth Ash cover now remains in the Central Highlands (Lindemayer et al 2015, VEAC 2017).

492 It is apparent from a reading of the applicant's closing written submissions that it freely uses the term "old growth" in describing not only the habitat of the Greater Glider but also the forest found in the Logged Coupes and Scheduled Coupes. VicForests took issue with Dr Smith's use of the term "old growth" and therefore also, I infer, with the way it was used in the applicant's closing written submissions. At [350] of its closing written submissions, VicForests contended:

> Dr Smith used a fundamentally unorthodox definition of "old growth". Dr Davey's

> evidence is that the concept of "old growth" has a specific meaning in Australian forest science and policy meaning forest that is ecologically mature and has been subjected to negligible unnatural disturbance (such as logging, roading and clearing). Dr Smith accepted that he did not use the forestry definition of "old growth". Dr Davey's opinion is that Dr Smith misused the concept of old growth in assessing critical habitat, and attempted to introduce a definitional change to reclassify mature forest as "old growth".
>
> (Footnotes omitted.)

493 This was put forward by VicForests as one of the reasons that Dr Smith's ultimate opinion about the threat of serious or irreversible damage to the Greater Glider from forestry operations in the Logged Glider Coupes or Scheduled Coupes should be "discounted". However, it seems to me it is an issue also capable of affecting the reliability of Dr Smith's opinions more generally.

494 In reply, the applicant contended (at [68(d)]):

> The issue with use of the term 'old growth' raised at **VCS [350]** is irrelevant: it is the characteristics of the forest described by Smith as comprising critical habitat and the presence of such forest in the subject coupes that is relevant (**ACS [208]-[209]**), regardless of whether that forest ought to be labelled 'old growth' or not. So much was accepted by Davey (T492.31-42).

495 In other words, despite using the term throughout its submissions, the applicant in effect sought to side step the issue. While I accept there is no utility in an arid debate about terminology, it seems to me more is at stake in the question about the characteristics of the forest in the impugned coupes as "old growth". Forest that can, or should be characterised in that way is recognised by the JANIS report as in need of protection, because of the biodiversity values it embodies. The JANIS repot also recognises the need to understand and identify the characteristics of old growth forest so that "an appropriate mosaic of age-classes" can be reserved, because such a mosaic "with ecological processes intact will have the potential to generate the old-growth of the future".

496 In cross-examination, Dr Smith was taken to the parts of his first report I have extracted above, concerning the Greater Glider's preferred habitat in "old growth" eucalyptus forests. It was put squarely to him that the definition of the term "old growth" he used was contrary to the accepted specific meaning of "old growth" that is established in Australian forest policy:

> Do you agree with that?---No, I don't agree with that.

497 Dr Smith was then asked about the opinion he expressed in his first report that forests mapped as younger than 1900 could be old growth:

> So you're suggesting that old growth would include trees that are less than 118 years old?---If they contain hollows and have the characteristic of an old senescent tree.

498 Senior counsel then put to Dr Smith the definition of old growth from the CH RFA which, as I have explained above, refers back to the JANIS Report. I have set that definition out at [486] above.

> Are you familiar with that definition?---Yes, that's the definition that I work from. I don't work from the forestry definition.

499 That line of cross-examination was not pursued further. However, the "forestry definition" to which Dr Smith referred was then put to him:

> And, on page 15, you will see there's a definition at the bottom for old growth which sets out:
>
> > *"Old growth" means forest which contains a significant amount of its oldest growth stage, usually senescent trees in the upper stratum and has been subject to any disturbance the effect of which is now negligible. For a stand to qualify as old growth, the regrowth growth stage, if present, must be sparse, less than 10 per cent of the total crown cover of the stand and negligible disturbed forest is that in which disturbance is known to have occurred but the disturbance is unlikely to have altered the structure, growth stage and crown cover or the usual species composition which characterises a given vegetation class or, if the alteration did occur in the past, it is no longer measureable.*
>
> Do you accept that is an accurate definition of "old growth"?---No, I don't accept that as an accurate definition of "old growth". The second part of that description, "For a stand to qualify as old growth, the regrowth growth stage, if present, must be sparse, less than 10 per cent of crown cover," doesn't work in mixed species forest which are naturally uneven aged.
>
> So you - - -?---So - - -
>
> - - - take issue with the definition of "old growth" in the management procedure?---In the code. But I haven't taken objection to the definition in the JANIS report which is - identifies ecologically mature forest, which is quite a different thing from what's specified here. And can I also qualify that the reason I put my categories that I do into old growth is that scientific studies have shown that past low-intensity selective logging and roading and grazing disturbance has not had a significant or measureable impact on greater gliders. So I've taken the view that forests that have been subject to some low level logging in the past, some low level roading, possibly some grazing, in fact, there's almost no forest in Victoria that hasn't been subject to those disturbances, provided that occurred pre-60s, our surveys show that that is not likely to have a measurable impact on greater gliders and therefore the effect - I take it to mean the effect of those disturbances is now negligible. And therefore forests which have been logged or disturbed pre-60s and which have an ecologically mature structure qualify as old growth. That is the approach that I've used.

500 There then follows several pages of cross-examination where senior counsel attempts to impugn the way Dr Smith has approached the concept of "old growth". I consider that attempt was unsuccessful and Dr Smith gave rational and consistent answers to the questions he was

asked. That part of the cross-examination culminates in the following exchange, which is a matter to which I have given some weight in approaching the application of Dr Smith's opinions (which I accept) to the Logged Coupes and Scheduled Coupes:

> Now, would accept that – sorry, if we could just move to the – I think the next page.
>
> Yes. You see tree ageing:
>
> > *Limited investigations were conducted to determine the ages of forest growth stages by using dating techniques on two mountain ash trees. Interpretation of data suggested an immature growth stage for mountain ash of about 80 years, a mature phase of about 270 years, a senescing phase of about 100 years and, finally, a stag phase of about 50 years.*
>
> Do you accept that as an accurate description of the tree ageing process?---No, no, that appears to be highly inaccurate. It's totally inconsistent with the later work of Ambrose in 1982. It measured hollow development in trees and found that it preceded a much earlier age than that. I suggest that in Jacobs' day there just wasn't as much data around.
>
> Well, this document is 1997. It comes after Ambrose's work '92?---Well, what is it citing as its source?
>
> It refers we saw to Jacobs but it puts a gloss on Jacobs by referring to Victorian Forest Practice, I think?---Well, in that case I would simply have to say that it's - - -
>
> Sorry, Victorian Growth Stages?---It's entirely inconsistent with my observations- - -
>
> Yes?--- - - - and the date of Ambrose.
>
> Okay. Do you accept that senescing – the senescing phase of mountain age commences after about 350 years after regeneration?---No, no. As I said before, in my observations of – in the forest, myself and of Ambrose's data, mountain ash begins to develop hollows around about 100 years of age, and I've reported in my report that I've seen hollows developing in 1939 regrowth ash, which are currently 80 years of age. So that if the trees are open grown, struck by lightning or are disturbed, they can develop hollows and begin to senesce even at 80 years.
>
> But I - - -?---And I've also, during my doctorate on Leadbeater's possums in the Central Highlands, I've counted rings on large hollow-bearing trees that were felled for roadworks in my study area and found that very large what would be called old senescent trees had 170 rings on them. So that's way less than the cut-off point that's being used here. In my view, if you use a cut-off of 270 years, there probably isn't much old growth under this definition left in the Central Highlands at all. There might be a few hundred hectares. That might be it. It's such a restrictive definition that for conservational or practical management purposes it's useless. And if you went back to some of your earlier literature and hear it in JANIS and other literature it describes old growth as being a stage that is recognised by animals as old growth. And the greater glider is probably our most old- growth dependent species amongst the mammal form that I study. So it is actually a good indicator in itself of what is old growth.
>
> Your definition, though, of "old growth", you agree is different, fundamentally different, from the definition contained in the management standards and procedures?---I do.
>
> So would you say that, in your opinion, those responsible for drafting the management standards and procedures should review their definition of "old growth" to bring it into

> conformity with what you say the definition ought be?---It doesn't have to necessarily be in conformity with what I say but I believe that it needs to be reviewed if it's to be taken seriously as an attempt to conserve examples of ecologically mature ecosystems, which was the intent of JANIS.

501 I am satisfied that in his evidence Dr Smith adhered, as he said he did, to the definition of old growth sourced from the JANIS Report and employed in the CH RFA. That is entirely appropriate in the present context, and, contrary to VicForests' submissions, there is nothing "unorthodox" about it. It is the departure from this which might be described as unorthodox. It would be inappropriate to use a narrower "forestry definition", even if such a "definition" has been promulgated so that some forest can be exposed to logging without, at least in forestry terms, being seen to involve harvesting "old growth" forest.

502 On this issue, another line of cross-examination of Dr Smith should be mentioned. During the cross-examination about the definition of old growth, Dr Smith was asked about the objectives of the National Forest Policy Statement, and the Regional Forest Agreements in relation to the CAR reserve system and the preservation and conservation of old growth within that System:

> And reference is made to the JANIS report.
>
> > *This chapter includes an assessment of the extent of old growth forest in the central highlands and the application of the nationally agreed reserve criteria.*
>
> So, just pausing there, you accept that a very important part of the national forest policy statement that led to the regional forest agreements was to establish reserves which were comprehensive, adequate and [representative] and which included significant amounts of old growth forest in them?---I agree that it was an objective but I can't agree that it achieved its objectives.

503 This is another way of pointing out, as I accept, that the existence of the CAR reserve system is not an entire answer to any claims that a threatened species, such as the Greater Glider, is not seriously threatened or significantly impacted by forestry operations, because there is plenty of habitat for the species in that system. That argument is far too simplistic, and I accept its rejection by both Professor Woinarski and Dr Smith. It is especially simplistic, and wrong, when account is taken of the effects of wildfire.

504 While I reject VicForests' criticism of Dr Smith, and while different scientists for different purposes might have different views about when a forest can be described as "old growth", the more fundamental point, as the applicant submits, is that the questions raised by the applicant's case on the Greater Glider (and, for that matter, the Leadbeater's Possum) centre on what are the characteristics of the forests being in fact used and occupied by the Greater Glider in the CH RFA region, and whether the conduct of forestry operations affects those forests in a way

that seriously threatens or significantly impacts on the Greater Glider (and the Leadbeater's Possum) as species. As the applicant submits, although he maintained his disagreement with Dr Smith on the definition of "old growth", Dr Davey accepted this proposition:

> Well, can I perhaps put this to you a slightly different way. Whilst there might be different – differing views between you and Dr Smith about what the right definition to adopt of old growth forest is in certain circumstances, what you would both agree about is what we're trying to do in terms of the greater glider is find forest that has characteristics that incorporate hollows that are suitable for nesting by the greater glider?---I would paraphrase your question by saying that we certainly need to identify those forests that are – have the appropriate productivity and appropriate number of habitat trees.
>
> And that's, I suggest to you – and you might be in heated agreement with me – more important than giving it a label that says, "Well, it's old growth if it's 300 years" – or if it's 120 years?---I would totally agree with that.

1939 regrowth

505 Much of the forest harvested by VicForests in the CH RFA region, and which is in issue in this proceeding in terms of its existing and potential use as habitat for the two species, is described as "1939 regrowth". It is appropriate to set out my findings about the characteristics of this forest, and its importance or relevance as current or potential habitat.

506 In his first report (at p 26), Dr Smith described this forest in the following way:

> In 1939 major fires burnt about 2 million hectares of forest in and around the Central Highlands. Prior to this the forest is likely to have been mostly old growth based on the distribution and abundance of large old dead trees left visible from the ground and on aerial photographs. After the 1939 fires most of the surviving unburnt old growth Ash forest was logged. About 22,000 ha still remained in the 1970's (Smith and Lindemayer 1992) but less than 5000 ha remains today.

507 This is consistent with the 2015 Conservation Advice, which states:

> Fire is the primary form of natural disturbance in mountain ash forest. Prior to European settlement the fire regime was less frequent than at present, and occurred in late summer (Lindenmayer et al., 2013b). Many major fires have occurred in the Central Highlands over the past 400 years, the largest and most extensive known are the 1939 'Black Friday' fires which burnt over 1.5 million hectares state-wide, including much of the area of Leadbeater's possum habitat (Lindenmayer and Ough, 2006; DSE, 2008).

508 In his third report (at p 10), Professor Woinarski notes that "most of the ash forests in the Central highlands are 1939 regrowth forests".

509 Dr Smith also explains the importance of 1939 regrowth for the Greater Glider. First, in terms of the kind of hollow-bearing trees they use:

> Living and dead trees with hollows are generally common in naturally occurring Mixed Species forests, even those which have been repeatedly burnt. In this study large old trees with hollows were commonly found to be abundant in Mixed Species forests mapped by VicForests as 1939 regrowth. In Ash forests living trees with hollows are generally restricted to old growth and uneven-aged forests that are long unburnt or lightly burnt such that large old trees were scorched rather than killed. Dead trees with hollows may be abundant in some regrowth Ash forests that developed after intense fires in 1939 (and other years). However, dead Mountain Ash trees decay rapidly (about 2-4% per annum, Smith 1982. Lindenmayer et al 1990, Lindenmayer et al 2017) and are now scarce in many areas of regrowth Ash.

510 This opinion also reveals one of the issues with some of VicForests' mapping, to which I refer elsewhere in these reasons.

511 On other habitat values of this kind of forest, Dr Smith's opinion, which I accept, is:

> The habitat value of 1939 Mixed species to Greater Gliders is likely to be very high because site inspections for this study have found that this age class has not been correctly mapped in most Coupes and that much of this forest is uneven aged old growth with abundant hollows. 1939 Ash regrowth is structurally ideal for feeding and movement by Greater Gliders but often lacks large trees with hollows, however, it will be of high value to Greater Gliders where it occurs on the boundary with or inter-mixed with Mixed Species forest since the latter can provide abundant hollows.

512 Dr Smith and Professor Woinarski explain how the 1939 regrowth serves other critical functions for both species. For the Leadbeater's Possum, Professor Woinarski explained in his first report:

> In relation to this matter, large old hollow-bearing trees are a scarce and rapidly diminishing resource in these forests, so have particular value. However, the much larger cohort of trees regrowing after the 1939 wildfires (which are especially targeted for harvesting) is also a critical resource. These generally do not have hollows now, but in the future these will provide the next major source of hollows, so long as they are retained in the landscape.
>
> (Footnote omitted.)

513 Dr Smith expressed a similar opinion in summary form early in his first report:

> In my opinion [halting the decline and initiating recovery of Greater Glider in the Central Highlands] would also require protection of all remaining 1939 regrowth Mountain Ash from further harvesting in the Central Highlands because protection of this area is necessary to re-balance the age structure of the forest away from predominantly regrowth and to provide "future" old growth for both the Greater Glider and Leadbeater's Possum.

514 The 2015 Conservation Advice also emphasised the future importance of 1939 regrowth:

> Following 2060, the largest cohort of old trees regenerating after the 1939 fires, will begin to develop cavities suitable for occupancy by Leadbeater's possum (Lindenmayer et al., pers. comm., 2014a) and therefore following this time, Leadbeater's possums may begin to rebuild in numbers.

> The Leadbeater's possum reserve system was established as a key strategy for conservation of the species. Lumsden et al. (2013) recognise that areas will become increasingly unsuitable for Leadbeater's possum before 1939 regrowth trees mature sufficiently to produce suitable hollows during the next 50–120 years. Increased rates of tree fall and future fires will exacerbate this situation, with models predicting the population in the reserve to fall to critically low levels (Lumsden et al., 2013). Lumsden et al. (2013) undertook population viability modelling (see Criterion 5) to quantify the risk of extinction with risk of extinction defined as the probability of adult females falling below 500 within a 200 year time frame. Overall, the results of their modelled scenarios indicate that, even without further disturbances such as future wildfires and an accelerated loss of hollow-bearing trees, the reserve system does not provide the requisite minimum population requirements. The analysis predicts that the population of Leadbeater's possum within the reserve system has a high likelihood of being at a very low population size which imposes on the species a greater risk of extinction, and that the existing reserve is insufficient to ensure the long-term persistence of the species.

515 And later to similar effect:

> Lumsden et al. (2013) find that, in contrast to the 1939 fires, it is predicted that there will be limited rebound in population numbers after the 2009 fires. While there were extensive areas of old growth forest prior to the 1939 fires, the large living trees that survived the fire and the large fire-killed dead trees were of sufficient size to provide suitable hollows. The 1939 regrowth areas that were burnt in 2009 lost the majority of dead stags. The live trees that were killed are considered unlikely to be large enough to provide suitable hollows. Any that do provide hollows, are predicted will remain standing for only a short period of time (Lindenmayer et al., 2012; Lumsden et al., 2013). The population is predicted to continue to decline until areas of 1939 regrowth forest become sufficiently mature to provide adequate tree hollows (Lumsden et al., 2013), i.e. until at least 2067 (Lindenmayer et al., 2012).

516 Dr Smith expands upon this in his fourth report (at p 15), explaining how the existing forest could be protected so as to provide ongoing habitat critical to the survival of each species:

> Ash forests could be managed for conservation of both Leadbeater's Possum and Greater Gliders by:
>
> a) Protecting all remaining patches of Ash forest with an uneven-aged structure, no matter how small, by providing a 100 m unlogged buffer around any and all individual Ash trees greater than 80 years of age (that is all remaining surviving trees that regenerated prior to the 1939 fires);
>
> …
>
> So little 1939 regrowth Mountain Ash remains that cessation of most 1939 Ash clearfelling is now essential to restore forest structure and provide sufficient uneven-aged and oldgrowth Ash forest in the future for the long term conservation of Leadbeater's Possum and the Greater Glider. There is some scope for limited clearfell harvesting in a small portion of 1939 Ash regrowth where this is specifically modified, designed and driven to improve habitat availability for Leadbeater's Possum. Many areas of 1939 regrowth Ash have progressed to an older stage now structurally unsuitable for Leadbeater's Possum. Tailored, mosaic, small gap clearfelling with retained recruitment habitat trees throughout, chainsaw created hollows, and regeneration that promotes Acacia as well as Ash regrowth should benefit Leadbeater's Possum if limited to a small portion (<33%) of each coupe. The bulk of the remaining

> 1939 Ash should be left unlogged or logged by modified System 5 (see Box 3 and below) to generate uneven-aged Ash forest suitable for both Leadbeater's Possum and the Greater Glider.

517 It is not necessary to make any findings about whether Dr Smith's suggestions should be adopted or not. The relevant point for the purposes of the findings the Court must make is that the 1939 regrowth cohort, which is indisputably present in significant amounts in many of the impugned coupes, is not only currently important habitat for the species, but has different but nevertheless significant importance as habitat into the future.

518 However, the recognised and pressing conflict between preservation of habitat and commercial imperatives for the forestry industry in Victoria that is presented by any requirements to conserve 1939 regrowth is clear on the evidence. In its April 2017 report, the "Fibre and wood supply assessment report", the Victorian Environment Assessment Council repeatedly identified the commercial value of the 1939 regrowth (at pp 43 and 46):

> 1939 regrowth is a critical forest resource that is the primary source of commercial harvesting revenues for VicForests and the State.
>
> …
>
> The mountain ash forests of the Central Highlands are amongst the most commercially valuable in Victoria.

519 In this report, the Council also identified the revenue threat posed by Leadbeater's Possum THEZs, which is clearly seen as sufficiently grave to rank in the same sentence as wildfires and climate change:

> While VicForests' projections based on current assumptions are reasonable, further fires, detection of additional new Leadbeater's possum colonies, or reductions in volume due to climate or other disturbances, will exacerbate pressures for further downward revisions of wood supply level.

520 Later in the report, there is an entire section devoted to evaluating the modelling of how many hectares of commercially valuable state forest will be removed because of further Leadbeater's Possum detections. As I note elsewhere, this is a threat VicForests itself recognises, and as this report demonstrates, has modelled.

521 The Council also described the prospective "exhaustion" of 1939 regrowth in the near future:

> The age structure of the ash forests in Victoria's Central Highlands forest region is very unbalanced. Forest stands originating from the 1939 bushfires dominate the area of regrowth forest in eastern Victoria. This 1939 regrowth is the primary source of high-value sawlogs in Victoria due to the size and wood quality of the mountain ash and alpine ash. The impacts of subsequent fires, in particular the 2009 Black Saturday fires, have further skewed the age class distribution of ash species. A primary challenge

> facing VicForests and the native forest industry is the exhaustion of the 1939 ash regrowth after 2030, but before sufficient new forest resources from subsequent regeneration events are available to harvest.

522 Later in the report, at pp 20-23, the commercial value of the 1939 regrowth, the supply challenges and (again) the role of Leadbeater's Possum THEZ creation, were emphasised:

> In 1939, major bushfires burnt about 2 million hectares of forest in and around Central Highlands, and led to the establishment of hundreds of thousands of hectares of even-aged forest dominated by the commercially valuable species mountain ash (*Eucalyptus regnans*) and alpine ash (*Eucalyptus delegatensis*). This 1939 regrowth is the primary source of high-value sawlogs in Victoria due to the size and wood quality of the two species. The impacts of subsequent fires, in particular the 2009 Black Saturday fires, have further skewed the age class distribution of ash species.
>
> …
>
> Due to the extremely unbalanced age distribution of the high-value ash forests in the Central Highlands, the Victorian government has over the past 30 years actively managed the resource to provide a more even flow to the native forest industry—to spread the relatively narrow age distribution out over as broad a period as possible (see box below).
>
> In effect, this means harvesting the more productive sites earlier (as they will reach harvestable size sooner) and the less productive sites later, or harvesting some areas earlier than the optimal age and other areas later than the optimal age, or both. Unless the forest managers intentionally delay a large proportion of the harvesting, there should be a decline in harvesting levels in the years after the rotation age has passed.
>
> …
>
> Current modelling of sustainable harvest rates in Victoria's state forests suggest that this decline has begun and that in 15-20 years there will be a wood supply bottleneck as the available 1939 mountain and alpine ash regrowth (i.e. not in reserves, protected areas, or other forest practices code exclusions) that dominates the timber supply from the Central Highlands is exhausted and new regrowth from the 2000s is not yet commercially viable. This dynamic has been further exacerbated by the impacts of, in particular, the 2009 Black Saturday fires, and the establishment over the past three years [of] new exclusion zones to protect newly discovered Leadbeater's possum colonies.

523 This conflict is a matter which may explain some of the "on the ground" practices which are the subject of findings in these reasons, and may also explain VicForests' reluctance to be more proactive about conservation measures. However, these were not matters upon which VicForests relied, nor were they even acknowledged in its final submissions.

Habitat trees

524 Another debate, both as to terminology and application to what is observed in the field, was what should be understood by the term "habitat tree".

525 Retention and protection of habitat trees is a mandatory action under the Code: see cl 2.2.2.10. The purpose is to "provide for the continuity and replacement of old hollow-bearing trees and existing vegetation types within each coupe". One of the forest management prescriptions in the Management Standards and Procedures is that VicForests must retain certain "habitat trees" in the coupes which are subject to timber harvesting. The general obligation to do so is located in cl 4.1.1 of the Management Standards and Procedures, and the particular obligation for the kind of forest in the impugned coupes (Ash and Mixed Species) is set out in Appendix 3 Table 12, as extracted in Table 9 below.

Table 9: Extract from Management Standards and Procedures Appendix 3 Table 12

Forest Type	Habitat Tree Requirements	Comment
Ash/HEMS	All ash eucalypts originating before 1900. At least 40 trees per 10 ha for the length of the rotation in ash forests originating since 1900.	Retain at least 1 potential hollow-bearing tree where gaps between retained trees are greater than 150- metres. Retained trees should be a mixture of hollow bearing trees where present and other trees most likely to develop hollows in the short term.
Mixed Species	40+ trees per 10 ha	

526 Clause 4.1.4 of the Management Standards and Procedures provides more detail on what VicForests must do in coupes, in relation to habitat trees. It only applies to the CH FMAs.

> 4.1.4 Central Highlands FMAs
>
> 4.1.4.1 When selecting habitat trees, prioritise hollow-bearing trees where they are present and trees most likely to develop hollows in the short-term.
>
> 4.1.4.2 Scatter habitat trees across the timber harvesting coupe in mixed-species forest.
>
> 4.1.4.3 Where possible, retain potential hollow-bearing ash eucalypts in clumps to increase their protection from exposure, windthrow and fire.
>
> 4.1.4.4 No gap between retained vegetation to be greater than 150 m.
>
> 4.1.4.5 Retain habitat trees where they can be most easily protected from damage during harvesting and site preparation treatment.

527 Several aspects of this prescription are relevant to various parts of the applicant's allegations, but for the moment I focus upon the "habitat tree" aspect of this clause.

528 The term "habitat tree" is defined in the Management Standards and Procedures to have the same meaning as in the Code. The Code provides:

> **'habitat tree'** means a tree identified and protected from harvesting to provide habitat or future habitat for wildlife. A habitat tree may be living or dead, and often contains hollows that are suitable shelter and/or nesting sites for animals such as possums and parrots.

529 Aside from the miscellaneous breaches, the applicant does not make allegations about the failure of VicForests to retain sufficient numbers of habitat trees, or otherwise comply with these prescriptions as part of its contravention allegations. It does submit the evidence shows failure to retain habitat trees at all in some coupes and to retain living habitat trees in others, and I agree with that submission. However, what is an important issue in the precautionary principle arguments, and in the significant impact arguments, is whether the existing prescriptions are effective, and how implementation of the prescriptions is carried out "on the ground" in VicForests' forestry operations, as demonstrated by what has happened in the Logged Coupes, and in the additional coupes. I note here that, while Mr Paul referred in cross-examination to contractors' "utilisation procedures" and to a training program provided by VicForests to its staff for determining habitat requirements, VicForests did not point to any evidence of what exactly this involves and what it means on the ground. Many of the coupe plans contain comments to the effect that habitat trees are "[s]elected by the contractor (and therefore not marked in the field or designated on the coupe map)" (see, eg, Hairy Hyde). Mr Paul conceded in cross-examination that VicForests' Pre-Harvest Biodiversity Survey Instruction and Interim Greater Glider Strategy provide no real guidance to contractors on how to comply with the precautionary principle, as embodied in cl 2.2.2.2 of the Code.

My findings about retained habitat trees in the Logged Coupes

530 The answer to the question of who is responsible for the decision about which trees to retain as habitat trees was somewhat elusive on the evidence. Aside from some very general evidence from Mr Paul in his second affidavit (at [256]-[261]), VicForests did not provide any detailed witness evidence on this point, although it might have been expected to do so. Evidence from a forester and/or a contractor might have given a clearer picture.

531 In his second affidavit, Mr Paul gave evidence about VicForests' policies and processes about how it conducts its forestry operations. One document he referred to was "VicForests Coupe Reconnaissance Instruction" dated 6 July 2016. The purpose of that document is "to describe the five-stage process of coupe reconnaissance required to be undertaken prior to submitting a

coupe for TRP approval and further survey and approval work that needs to be done prior to harvest". "Coupe reconnaissance" is described as a process intended to gather information about the proposed coupe "with respect to all forest management values", including "the volume of timber on the coupe, the likely nett harvestable area and the potential operational, environmental and other non-timber value constraints". The term "habitat tree" does not appear in this document. However, in the section titled "Data Collection", under the heading "Operational and Regulatory Constraints", there are references which appear to relate on habitat tree retention:

> - Verify presence or absence of overlay issues and identify previously unidentified features, forest management issues and risks. Record the location, extent and basic description of the value discovered.
> - Information must be recorded about features that may limit or hinder timber harvesting or roading operations. Features may include but are not limited to; hydrology, old growth trees, rainforest, rock shelves, excessive slope, laid infrastructure, potential habitat for rare and endangered flora and fauna. Refer to the TP LBP and Flora Instructions

532 In addition to the above document, Mr Paul referred to a number of other such instructions which have been in force at VicForests since 2008. This includes the "VicForests Instruction: Coupe Inventory". Mr Paul annexed two versions of this document (one dated September 2008 and the other dated November 2009). The document instructs VicForests staff on how to prepare a "coupe inventory", the purpose of which the document describes as "to gather information about the proposed coupe with respect to all forest management values. This includes the volume of timber on the coupe, the likely net harvest area and potential operational constraints". There is a general reference to "Biodiversity Issues" in the list of "Management Issues". The November 2009 version of the Instruction elaborates on "Biodiversity Issues", describing them as including, relevantly, "threatened flora and fauna sites" and "occurrence of habitat potentially suitable for threatened fauna both in the coupe and within 500 m (Management actions may depend on current action statements and/or Forest Management Plan prescriptions for certain listed species)". There is no specific reference to habitat tree retention, however it is stated that a tree will be considered a "cull tree" if it "should be retained to meet management prescriptions". Another document Mr Paul referred to is entitled "VicForests Instruction: Coupe Reconnaissance". Again, Mr Paul annexed two different versions (one dated March 2012 and the other dated June 2012). This document describes an assessment process undertaken prior to submitting a coupe for Timber Release Plan approval, and gives its purpose as follows:

> The aim of Tactical Planning Reconnaissance is to produce viable, risk assessed coupes that address all environmental and social management risks. This ensures that sustainable forest management criteria are addressed and met under VicForests' Sustainable Forest Management System.
>
> The purpose of this document is to describe the five-stage process of coupe reconnaissance required to be undertaken prior to submitting a coupe for TRP approval.

533 In this document, there are no references at all to biodiversity values, let alone habitat trees. However, the document contains a similar statement to the one extracted above at [531], under the heading "Operational and Regulatory Constraints", regarding the recording of features such as old-growth trees and potential habitat for rare and endangered flora and fauna.

534 VicForests' own policy document on the precautionary principle, which I have described earlier in these reasons, does not specifically mention retention of habitat trees, but I note that in Appendix 1 it refers to "protection of retained trees" in its summary of the "Management Procedures for Timber Harvesting Operations and Associated Activities in Victoria's State Forests" which were in force under the 2007 version of the Code.

535 VicForests' "Pre-Harvest Biodiversity Survey Instruction" of June 2016 has the following purpose:

> This instruction outlines VicForests pre-harvest biodiversity survey approach to identifying biodiversity values at the operational coupe-scale. It describes the range of survey types undertaken, including when a targeted species survey is required, and what actions must be undertaken if key biodiversity values are identified.

536 It does not specifically mention habitat trees, and does not, for example, instruct VicForests staff to survey the coupe for suitable habitat trees and identify them on the coupe plan. In some of these documents, there are references to the need to retain habitat in coupes for conservation purposes, usually by reference to applicable prescriptions.

537 VicForests' draft "High Conservation Values Management System" document of March 2019 states that its purpose is to present

> an overview of VicForests' management system for High Conservation Values (HCVs), in its eastern Forest Management Unit (FMU), as part of its broader remit and responsibility for the sustainable harvest, regrowth and commercial sale of timber from public native forests on behalf of the Victorian Government.

538 At p 11, this document at least refers to habitat trees:

> However, following the FSC Controlled Wood evaluation audit completed in 2017/18, VicForests has recognised the need for greater focus on protection measures at the coupe level. While landscape level protection measures are largely addressed through

> RFA and Forest Management Planning processes, coupe level requirements require additional attention through adaptive silviculture. Specifically, VicForests has identified the need to focus on identifying hollow bearing trees, and habitat trees more broadly, and incorporating their protection in variable retention harvesting and regeneration systems.

539 Section 3.3 of the draft document addresses "Retention of Habitat Trees". This section states that VicForests has identified three categories of habitat trees, "based on their age and structure, which provide for critical elements of habitat for wildlife species dependent on hollows for life cycle aspects". The document then states that:

> VicForests will use these category descriptions for Habitat Trees to guide its decisions on selecting the most appropriate harvesting and regeneration system.
>
> Under this framework, VicForests will identify the extent to which a coupe has Habitat Tree category 1, 2 and/or 3 trees present, and assess the relative density of these trees, as a key factor in determining the most suitable harvesting and regeneration system …

540 However, the document does not descend into any detail about how "VicForests" will identify habitat trees: that is, who will do it and when. Further, this is VicForests' new policy, not its existing one, or the one under which the Logged Coupes were harvested. Therefore, this document sheds no light on VicForests' current practices in terms of selection of habitat trees, and sheds no specific light on how such trees will be identified in any "new" system. Moreover, it is not apparent from the coupe plans in evidence that this categorisation of "habitat tree 1, 2 or 3" had been implemented previously. It is not apparent even in the experimental coupe of Castella Quarry.

541 Mr Paul was cross-examined about the identification of habitat trees in coupes. It was not in his evidence-in-chief. This was his evidence:

> And just while we're talking about live coupes, when it comes to a live coupe and someone has to identify a habitat tree, can you just tell her Honour who decides what habitat tree is to be retained?---VicForests will have the final decision on that, but we also train up our contractors to identify them as well.
>
> So I just want to follow it up for a moment. So assume that I'm the contractor and I'm responsible for logging one of the coupes in issue in this case. Do I understand from your previous answer that habitat trees may be marked, first of all, on a coupe plan?---Generally not on a coupe plan because it requires - - -
>
> Okay. All right. They're not on coupe plans. So I'm a contractor. The coupe plan is there to guide my operations, isn't it?---It is.
>
> Yes. So if it's not marked on the coupe plan, has someone gone around the coupe before it's released to me for operations to put a ribbon around every habitat tree or tree that's to be preserved?---There's a variety of practices. Generally, most of the habitat trees are marked in the field by one of our foresters, but we do also train up our contractors to identify habitat trees and be able to identify them where they occur

where we haven't so that we can make decisions about whether they should be retained or not.

Well, a variety of practices doesn't really tell me much. Let's focus on the Central Highlands. You've told her Honour, as I understand your previous answer, that on occasions foresters from VicForests would identify the habitat trees. Is that by typically putting a ribbon or a tape around them?---Tape or paint. We would paint on a tree as well.

Okay. And that happens sometimes; correct?---That happens most of the time when we can find them.

When you can?---Find them.

Find the habitat trees?---Yes.

I see. And on other occasions it's up to the contractors who are not in any way formally qualified in forestry by and large; correct?---Well, they're there as a backup when we can't find them at times and they can then advise us.

So at a practical level, they're not marked on the coupe plan that goes to the contractor as the basis for that business' operations; correct?---Some of them are marked on the coupe plan, but as general, not all of them.

Perhaps I misunderstood your previous answer. I thought you said they weren't usually marked on the coupe plan?---Generally not on the coupe plan, but sometimes they are.

Okay. And sometimes they're marked by the foresters?---Majority of the time they are marked by the foresters where they can find them.

But there's no guideline and no practice within VicForests that says to the staff of VicForests, "Before you release a coupe to the contractor for operations, you must go through that coupe and mark off each habitat tree." There's no such instruction or guidance; correct?---Look, there is guidance in there. I can't remember exactly which one says what, but there is guidance for our staff about identifying habitat trees and marking them.

But if it were the case that it happened on all occasions – and that wasn't your evidence, but if it was the case it happens on all occasions, do you expect that's because it's in accordance with a guideline or a practice direction, but if it only happens on some occasions, what I'm suggesting to you is there's no guideline that says clearly or otherwise when that should be done, that is, a forester walk through and tag the trees?---No, there – look, I can't remember exactly all the detail, but we have guidelines to do that. We do it most of the time, but the forest is incredibly thick in places and sometimes our foresters don't get to every site so our contractors can help support by identifying those and flagging them to us for attention.

But it's correct to say, just while we're on this screen on the – at this page that's on the screen, the department officers don't have a role in the identification in the field, do they, of, for example, habitat trees or habitat, for that matter?---No, they don't.

542 This evidence is not probative of any particular practice. It is vague. Mr Paul certainly did not refer to any categories of habitat trees referred to in the March 2019 High Conservation Values Management System document. The "guidance" or "guidelines" to which Mr Paul referred was sought, in re-examination, to be supported by reference to newly produced (and not discovered) internal VicForests documents, the tender of which was the subject of an objection, after which

the tender was not pressed. Again, these matters were central to the issues in dispute in the case but never addressed squarely in chief by VicForests. Of course, if a forester who was working in the impugned coupes had been called she or he may have easily been able to give clear evidence about this issue. So too if a contractor had been called. Or perhaps not. Rather, the evidence (including the expert evidence of Dr Smith, to which I will return) suggests this prescription is haphazardly applied, and no regular consideration is given to the selection of habitat trees ahead of the actual timber harvesting operation. From Mr Paul's evidence, I infer the selection is usually made by contractors once they are working in a coupe. While he described the contractors as a "backup", he gave no persuasive evidence about when and how the foresters identify the trees ahead of the harvesting operation.

543 Rather, what he said was habitat trees are identified by foresters "where they can find them", because the forest is dense. Of course, the only time it becomes less dense is during timber harvesting. That is why I infer and find that it is more likely than not that the contractors select the habitat trees during the timber harvesting, as they go through a coupe. Whether or not they do so with the assistance of foresters was again not the subject of any clear evidence, and there is no basis for me to infer they have such assistance more often than not. On the evidence, VicForests' contractors have no specific training or ecological expertise in identifying trees that will be suitable habitat for threatened species such as the Greater Glider, or for that matter, the Leadbeater's Possum, including any assessment of which trees might currently be suitable habitat, and which trees might need to be left so that as they grow they may provide suitable habitat in the future. There was no probative evidence about what kind of "training" is given to contractors, and whether it relates to particular hollow-dependent species or whether, for example, the assumption is that all hollow-dependent species which may use or occupy that part of the forest (whether possums, gliders, owls, parrots or other species) can all benefit from the same habitat trees. There is no evidence that VicForests' Conservation Biologist is involved in habitat tree identification, and Mr Paul confirmed that DELWP is not involved either, even though DELWP may have persons with relevant training and experience to do so.

544 Indeed, Mr Paul also confirmed in cross-examination that DELWP has not in the past ever been notified in advance of VicForests' coupe logging schedules. His evidence was that recently the practice has changed and VicForests notifies DELWP of logging schedules on a weekly basis. That being the case, it would not be possible or practical for DELWP to be involved in identifying habitat trees. Indeed, given this evidence, it is difficult to see how the much vaunted

new survey program of DELWP is expected to run efficiently if it only receives a week's notice of which coupes are to be harvested.

545 A specific example of how the habitat tree retention prescriptions fail "on the ground", even under VicForests' new policies, is the Castella Quarry coupe. Mr Paul's evidence was that roading operations began in that coupe in December 2018. The contractor was instructed to retain habitat trees when carrying out roading operations.

546 There was then the following exchange:

> Well, what I want to suggest to you is that as was apparent on the view, notwithstanding the instruction that habitat trees are in the area of the road coming down towards the landing at the top, and also habitat trees along the route of the new road that effectively goes from the landing at the north of the site to the landing at the south were removed?---I – I have no – I couldn't comment. I don't know any specific details about - - -
>
> Okay?--- - - - individual trees.

547 Contrary to the applicant's closing written submissions, Mr Paul did not give any evidence that the trees had *not* been retained. He simply said he did not know. However, the Court saw the area on the view. At least one habitat tree had been pushed over for what Mr Logue described as "safety" reasons. Otherwise, there did not appear to be any mature trees retained along the roads and around the landing.

548 I find that VicForests has no detailed instructions or system in place about the identification of habitat trees prior to each forestry operation in a coupe being undertaken, despite the existence of prescriptions requiring their retention. What happens on the ground in each coupe is more likely than not that the contractors select habitat trees as they are conducting the timber harvesting operation. The Court was not directed to any evidence:

(a) they have any training or expertise to do this;

(b) of how foresters might or might not assist contractors, nor what training or specific instructions foresters have to identify habitat trees;

(c) how the selection made does or does not correlate to the habitat requirements of threatened or other species present in or around a given coupe.

549 In that context, I turn now to the expert evidence. Dr Smith's overall finding was (at p 48 of his first report):

> Timber harvesting in most logged coupes does not appear to comply with the one or more habitat tree protection prescriptions (Table 1). Non-compliance is described for individual coupes in Appendix 1. In some coupes habitat trees are cut, burnt or pushed

> during harvesting operations, in others insufficient numbers are retained, habitat trees are not retained in groups, habitat trees are not protected from regeneration burns, and/or large trees are not retained as recruitment trees. Generally there appears to have been little or no regard to objectives and purpose of habitat tree retention for biodiversity conservation in most logged coupes examined.

550 To take some examples from Appendix 1 of Dr Smith's first report and his assessment of the individual Logged Coupes:

(a) For the Ada River coupe group (Turducken, Johnny and Tarzan), Dr Smith found "habitat trees [were] not protected during logging operations with 50% burnt and killed, and no habitat trees in clumps". On p 73 of this report there was a photo which Dr Smith stated showed "excessive burn, habitat tree death, lack of clumps, lack of habitat tree protection" in the Tarzan coupe. That is precisely, I find, what the photograph shows.

(b) For another set of coupes in the Ada Tree group, Ginger Cat and Blue Vein, Dr Smith found:

> no habitat trees have been retained for habitat tree recruitment in Ginger Cat or Blue Vein (see Figure). Ginger Cat is about 5 hectares net and under the Code should have 20 habitat trees instead of none. Recruitment of habitat trees in areas where they are currently scarce is necessary to comply with the Code of Practice (*2.2.2.10 Retain and protect habitat trees or habitat patches and long-lived understorey species to provide for the continuity and replacement of old hollow-bearing trees and existing vegetation types within each coupe*).
>
> (Original emphasis.)

(c) For the Rowels coupe in the Baw Baw group, Dr Smith found:

> Habitat trees not protected during logging operations with more than 50% severely burnt and not likely to survive. No habitat trees in clumps, old growth forest has not been protected from logging.

(d) For the Guitar Solo coupe in the Hermitage group, Dr Smith found:

> habitat tree numbers less than prescription, habitat trees not protected during logging operations with many burnt, felled or pushed and no habitat trees in clumps.

The photo which accompanies this finding on p 84 shows, I find, what Dr Smith describes.

551 More examples could be given. In Appendix 1 of his first report Dr Smith makes these kinds of findings consistently in relation to the Logged Coupes, and his overall finding is amply supported by his findings in each individual Logged Coupe.

552 VicForests' response was again a modest one. There was nothing of substance in its closing written submissions about this issue. In the table annexed to its closing reply submissions it contended:

> The assertion that VicForests has no systematic process for recording or identifying habitat trees on coupe plans is unfounded. VicForests is obliged under the Management Standards to retain habitat trees: the evidence discloses that VicForests does so.

553 The footnotes to this last proposition are:

> Camberwell Junction coupe plan [**CB 8.8A**; p 23]; Blue Vein operations map [**CB 8.6**]; the photographs extracted in the First Smith Report demonstrate the retention of trees in coupes: see for example [**CB 4.2.1**; pp 69, 77, 80, 81 and 90].

554 This response does not address the issue. The photographs to which the footnotes refer, in Appendix 1 of Dr Smith's report, show trees retained. Many of them have been burned, or have little green foliage (in contrast to the first photograph in which trees with more abundant green foliage can be seen, but, as the caption to the photograph clarifies, in an "unlogged retained strip" of trees "typical of habitat before logging"). "Trees" of some description may have been retained, but it is inconceivable they are trees which provide "habitat" for the Greater Glider. It is not clear how the Greater Glider would even access them, let alone do so without exposure to predation. Once there, it is not apparent what "habitat" use would be made of them. Even if the proposition is that in 20 or 30 years these trees may provide habitat, that at least depends on the trees surviving, and Dr Smith's opinion (which I accept) is that many will not. For VicForests to contend that "trees" have been retained in those examples does not begin to grapple with the issue.

555 Further, there is nothing but a bare assertion that VicForests has a "systematic process" to record and identify habitat trees. VicForests pointed to no evidence to support this assertion. There were sporadic references in some coupe plans to retained habitat trees, but only in a small number. The only evidence is, as I have described above, from Mr Paul.

My findings about the effectiveness of the habitat tree prescription

556 Although this matter is principally relevant to the s 38 issues in respect of the Greater Glider, it is appropriate here to extract part of Dr Smith's third report, responding to Dr Davey. Dr Smith is in this part responding to Dr Davey's opinion that Greater Gliders will recolonise harvested areas after logging. Dr Smith indicates he does not agree for two reasons. First, the real risk the coupes will be re-logged before they regenerate to suitable age and size to provide Greater Glider habitat. Second, and relevantly to my findings in this present section:

> site inspections have shown that there is no apparent genuine commitment to retention and recruitment of habitat trees to ensure that they will be continuously available over the long time frame (hundreds of years) needed for multiple cutting cycles. In Tarzan coupe for example my site inspection revealed that retained habitat trees were so excessively burnt that about half were killed and the remainder so damaged that none are likely to survive multiple forest logging rotations. I found no evidence in any logged coupe of habitat tree recruitment or serious efforts to select and protect habitat trees in clusters for the long term.

557 I accept this opinion. This is another example where Dr Davey's opinion stopped at generalities, and also assumed compliance with aspects of the Code and Management Standards and Procedures, such as habitat tree prescriptions. This is despite his acceptance that recolonisation of logged coupes depended on retention of sufficient habitat trees. Further, he appeared to assume these prescriptions were completely applied and were effective, which the evidence suggests they are not in the short term (Dr Davey having not inspected the coupes), and there was no basis given by Dr Davey for assuming they would be in the longer term.

558 In his first report at pp 32-33, Dr Smith expressed his opinion about why the habitat tree prescriptions were ineffective for the Greater Glider:

> Habitat tree retention measures (see Table 1 below) are not adequate to meet the requirements of the Greater Glider and do not satisfy Clause 2.2.2.10 of the Code of Practice for Timber Production 2014 (***Retain and protect habitat trees or habitat patches and long-lived understorey species to provide for the continuity and replacement of old hollow-bearing trees and existing vegetation types within each coupe***) because:
>
> - insufficient numbers per hectare are retained to meet Greater Glider requirements (at least 6/ha);
> - habitat trees are not evenly spread throughout the forest so that most or all of the coupe may be devoid of hollows and unsuitable for Gliders;
> - there is no requirement to recruit future hollow trees in areas that do not have sufficient habitat trees to meet retention standards;
> - habitat trees are not retained in clusters to allow for long term tree hollow recruitment, increased protection from post logging fire and to provide shelter from predators for animals using habitat trees.
> - habitat trees are not protected from post logging burning and many are so seriously damaged by fire that they are likely to fall before they are of use to Greater Gliders and other hollow using fauna (see Appendix 1).
>
> (Original emphasis.)

559 At p 62 of the same report, where Dr Smith is discussing the Interim Greater Glider Strategy, he expresses the following opinions, which in my opinion are applicable to the question of the effectiveness of habitat tree prescriptions, even if (contrary to the evidence and to Dr Smith's

opinion above) they were implemented appropriately (with bold and italic emphasis in the original and my emphasis added with underlining):

> The only ameliorative measure with any benefit in the Interim Greater Glider Strategy is the use of low intensity single tree silviculture to be carried out in the Strathbogie Ranges. This strategy is on the right track but requires more detailed description to ensure that it is implemented effectively. This would require a proper monitoring and adaptive feedback process as specified above. ***(Adaptive management is not a "suck it and see", trial and error approach to management, but it is an iterative approach involving explicit testing of the achievement of defined goals. Through feedback to the management process, the management procedures are changed in steps until monitoring shows that the desired outcome is obtained. The monitoring program has to be designed so that there is statistical confidence in the outcome. In adaptive management the goal to be achieved is set, so there is no uncertainty as to the outcome and conditions requiring adaptive management do not lack certainty, but rather they establish a regime which would permit changes, within defined parameters, to the way the outcome is achieved).*** I am not aware of any such adaptive monitoring study has been carried out by VicForests to evaluate the effectiveness of its current Code of Practice. Based on the findings of this study any such monitoring study is likely to find that the Current Code of Practice is ineffective for old growth dependent species like the Greater Glider and that it is in fact presiding over their broadscale population reduction.

560 So far as I have been able to ascertain from the evidence, VicForests did not adduce any evidence of any study or monitoring of the kind Dr Smith identifies. The Court was not directed to any study by VicForests (or anyone else) about the effectiveness of the habitat tree prescriptions in the Code and the Management Standards and Procedures in terms of delivering ongoing, available habitat for threatened species. Specifically, the Court was not directed to any reports or studies about whether the habitat tree prescriptions have been monitored or assessed as *effective* for the Greater Glider. By that, I mean even effectiveness assuming compliance with the prescriptions, which as I have found, does not appear to occur regularly.

561 Compare, for example, the review conducted by DELWP in 2017 to which Dr Davey refers in his second report at [113] about the effectiveness and impact of establishing THEZs around Leadbeater's Possum colonies. As Dr Davey points out, that review identified information gaps about the distribution and extent of Leadbeater's Possum colonies and habitat in national parks and reserves. However, at least there was a review of the effectiveness of this prescription. The same cannot be said, on the evidence, about the habitat tree prescription. The only reference to monitoring of the effectiveness of habitat trees is the proposal in the 2019 High Conservation Values Management Systems document, as I have described above. At [279] of its closing written submissions, VicForests stated that the review process being undertaken to implement the new High Conservation Values Management policy "remains ongoing". Meanwhile, the Greater Glider as a species declines.

562 So far as I have been able to ascertain, Dr Smith was not cross-examined in detail about his opinions on the ineffectiveness of the habitat tree prescriptions. However there was one substantive exchange:

> Do you appreciate, though, that the interim strategy is not to be applied in substitution for the code but in addition to any code requirements on VicForests?---Yes, I think that's my understanding.
>
> Yes. And in that case, why wouldn't the mandatory code requirements which we spoke about yesterday in terms of creating – sorry – protecting particular habitat trees and old growth ameliorate the impact that you otherwise consider will occur?---Are you referring to the fact that the code requires protection of pre-1900 trees?
>
> Yes?---Yes, I – my – my only objection there is that by protecting an individual pre-1900 tree, you're – you're, in effect, just protecting a habitat tree. If you – my preference and, I – I think, the way to prevent an impact is – is to protect the habitat around that tree so that you're protecting a stand of pre-1900 forest so that you contain – so the gliders can stay in it. Otherwise, there's not a lot of point in protecting it because as a stand, it just reverts to regrowth with a habitat tree in it, but if you protect it as a whole with the slightly younger trees around it, you will move through to an old growth state much more quickly than you would if you convert it to regrowth and retain it simply as a habitat tree. So I guess I haven't explained that well.
>
> But don't the planning standards require within the Central Highlands that all stands of old growth forest greater than five hectares in area be retained in an SPZ?---Yes, but the definition of old growth is such that it doesn't pick up trees that in this case are likely to be about 1.2 metres diameter.

563 I accept Dr Smith's opinion as expressed here. Further, I have found VicForests did not direct the Court to any studies or monitoring to establish their effectiveness.

564 In the context of the Leadbeater's Possum, in his third report at [6] Professor Woinarski makes a similar point, indeed by reference to the Commonwealth's "Matters of National Environmental Significance: Significant Impact Guidelines 1.1". The purpose of the Significant Impact Guidelines is:

> to assist any person who proposes to take an action to decide whether or not they should submit a referral to the Australian Government Department of the Environment (the Department) for a decision by the Australian Government Environment Minister (the minister) on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
>
> (Footnote omitted.)

565 While VicForests has an argument in this proceeding, which I address below, about the relevance of the Significant Impact Guidelines to the issues in this proceeding, in my opinion it is plain that they constitute an important policy statement, on behalf of the Commonwealth, about an appropriate way to assess significant impact for the purposes of the EPBC Act. They should not be set to one side, or set at nought, just because their primary focus is to provide

guidance to persons and individuals who may be conducting "actions" affected by Pt 3 of the Act and who need to determine if they require approval to do so under Pt 9. Save for s 38, VicForests is one such person. Section 38 does not immunise VicForests from the objectives and intent of the EPBC Act for all purposes.

566 Accordingly, I accept the following opinion of Professor Woinarski about the role played by monitoring of prescriptions and conservation measures, and why assessments of their effectiveness play a critical role:

> The Australian government's significant impact guidelines state that in relation to management or mitigation measures *'you should not conclude that a significant impact is not likely to occur because of management or mitigation measures unless the effectiveness of those measures is well-established (for example through demonstrated application, studies or surveys) and there is a high degree of certainty about the avoidance of impacts or the extent to which impacts will be reduced'.* I consider that the management and mitigation measures (as described in VicForest's Harvesting and Regeneration Systems document) have not (yet) been demonstrated to be effective for the conservation of Leadbeater's possum, have not been subject to relevant tailored studies or surveys, and that there is not a high degree of certainty about the extent to which they will reduce impacts of timber harvesting on Leadbeater's possum beyond that imposed by conventional harvesting techniques.
>
> (Original emphasis; footnotes omitted.)

567 I find that there has been no evidence identified to the Court, let alone probative scientific evidence (such as a peer-reviewed study) which establishes the effectiveness of the habitat tree prescriptions in the Code and the Management Standards and Procedures for the protection and conservation of the Greater Glider in areas subject to forestry operations in the CH RFA region. Nor is there any such evidence identified to the Court which establishes the effectiveness of the habitat tree prescriptions in the Code and the Management Standards and Procedures for the protection and conservation of the Greater Glider in any other Regional Forest Agreement region, or any comparable situation where forestry operations are conducted. Therefore, even if the habitat tree prescriptions were strictly and properly observed in each and every forestry operation in the impugned coupes, there is no evidence identified to the Court that they are effective. Dr Smith's view is that it is unknown if they are effective.

568 Second, even if the prescriptions could be found to be effective if strictly and properly observed in each and every forestry operation in the impugned coupes, the overwhelming evidence is that they have been poorly implemented, and are highly unlikely to be effective because of the approach taken on the ground.

569 I have spent some time on the issue of habitat tree selection and retention for a number of reasons. First it is a good illustration, and one central to the issues in the proceeding, of the difference between what VicForests might assert about the way it conducts its forestry operations and what happens on the ground. Second, it demonstrates that on a critical conservation measure, there is very poor and ineffective performance in the conduct of forestry operations. Third, it demonstrates VicForests' lack of commitment to these measures, in that my impression of the evidence is that they leave them to contractors at the eleventh hour during the conduct of forestry operations. Fourth, it demonstrates that a forest management prescription for the protection and conservation of threatened species – as the third limb the CAR reserve system – has little or no objective science behind it to demonstrate that it is effective. Fifth, it demonstrates that even if in theory such a prescription is capable of being effective, it is completely ineffective in the way it is implemented at the coupe level, for the reasons given by Dr Smith based on his own observations. Those observations sit comfortably with what the Court observed on the view.

The contended distinction between suitable and critical habitat

570 As another reason that Dr Smith's opinions about the existence of a serious or irreversible threat to the Greater Glider in the Logged Coupes and Scheduled Coupes should be "discounted", VicForests contended that Dr Smith had wrongly used the concept of "critical habitat" as a proxy for suitable habitat. It contended there were important distinctions between the two concepts, and that not all "suitable" habitat was "critical" habitat for the Greater Glider.

571 VicForests' submission continued (at [349]):

> Dr Smith admitted that he treated the concept of critical habitat for Greater Glider as synonymous with suitable habitat. Dr Davey's evidence is that the term "critical habitat" has a specific meaning in forestry science. Dr Davey's opinion is that Dr Smith's description of "critical habitat" better describes suitable habitat found in the Central Highlands.
>
> (Footnotes omitted.)

572 The opinion of Dr Davey to which this submission refers is found in his second report, in a section entitled "Characterisation of habitat and critical habitat". In [36], introducing this section of his report, Dr Davey states:

> I disagree with the supposition Dr Smith has made regarding critical habitat and the habitat of Greater Glider in (Smith 2019a). My reason for this disagreement is that his use of the term critical habitat differs from the use of the term critical habitat in the regulatory framework. In the regulatory framework critical habitat applies to the whole population or regional populations of a species.

573 Dr Davey refers to the FFG Act and the EPBC Act as two examples where critical habitat "is referred to in Australian law". As with other aspects of his evidence, especially in relation to his first report, Dr Davey strayed well outside his area of expertise and into legal and policy issues, which was not appropriate. That is not necessarily a criticism of him in relation to his first report, as he was responding to questions asked of him. However, this section in his second report appears to be included on his own initiative.

574 Having discussed how the concept of critical habitat is used in the EPBC Act (in s 207A, and of no real relevance to the issues in this proceeding), Dr Davey states at [39]:

> Martin *et al*. (2017, p. 308) in an international review of critical habitat states "operationally, scientists have recommended that the term critical habitat be used to describe the minimum subset of habitat, or resources and conditions, needed to ensure species persistence over the long term". This use of the term critical habitat by Martin *et al*. is correct from a scientific perspective. Scientific uncertainty and lack of agreement of what constitutes critical habitat for a species are reasons for a lack of progress in identifying critical habitat of threatened species. Scientifically the distinction between critical habitat and non-critical habitat must be made with known gradations in importance to the habitat requirements of a species involving non-critical habitat.
>
> (Footnote omitted).

575 Dr Davey cites the source of his opinion in [39] and gives a website link to the article. Having looked at the article by using the website link provided in Dr Davey's report, it is unclear the content of the article is directed to the point Dr Davey is making. However, Dr Davey was not cross-examined or questioned on this issue, so I make no finding about it.

576 Dr Davey then concludes at [43]:

> I disagree with Dr Smith's answer to What is Critical Habitat for the Greater Glider (Q4f/gi, Smith 2019a). My interpretation of Dr Smith's description of critical habitat is that it better describes suitable habitat found in the Central Highlands rather than critical habitat. His description likely includes all forests where Greater Gliders are found regardless of habitat quality class. His answer does not answer the question what Critical Habitat is precisely and misuses the concept of old growth (discussed in Section A.1.). His description of habitats in points a-d in Q4f/gi describe suitable habitat for Greater Gliders not Critical Habitat. It is unclear which of Dr Smith's answers about critical habitat apply to his answers to Q4j and Q4k (Smith 2019a).

577 What Dr Davey says at [45] should also be noted in this context:

> I disagree with Dr Smith's statement in Q4l (Smith 2019a). Dr Smith states "The extent and quality of critical habitat in the Central Highlands (as described in answer to question 4 above) is declining as a result of the cumulative impact of ongoing clearfelling on short rotations and over large areas inconsistent with natural disturbance regimes". In my opinion the extent and quality of critical habitat in the Central Highlands for Greater Gliders is an unknown as there is insufficient information

> available to describe the location and extent of Critical Habitat for Greater Gliders accurately. Use of suitable habitat for Greater Gliders as a description is not a substitute for accurately describing Critical Habitat for Greater Gliders. It is an incorrect use of the term Critical Habitat as used in the regulatory framework.

578 There is no "regulatory framework" where the concept of "critical habitat" is used which is relevant to this proceeding, and this is another example of Dr Davey straying well outside his area of expertise. Where that term is used in the FFG Act and the EPBC Act (that is, in s 207A), it is used in a different context. With respect, I consider Dr Davey has attempted to set up a defined term where there is none.

579 Dr Davey then turns his attention to Professor Woinarski's first report, and the use of the term "critical habitat" by Professor Woinarski.

580 It should be recalled that both Dr Smith and Professor Woinarski were asked to answer questions concerning habitat "critical to the survival of a species". That was the framework for their opinions, rather than any theoretical debate in scientific literature about a differently expressed concept to which a precise scientific definition might be attached.

581 At [46]-[48], Dr Davey states:

> Professor Woinarski in his answer to Question 6 in his first report (Woinarski 2019a) discusses the issue of Critical Habitat for Leadbeater's Possum. At Paragraph 82 he states, "I agree that the attributes aggregated in the 2015 Conservation Advice comprise the relevant components of critical habitat for Leadbeater's possum". Paragraph 81 of his report outlines the attributes as follows:
>
> > "The 2015 Conservation Advice does not explicitly define or list 'critical habitat' for Leadbeater's possum, but rather details a set of 'key habitat attributes' that constitute 'important habitat for the survival of the species'. These comprise: (i) hollow-bearing trees with large internal dimensions; (ii) occurring at sufficient density; (iii) predominance of smooth-barked or gumbarked eucalypts; (iv) mostly montane ash forests; (v) but also in subalpine woodlands and lowland swamp forest; (v) a structurally dense interlocking canopy or secondary tree layer of continuous or interconnecting structure; and (vii) a wattle understorey. The Conservation Advice further noted that 'an optimum habitat is an uneven-aged ash forest with a dense understorey of wattle trees and a supply of hollow-bearing trees of between 4.2 and 10 per 3 ha.' " (Woinarski 2019a, Paragraph 81, p. 23).
>
> I agree with Professors Woinarski's summary of the description of important habitat for Leadbeater's Possum in the Conservation Advice (FOR.056.003.0008_0031). As Woinarski's Paragraph 81 states the key habitat attributes constitute important habitat and not Critical Habitat. Important and optimum habitat is not Critical Habitat.
>
> I disagree with Professor Woinarski's conclusion in Paragraph 82 "that the attributes aggregated in the 2015 Conservation Advice comprise the relevant components of critical habitat for Leadbeater's possum". The Conservation advice specifically describes important habitat for Leadbeater's Possum not Critical Habitat for

> Leadbeater's Possum (FOR.056.003.0008_0031). Reference to critical habitat in the Conservation Advice uses the term 'critical habitat feature' which is different to the identification of critical habitat in terms of its accurate geographical location and extent.

582 These paragraphs also proceed on the distinction that Dr Davey has constructed, and treat the concept of "critical habitat" as a defined term in respect of the issues in this proceeding, which it is not. I pause here to note that even if it is the case there is some agreed scientific content to the term, Dr Smith's and Professor Woinarski's opinions can readily be understood as directed to "the minimum subset of habitat, or resources and conditions, needed to ensure *species persistence over the long term*" (emphasis added). That is precisely what each of Dr Smith and Professor Woinarski were dealing with.

583 The unnecessary rigidity of Dr Davey's approach was apparent during his cross-examination. When being cross-examined about his approach to the concept of "critical habitat", and taken to an example of a coupe visited on the view which contained a number of habitat trees, this was his evidence:

> Yes. And what I would suggest to you is that if we – if you think back to the view, we went to the Flute coupe and there was a discussion – I think I've got the right coupe – where Dr Smith had said he had counted, I think, eight to ten habitat trees and you had counted nine habitat trees. And I think the two of you discussed and agreed that it was, what, very high-quality habitat?---It definitely was high-quality habitat.
>
> And would you accept that a habitat of that category or that level, if you like, would constitute habitat that's critical in accordance with the definition on the left-hand side of the screen [referring to the definition of "habitat critical to the survival of a species" contained in the Significant Impact Guidelines]?---It really depends on what the extent of that habitat was. And I can't determine whether that actually – what the extent was. There's – definitely would be able to be mappable - - -
>
> Sorry?--- - - - and would actually be – it was the high end of suitable habitat, definitely. Whether it's critical, I can't provide an opinion.
>
> Well, can I suggest to you that, if you applied the definition on the left of the screen to what we saw at Flute coupe, as you've just described, that that habitat is certainly critical habitat?---Well, I don't believe that it is. I believe that it's certainly very high-quality habitat. Whether it's critical habitat, within the concept of it being critical habitat, I don't believe it would meet that definition.
>
> Is it fair to say that, on your approach to the question of what constitutes critical habitat, that you've – you're really adopting quite a high bar?---My understanding is that you actually do adopt a high bar for critical habitat.

584 Neither in these answers, nor otherwise in his evidence, did Dr Davey explain what was the point or purpose, in the context of s 18 and s 38 of the EPBC Act, of adopting such a "high bar". One can imagine, for example, for the purposes of s 207A of the EPBC Act and the creation of a specific criminal offence of knowingly damaging critical habitat maintained on

the register (see s 207B), and the protection for conservation reasons of specific parcels of land, why particular meaning will need to be given to the term "critical habitat" in that context. However, Dr Davey did not explain why, in the context of the issues in this proceeding, it was necessary to adopt such a "high bar" before describing forest as critical to the survival (or persistence, being the term Dr Davey used from his definition) of the species. Dr Davey did not explain if there was any ecological point, or any conservation point, or even any point in terms of forest science, although one can readily understand how the highest and narrowest definition of critical habitat leaves more scope for timber harvesting.

585 That was, I found, a feature of his evidence: there was no underlying thesis or theme by which he appeared to measure many of his answers where they were different to the approach taken by Dr Smith and Professor Woinarski. There was a narrow and technical approach – but *why* that was taken was unexplained.

586 To complete the answer to the irrelevance of s 207A of the EPBC Act, I refer to the evidence of Professor Woinarski in re-examination when asked about the concept of habitat "critical to survival" of the Leadbeater's Possum:

> - - - to do so, Professor Woinarski, because I was probably going to ask you what I asked Dr Davey about this?---Okay. So the - - -
>
> I'm interested in understanding the difference?---So the Environment Protection Biodiversity Conservation Act has a stipulation – has a section about critical habitat and the Register of Critical Habitat. It has got a section on habitat critical to the survival of species which is under the recovery plan components. So it's two separate things whose ecological constance is strained. But the Register of Critical Habitat currently includes only four or five items of the 1800 threatened species that are listed under the EPBC Act. It's a very rarely used provision, and it's rarely used because it only applies – or only has power on Commonwealth lands or seas. So Leadbeater's Possum doesn't occur on Commonwealth lands at all, so there was no chance that there will be a registered critical habitat for it. However, the recovery plan provisions, subsequent to the EPBC Act require habitat critical to the survival of the species to be listed, recognised, as we've done in this draft recovery plan. It wasn't – there was no mentioned of habitat critical to the survival of the species in the previous recovery plan – the 1999 version, because that predated the EPBC Act and there wasn't a requirement to do so. So what is written here at 3.4.9 should be regarded as critical habitat for this species. Sorry, that's just a bit of context.
>
> MS SKVORTSOVA: Sure. And just so I can understand what that means, does that mean that if the possum there was foraging for food, that habitat would effectively fall into that category. Did I understand your answer to be that?---Yes, correct.
>
> Okay?---That's assuming it was foraging for food. If it was sort of at a nesting hollow it certainly would do as well.

587 That distraction aside, the irrelevance of the operation of s 207A is in contradistinction to the terms of s 270(2)(d) of the EPBC Act and one of the mandatory components of a Recovery Plan for a listed threatened species, which provides a Recovery Plan must (where practicable):

> identify the habitats that are **critical to the survival of the species** or community concerned and the actions needed to protect those habitats.
>
> (Emphasis added.)

588 As I sought to emphasise at [580], the questions to Dr Smith and Professor Woinarski were framed using this terminology, in my opinion, correctly so. The meaning may be quite different, as the contents of the Leadbeater's Possum draft Recovery Plan illustrate. And it is of some considerable significance to this debate, and to the issues arising under s 38 (if one applies this approach to the Greater Glider) and to s 18 (in respect of both species), that the draft Recovery Plan states, under the heading "Habitat critical to survival":

> Given the current Critically Endangered status of Leadbeater's possum, and its predicted severe ongoing decline, including significant risks of extinction, **all current and prospective suitable habitat is critical for its survival, and necessary for its recovery**.
>
> (Emphasis added.)

589 During final oral submissions the Court asked the parties to address in writing the debate between the experts concerning critical habitat and suitable habitat and what the difference was said to be. I note here that the Court asked the parties to address a number of matters in closing written submissions. The applicant's closing written submissions contained such a section but VicForests' closing written submissions did not. On this matter, the applicant submitted (at [204]):

> To the extent that the experts debated whether the logged and scheduled coupes were "critical habitat" within the meaning of the Significant Impact Guidelines the Court does not need to resolve that debate. What is important is the importance of the habitat in the logged and scheduled coupes to the Greater Glider as a species.

590 As the applicant went on to point out, in any event there is a description of habitat "critical to the survival of a species" in the Significant Impact Guidelines, a source which I have found is of relevance, contrary to the contentions of VicForests. The Guidelines thus use the same terminology as s 270(2)(d).

591 The Significant Impact Guidelines identify as one consequence of an action that can be described as a significant impact that there is a real chance or possibility the action will "adversely affect habitat critical to the survival of a species".

592 In that context, the Significant Impact Guidelines explain what is meant by the phrase "habitat critical to the survival of a species":

> What is habitat critical to the survival of a species or ecological community?
>
> 'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:
>
> - for activities such as foraging, breeding, roosting, or dispersal
> - for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
> - to maintain genetic diversity and long term evolutionary development, or
> - for the reintroduction of populations or recovery of the species or ecological community.
>
> Such habitat may be, but is not limited to: habitat identified in a recovery plan for the species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

593 Dr Davey accepted it was reasonable to make use of this definition in addressing the question of critical habitat for the purpose of significant impact, because it is the definition in the Significant Impact Guidelines themselves.

594 In my opinion the concept of habitat critical to the survival of a threatened species is a relevant concept for the purposes of resolving the issues arising in this proceeding, in respect of both s 38 and s 18. I have not found the narrower, more technical and abstract concept of "critical habitat" as explained by Dr Davey to be of any assistance, or relevance. I find that in substance what Dr Smith and Professor Woinarski explained when they used the term "critical habitat" reflects the concept of "habitat critical to the survival" of a threatened species, as explained in the Significant Impact Guidelines.

595 In reply, and in an attempt to maintain the importance of a distinction between "critical habitat" and "suitable habitat", VicForests submitted (in the table annexed to its reply submissions):

> The distinction was identified by the Victorian Court of Appeal (in the context of Zone 1A habitat) in the *MyEnvironment Appeal*.

596 The reference given is to the *MyEnvironment* appeal at [23]. That paragraph appears in the reasons for judgment of Tate JA. That paragraph states:

> For the reasons that follow, the appeal should be dismissed. The submissions of MyEnvironment seek to construe the relevant regulatory instruments as though they had a single purpose, the conservation of the LBP [Leadbeater's Possum], when in fact

> they have multiple purposes and are directed to achieving a balance between the maintenance of native fauna and the ecologically sustainable long-term timber production capacity of forests. The relevant regulatory instruments, informed by the preponderance of scientific evidence, and read as a whole, are directed at excluding from logging "old" HBT [hollow-bearing trees], that is, mature or senescing living HBT. Zone 1A habitat is defined in order to protect only the preferred habitat of the LBP and not to sequester all suitable habitat.

597 When this paragraph is examined, it is apparent it does not stand for the proposition cited. The next point is that the passage does not even refer to critical habitat. A further point is that the passage is entirely concerned, as the *MyEnvironment* appeal was, with the definition of Zone 1A habitat in the Central Highlands Forest Management Plan and the Victorian Leadbeater's Possum Action Statement. Finally, the *MyEnvironment* appeal did not concern the EPBC Act, a matter of some importance to how I treat what is said in that case in the s 38 section of these reasons. The reference does not assist VicForests' arguments.

598 Finally, while Dr Davey had a different approach to Dr Smith about what should be described as "critical habitat" for the Greater Glider in the Central Highlands, he did accept (at [45] of his second report) that:

> In my opinion the extent and quality of critical habitat in the Central Highlands for Greater Gliders is an unknown as there is insufficient information available to describe the location and extent of Critical Habitat for Greater Gliders accurately.

599 This should have been another indicator of the uncertainties surrounding the Greater Glider which should have caused VicForests to apply the precautionary principle to its timber harvesting operations in the Logged Coupes and Scheduled Coupes, contrary to its position in this proceeding. Dr Davey said (at [66] of his second report) that:

> Dr Smith's suggestion to map "Ash and Mixed Species forest in the Central Highlands with mature and senescent forest canopies as evidenced by taller, wider and more uneven tree crowns on aerial photographs" (Smith 2019a, p. 35) would be a good start to understanding the distribution of Greater Glider habitat in the Central Highlands. Such a mapping exercise should apply to all public and private forests and not be confined to mapping particular stand ages.

600 Therefore, in approaching the resolution of the issues in relation to s 38 and s 18, I accept the approach taken by Dr Smith and Professor Woinarski as to two matters. First, that in examining the forest in the impugned coupes, one appropriate inquiry is whether the forest in those coupes was, or is, or is likely to be, habitat that is critical to the survival of the threatened species in question. Second, that in assessing whether the forest in the impugned coupes was, or is, or is likely to have that character, the explanation set out in the Significant Impact Guidelines provides a useful and appropriate guide.

Features of the threatened status of the species

601 In this section, I make a number of findings on matters which are of importance to my reasoning under s 38 and s 18, and which concern the status of each species as a listed threatened species under the EPBC Act. In my opinion, an understanding of some of the characteristics of each listed threatened species, and an understanding of some of the consequences flowing from that listing, contribute to the resolution of the s 38 and s 18 issues.

The population decline of the Greater Glider in the Central Highlands

602 While VicForests sought to emphasise that the Greater Glider was listed under the EPBC Act "only" because it met one of the criteria, the fact that the applicable criterion was population size reduction has relevance to my findings on s 38 and on significant impact.

603 The Conservation Advice, it will be recalled, stated that the Central Highlands is the region where there has been the most comprehensive monitoring for the Greater Glider, with annual monitoring since 1997. It was in *this* region, through monitoring of that quality, that over the period 1997-2010, the Greater Glider was estimated to have declined by an average of 8.8% per year which (as the Conservation Advice noted), if extrapolated over the 22-year period relevant to that assessment, is a rate of 87%. Higher rates of decline were recorded in forests subject to logging than in conservation reserves. If there is any region occupied by the Greater Glider where it can be said there is a solid basis to identify timber harvesting as a reason for the population decline of the Greater Glider, it is this region.

604 The number of Greater Gliders in a particular area may also be important. In his third report, Dr Smith responds to a section of Dr Davey's first report addressing the determination of the viability of a population of a species, using the example of the Greater Glider. Dr Smith states that population viability analysis is a "very imprecise science" and that any conclusions or predictions based on such a model "should be considered 'hypotheses' and not facts". Dr Smith refers to some empirical data about populations of Squirrel Gliders, which in his opinion offer some comparison with the Greater Glider, noting both are arboreal mammals. He relevantly states (at pp 17-18) that:

> There is some empirical (factual) data for Squirrel Gliders (*Petaurus norfolcensis*) (Smith 2002) which supports the prediction that populations of arboreal mammals need to be greater than 115 individuals or occupy more than 250 hectares of habitat in order to have a 100% chance of surviving for 40-60 years. There is no empirical data for predicting populations sizes needed to survive 100s - 1000s of years but there is some evidence from mammal survival and extinction on offshore islands that such populations would need to be in the 1000's. Greater Gliders occur at similar densities

> to Squirrel Gliders (around 0.5 animals per hectare on average) and are likely to be similarly affected by isolation and fragmentation.
>
> Application of Squirrel Glider fragmentation models to the Greater Glider predicts that **populations left isolated by timber harvesting will need to be quite large**, 115+ individuals or 250 hectares of habitat, in order to survive just a single harvesting rotation. In my opinion current harvesting systems in Victoria have not taken this risk into account. They do not allow for adequate levels of corridor connection between remnants nor retain sufficient areas of protected habitat patches (of 250+ hectares in size) at regular intervals across the harvested landscape.
>
> (Emphasis added.)

605 I accept that opinion. It illustrates the longer term view of these issues which is necessary to properly understand what the risks to the species are, and how they might be mitigated or avoided. The survival and persistence of individual animals does matter, because in a fragmented landscape they need to survive as populations.

606 The fragmentation of the landscape, and the role that land subject to timber harvesting could play in providing adequate corridors between reserves and national parks, is illustrated by the map reproduced as Attachment A to these reasons.

607 Why does population decline in areas subject to timber harvesting matter if there are (or may be) populations of Greater Gliders in the national parks and CAR reserve system? Dr Smith answered this question in his evidence, which I accept. First, further decline (or in Dr Smith's view, possible localised extinction) of Greater Gliders in timber production forests has the capacity to isolate Greater Glider populations in reserves and national parks from one another. In turn, this makes the populations that are in national parks and reserves vulnerable to extinction after major wildfire events. The 2009 fires in this region are an example. As I explain below, the expert evidence is that one of the effects of climate change is likely to be more drying of the forest and more frequent and more intense fires.

608 Dr Smith made this point well during cross-examination. He was asked to assume a state of affairs absent fire, which, as I find below, is artificial and unrealistic, and an unhelpful assumption. Putting that to one side, this was his evidence:

> So absent fire or predation, there's no reason why the population of greater gliders within the reserve system should be vulnerable in any way?---No, I don't entirely agree with that because the reserve system is isolated and fragmented, so that if you remove the habitat in the matrix that the reserve system is embedded in, you remove the capacity for genetic exchange between glider populations within those isolated reserves. And in the event of, say, climate change, cooling or warming, and you need to maintain full genetic diversity in your populations, you may lose that capacity, and some of those populations may die out through inbreeding or loss of genetic diversity in the long term. So in my view, it is a risk to rely totally on a fragmented reserve

system for conservation.

609 Looking at the detection map in Attachment B to these reasons, it is not difficult to see how a severe fire in one of the national park or reserve areas could leave drastically reduced functional and sustained habitat for species such as the Greater Glider, unless there are adequate protections in the State forest subject to timber harvesting.

610 One further matter about population decline, and the measurement of it, should be mentioned here. This emerged during the cross-examination of Professor Woinarski, but what Professor Woinarski said was plainly of general application and that is how I take it. There are arguments in the proceeding, about both the Greater Glider and the Leadbeater's Possum, that there are no reliable population estimates, and therefore it is not possible to understand, or make any reliable assessment of, just how much the species' population has declined, and how "serious" the threat is, or what the impact might be, if certain areas containing populations of the species are affected by timber harvesting. Is it, to employ a metaphor, just a "drop in the ocean", or is it more serious than that? I consider Professor Woinarski gave a compelling answer to this in cross-examination:

> Do you accept that a reasonable estimate of the rate of decrease in the population size for – in this case, Leadbeater's Possum – necessarily assumes that the population size can be estimated with some accuracy?---No, you can – I don't think you need the population size to have a good recognition of the degree of change in relative abundance which is a population trajectory. You don't need to know the number of red cars in Victoria if you go outside and see that there are 10 per cent of cars outside are red. It's simply a proportional abundance measure which is important to measure. It's relevant to the criterion of listing of critical endangered. It's a population decline of 80 per cent or so. You don't need to know the total population size at the beginning or the end, just simply the change in relative population.
>
> Well, that's one of the – the population size of Leadbeater's Possum, that's one of the gaps in knowledge in relation to the species, isn't it?---Indeed, yes, there's a great deal of uncertainty about the actual numbers of Leadbeater's Possum.
>
> And I think you accept, don't you, that it's undoubtedly useful to have a reliable estimate of population size?---It's useful, but not necessary. There are very many threatened species for which we don't have good population estimates of.

611 I accept Professor Woinarski's evidence. As a basis for defeating the proposition that there is a serious threat from forestry operations for the purposes of the precautionary principle, or for defeating the proposition of significant impact for the purposes of s 18, it is neither appropriate nor useful to focus on the lack of detailed data about overall population sizes in either species. What matters is the existence of reliable studies showing an alarming decline in the species' relative abundance.

The role of genetic diversity

612 In his third report at p 16, Dr Smith said this about genetic diversity:

> Loss of Greater Glider populations in the timber harvesting matrix around National Parks would also reduce genetic diversity through loss of populations at extremes and limit the species capacity to adapt to long term climate change.

613 Dr Smith and Dr Davey agreed that the Greater Glider population in the Central Highlands is an important population for the Greater Glider as a species. This is a term drawn from the Significant Impact Guidelines where, as one of the criteria for significant impact for vulnerable species, the Guidelines state that an action is likely to have a significant impact if there is a real chance or possibility that it will "lead to a long-term decrease in the size of an important population of a species".

614 In cross-examination Dr Davey based his agreement mostly on the fact that the Central Highlands population is at the limit of the species' distributional range:

> In terms of the greater gliders, it goes up to Queensland, but its distributional range – the Central Highlands is close to the – the limit of its distributional range. And for the purposes of this definition, I've actually treated the greater glider populations in the Central Highlands as an important population.

615 Although Dr Smith did not highlight this particular aspect (however he did acknowledge in his first report that populations "at the limits of the species geographic ranges" are important populations), I accept Dr Smith's evidence in his first report at pp 15-16. There, when answering a question about the concept of an important population, Dr Smith expressed the following opinions:

> My understanding of these terms differs for different species with different ecological requirements and different responses to cultural and natural disturbance. With respect to the Greater Glider I consider an important population to be one which is likely to be necessary for the species long-term survival and recovery and one which is necessary for maintenance of the species genetic diversity. For the Greater Glider populations most likely to be of key importance for the species long-term survival and recovery are those which:
>
> - are distributed across a very large area which is much larger than the largest possible disturbance patch that could be rendered temporarily vacant after disturbances such as intense wildfire, drought, predation, logging or climate change;
> - are continuous and connected throughout its range in a manner that allows for at least periodic dispersal between sub populations after disturbance (fire, drought, logging, climate change) events;
> - include fire, logging, drought and climate change refuge areas (eg high elevations) that have the lowest risk of disturbance by fire, logging, predation, drought and climate change including riparian zones, gullies, moist sheltered

aspects and areas with the large old trees that have survived a long time without intense fire, to act as re-colonization sources after disturbance events.

- encompasses a wide range of natural environmental gradients (from upper to lower elevation limits) and from dry to wet forests, and across the full range of occupied forest types (in order to include or capture the full range of species potential genetic diversity).

In addition to the above important populations necessary to maintain genetic diversity will also include large (> 200 individuals), and sometimes isolated, populations at the limits of the species geographic ranges.

616 I accept that the maintenance of genetic diversity plays a critical role in the protection and conservation of a threatened species such as the Greater Glider (or the Leadbeater's Possum, for that matter). I accept the reasons why this is so are explained by Dr Smith in the passages I have extracted. Key to the maintenance of genetic diversity is the maintenance of viable, separate populations of the species, across their geographic range, and in locations which are sufficiently widely distributed that events such as wildfire are less likely to destroy all or most populations in the area.

Extinction

617 Although extinction is the reference point set in the s 179 categories of listed threatened species, and is therefore integral to an understanding of the objectives and purposes of this aspect of the legislative scheme of the EPBC Act, its function as a reference point is seldom articulated.

618 Rare occurrences and scientific advancements aside, extinction is an end point. It is the end of a species. It represents a failure to preserve and maintain biodiversity. Since the extinction of other particular species may not yet pose an immediate threat to the survival of the human species, then unless it is especially photogenic or iconic, the extinction of a species may be barely noticed by the wider community. That is despite the acknowledgement of the role the wider community has in the protection and management of the environment: see s 3(1)(d) of the EPBC Act. In a proceeding such as this, which concerns alleged threats to two species, one of which is expressly recognised to be at extremely high risk of extinction in the wild in the immediate future, it is appropriate to consider the function of extinction as a reference point in the scheme.

619 Relevantly, the EPBC Act is expressly aimed at enhancing Australia's capacity to ensure the conservation of its biodiversity by including provisions to protect native species. They are a matter of national environmental significance. Relevantly to the issues in this proceeding, the

scheme is intended by Parliament to enhance Australia's capacity to prevent the extinction, and promote the recovery, of threatened species: see s 3(2)(e)(i). In other words, the EPBC Act's objectives are not directed simply towards "protection", but also the prevention of extinction. Preventing extinction is not an objective or an outcome which is mere policy; it is not an objective or outcome which can be measured in any way other than what happens, in the environment and on the facts, to the species concerned.

620 Professor Woinarski's expert evidence contained considerable material about extinction, which is not unexpected given the critically endangered status of the Leadbeater's Possum. It is apparent from his list of publications that he has written on this topic many times.

621 At [19] of his first report he notes that concerns about extinction of species, and the impact that has on global biodiversity, is an international issue as well as a domestic one:

> Independent of the EPBC Act listing, Leadbeater's possum is also listed as Critically Endangered under the global Red List of threatened species, as evaluated by the IUCN. This status was also determined on the criterion of severe rate (>80% over the past three generations, and also the future three generations) of population decline.
>
> (Footnote omitted.)

622 In his first report, in describing the significance of the listing of the Leadbeater's Possum as critically endangered, Professor Woinarski states at [17]:

> Leadbeater's possum is one of only nine Australian mammal species with the most imperilled conservation status (Critically Endangered). As evidence of the high extinction risk of species in this category, one of these nine Critically Endangered mammal species (the Christmas Island pipistrelle) has become extinct since its EPBC Act listing and another (the Christmas Island shrew) is almost certainly so.
>
> (Footnote omitted.)

623 The scheme of the EPBC Act intends that these listings be taken seriously and acted upon. They are not window dressing, nor some "policy" to be made and placed on a shelf. That is not the intention evinced by Parliament in creating the legislative scheme. Listing is intended to result in positive action, on the ground, to protect and conserve populations of threatened species, to prevent their extinction and – importantly – facilitate their recovery so that they are no longer threatened.

624 As Professor Woinarski's opinion makes clear, for EPBC Act listed threatened species, the risk of extinction is no mere theoretical possibility: it is a reality. That reality was clearly expressed by Professor Woinarski, Andrew Burbidge and Peter Lynton Harrison in an extract from *Action Plan for Australian Mammals* (CSIRO Publishing, 2014) that was in evidence. The authors

stated that "extinction risk is increased with smaller population size, smaller geographic range, and increased rate of decline (at p 7). They also said (at p 3):

> Much of the Australian mammal fauna has been lost irretrievably since European settlement, and the losses are continuing, including the extinction of one endemic species (the Christmas Island Pipistrelle *Pipistrellus murrayi*) as recently as 2009 (and perhaps another species, the Bramble Cay Melomys *Melomys rubicola*, subsequently).
>
> But this trend is not inevitable. For most declining species, there are solutions that can prevent extinction and lead to recovery, but passivity is generally not a component of those solutions. … With suitable management, even highly threatened mammal species can recover and flourish. Our purpose here is to affirm the need for such management, and to provide some hope that, with such management, the ongoing survival of even the most threatened species can be achieved.

625 The overall case presented by VicForests and its experts failed to give sufficient weight to the seriousness of the predicament of the Leadbeater's Possum, in particular. In relation to the Greater Glider, while its threatened status is currently assessed as less extreme, as a hollow-dependent and eucalypt-dependent species, and as the evidence discloses, the effects of large wildfire events are capable of substantially increasing the risk of extinction, and so magnifying the effects of other threatening actions on a species, such as forestry operations.

Recovery

626 Like prevention of extinction, facilitation of the recovery of threatened native species is a statutory objective of the EPBC Act: see s 3(2)(e)(i).

627 Recovery is not a defined term in the EPBC Act, but its meaning is plain enough. In several places, the Act refers to "recovery in nature" (see ss 201(3)(b), 208A(1)(g), 303CG(3)(a)), indicating that one of the Act's concerns is about restoration of species to sustainable, long-term survival levels in the wild. That objective is also apparent from the terms of s 270 of the EPBC Act, which deals with the content of Recovery Plans. Section 270(1) describes the purpose and content of Recovery Plans:

> A recovery plan must provide for the research and management actions necessary to stop the decline of, and support the recovery of, the listed threatened species or listed threatened ecological community concerned so that its **chances of long-term survival in nature are maximised.**
>
> (Emphasis added.)

628 Again, the term "in nature" is used, and in the context of the EPBC Act, read with its purposes, this should be understood as an objective to support the recovery of a species across its natural range. That is also apparent from the terms of s 270(2) and the several references in that provision to various populations of a species and to the distribution of those populations.

629 Recovery also forms part of the objective present in that part of the Code where the precautionary principle is located. The objective is expressed (in cl 1.3) to be that:

> biological diversity and the ecological characteristics of native flora and fauna within forests are maintained.

630 To similar effect are the operational goals in cl 2.2.2 of the Code (see [137] above). In order for a threatened species to be "maintained" as part of the maintenance of biodiversity, its decline must be arrested and reversed. The EPBC Act does not refer to biodiversity being "maintained" in the weakened state reflected in the decline evident from the status of threatened species. It refers to the maintenance of biodiversity in its full and healthy sense as a functioning and sustainable ecosystem, not a declining one. Both the EPBC Act and the Code contemplate – one more expressly than the other – that species must be assisted to recover.

631 As I have noted earlier in these reasons, the Scientific Committee identified forestry operations as a threat causing habitat loss for the Greater Glider and the Leadbeater's Possum. The threat is described as "very severe" or having the potential for "catastrophic" consequences. Measures to be taken must be proportionate to that level of threat if they are to facilitate recovery. Measures are not intended simply to prevent a species from moving into a more extreme listing category, although for the Leadbeater's Possum that would be extinction in any event.

632 VicForests' case on the compliance of its forestry operations with the Code, and on s 18, in my opinion either consciously or unconsciously ignored the importance of recovery, and the whole objective of listing threatened species.

Detections

633 Proportionally, a great deal of the evidence in this proceeding was occupied by proof of the detections of Greater Glider and Leadbeater's Possum in the impugned coupes. This evidence was given by Mr Jake Ross McKenzie, Mr Blake Thomas Nisbet, Mr Nathan Paul Wainwright, Mr Andrew Stephen Lincoln and Ms Hayley Samantha Forster, with Dr van der Ree then confirming the identification of the species from the material supplied.

634 Ultimately, none of this evidence was challenged by VicForests. None of the witnesses who gave evidence about the detections were required for cross-examination. Nor was there any contest about the records of previous detections in and around the impugned coupes. Indeed, these were marked on several of the agreed maps in the proceeding, based on the DELWP

records. Those maps show substantial numbers of detections in national parks and reserves as well as in native forest available for timber harvesting.

635 I put to one side in this section of my reasons the evidence of the applicant's witnesses about identification of matters concerned with the miscellaneous breaches. There was some contest about what could or could not be drawn from the evidence of the applicant's witnesses in this respect, although as I have noted, none of them were cross-examined.

636 In this section I describe the evidence of one of the applicant's witnesses who made the detections, to indicate the nature and quality of the evidence. It is relevant to several issues in the s 38 case in particular. I use Mr McKenzie's first affidavit as an example.

637 Mr McKenzie has a Certificate III in Conservation and Land Management, from TAFE New South Wales, which he completed in October 2017. As at the date he affirmed his affidavit, on 14 September 2018, he was completing a Diploma of Conservation and Land Management, at Swinburne University, Wantirna, in Victoria. In his affidavit he describes his previous experience working for organisations such as Conservation Volunteers Australia, Naturelinks and the "Bush Crew" of Melbourne Water, all of which gave him skills in identifying threatened plants and exotic plants. He deposed as follows:

> In early 2016, I became a general member of Wildlife of the Central Highlands Inc (**WOTCH**). WOTCH is a community organisation dedicated to protecting Victoria's native forests through the use of "citizen science" (scientific research conducted by non-professional scientists), community engagement and advocacy. In my role with WOTCH I regularly conduct animal surveys for, and record and prepare reports on, the presence of flora and fauna in State forests in the Central Highlands Region, including Leadbeater's Possums, Greater Gliders and Tree Geebungs.

638 After describing how he became familiar with the use of GPS technology, Mr McKenzie described the survey methods he used for Leadbeater's Possum and Greater Glider. For the Leadbeater's Possum it was as follows:

> The method I use to detect Leadbeaters' Possums is called an active search survey. I walked through areas of forest at night alone or in a small group, sometimes along a road and sometimes off-track, stopping and using a thermal imaging camera (heat-sensor) directed into the mid-storey and lower canopy, while also listening carefully for movement. When the thermal imaging camera is directed at fauna the body heat of the animal is clearly detected by the camera. When I saw body heat detected by this camera, I used a hand-held spotlight to illuminate and try to identify the animal.
>
> If I saw an animal that I identified as a Leadbeater's Possum, I recorded the animal with a video camera, carefully zooming in to film the animal and then panning down to film my GPS showing our location coordinates, in a single continuous recording. On some occasions I then took still photographs where possible, and sometimes recorded the location of the animal by recording a GPS waypoint. Most of the

> Leadbeater's Possums I saw using this method were moving quickly between trees in the mid-storey or lower canopy, though some were staying still.
>
> I have detected and recorded more than 100 Leadbeater's Possums using the active search survey method.

639 For the Greater Glider it was as follows:

> From late 2016, another type of survey that I have regularly conducted is a spotlight survey targeting Greater Gliders. I walked through areas of forest at night alone or in a small group, sometimes along a road and sometimes off-track, using a spotlight directed into the canopy while I looked for fauna. When the spotlight shines on fauna the reflection of the light on the eyes of the animal creates distinctive coloured shining spots which are called 'eye-shine'. When I saw eye-shine, I sometimes used binoculars to look at the animal.
>
> If I saw an animal that I considered to be a Greater Glider, I recorded the animal with a video camera, carefully zooming in to film the animal and then panning down to film my GPS showing our location coordinates, in a single continuous recording. I also then took still photographs if possible. On several occasions I saw more than one Great Glider at the same location and recorded all individuals in a single video recording. To record each location where I observed a Greater Glider during my surveys I marked a GPS waypoint. Each Greater Glider I saw during these surveys was in the canopy, usually completely still or in some instances moving a small distance within the one tree quite slowly.
>
> I also recorded by waypoint, and sometimes by video, other species of fauna encountered during my Greater Glider surveys.

640 Mr McKenzie then described how he reported his detections of both Leadbeater's Possums and Greater Gliders to DELWP and VicForests. He deposed that WOTCH has created a standard form for these reports, which he described as follows:

> These reports are in a standard form that has been created by WOTCH. It usually includes the following information:
>
> a. a description of the survey method;
>
> b. the survey results in five parts as follows:
>
> i. a results table setting out the time of each detection, the species identified, the location coordinates of the detection and the GPS waypoint name created to record the detection location;
>
> ii. photographs taken during the survey of the species detected, with a caption describing the location coordinates and waypoint name for each detection in each photograph (as per the results table);
>
> iii. any video recordings of the species detected during the survey, often attached to the report in a compressed digital folder and named in a way that corresponds with the relevant detection listed in the results table or offered to be provided upon request;
>
> iv. a waypoints file (GPX file format) of the GPS waypoints recorded at each detection location during the survey, often attached to the report or offered to be provided upon request;

v. a map depicting the coupe and each detection location, usually prepared by Blake Nisbet or Callum Luke (two other WOTCH members) using the GPX file of the GPS waypoints recorded during the survey which I provide to them, and VicForests' Timber Release Plan spatial data file which is publicly available via the VicForests website;

c. discussion and recommendations for management in response to the survey results, often including relevant rules in the *Code of Practice for Timber Production 2014* and the *Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2014*.

641 He described DELWP's response at [20] of his affidavit:

> I received email responses from DELWP to most of my Leadbeater's Possum Detection Reports informing me that my Leadbeater's Possum detections have been verified. On one occasion DELWP stated it was unable to verify due to the quality of the video footage. On some occasions I did not receive any response.

642 He deposed that his detections have been placed on maps published by DELWP.

643 Mr McKenzie then deposes, in detail, over 358 paragraphs, to how and when he surveyed each of the impugned coupes, what he found, how he recorded the results and to whom he sent the results (that is, to DELWP and VicForests). At [56] Mr McKenzie gives an example of a reply email from DELWP about one of his Greater Glider detections. The other examples he gives have similar content:

> Thank you for your report of Greater Gliders and Hollow Bearing Trees in coupe 298-519-0003, Toolangi State Forest.
>
> The case reference number is 2017-0056.
>
> The department is assessing the information provided in your report and you will be notified of the outcome.
>
> DELWP is still determining our interim protection measures for Greater Gliders and your report will help inform this work.
>
> Your report has been forwarded to VicForests.

644 Mr McKenzie's evidence reveals he usually did not receive any further response from DELWP. This includes in circumstances where, in some of his email correspondence, Mr McKenzie indicated the coupe was listed as "Harvest pending" on the current Timber Harvesting Safety Zone notice on VicForests' website and that WOTCH was concerned timber harvesting operations were planned within the near future. This still did not prompt any different response from DELWP, and prompted no response from VicForests.

645 He deposes, and it has not been challenged, that he did not receive a response from VicForests in relation to any of his communications with VicForests about detections.

646 I am satisfied all the evidence of this kind adduced on behalf of the applicant in this proceeding is reliable and probative of the actual presence of both species in and around the locations where they were detected. I use "in and around" deliberately, because as the earlier extract at [586] above from Professor Woinarski's re-examination demonstrates, a detection record reveals only a small portion of information about what the particular animal was doing at the time of the detection – whether foraging, nesting, resting, or moving. Whatever a particular animal might have been doing, the evidence is clear that both the Leadbeater's Possum and the Greater Glider exist over particular ranges of native forest, so it can be safely assumed that wherever the detection was made, that particular animal was using and occupying the forest "around" the detection location as well. How far "around" is one of the issues on which opinions differ, in the sense that there are different views about the home ranges for individual animals, or colonies (for the Leadbeater's Possum), in each species, and these are areas where there has been little definitive research.

647 One of the matters noted in the Leadbeater's Possum 2015 Conservation Advice was that habitat modelling could involve some inaccuracies, but measures based on the *occupation* of habitat by the Leadbeater's Possum were more reliable. It stated:

> The Committee considers that predicted suitable habitat is more closely aligned with the possum's area of occupancy. Decline in this area is a more accurate measure of likely decline in Leadbeater's possum. The IUCN (2014) note that area of occupancy is included in the criteria in addition to extent of occurrence because it helps to identify those species that are habitat specialists (such as Leadbeater's possum) and these species are considered to have an increased risk of extinction. It also notes that area of occupancy can be a useful proxy for population size because there is generally a positive correlation between area of occupancy and population size. Given this, the Committee considers that decline in the predicted suitable habitat is a closer approximation to decline in population size than is 'suitable forest' or extent of occurrence.

648 A further point which should be noted about detections, and which I accept, is that made by Professor Woinarski at [64] of his second report: namely, that detections provide information about the forest locations occupied or used by a threatened species, but increased detections tell one nothing about any changes in population size:

> At paragraph 222 (and illustrated in his Figure 3) of his report, Dr Davey notes that the DELWP report shows a very substantial increase in records of Leadbeater's possums in the Central Highlands. As noted in the DELWP report, this increase is due to (i) a greatly increased survey investment and coverage by government researchers, individuals and non-government conservation organisations, and (ii) the development and implementation of technical innovations, notably remote cameras (camera traps) and thermal imagery. In contrast, consistent monitoring of Leadbeater's possum at a large series of fixed monitoring plots shows a significant ongoing trend for declining

> abundance and occupancy over this period.
>
> (Footnote omitted.)

649 Further, and related to the next topic, records of detections are not immutable, as Dr Smith examined in oral evidence, when asked about the maps which records all the detections for Greater Glider in the Central Highlands:

> And what – when you look at a map like this and you see detections from 1979, 2011 or whatever, are you able to explain to me what – in relation to the [greater] glider, how is that information useful in assessing where the populations of greater gliders are now?---Okay. I think the dates on here reflect the time of particular studies. So in – studies are generally done by single individuals or a group on a grant. So they might get funding to do a study over a couple of years. So you will get a burst of dates around that period and then you will get another burst of days when somebody else has done a study. So if I was interpreting this data, in view of the fires in 2009, I would be – **I would not place any great value on anything pre-2009 simply because those sites may no longer be occupied**. So as far as determining - - -
>
> Or you **might need to overlay it with the fire map, is that right?---Yes; or pull out the data by date and see if they changed**. But, generally, the surveys of the Highlands have been geographically patchy. I did look up the question I was asked about Lumsden's data in 2014 where she randomly surveyed 200 sites. And that data was across the whole Centre Highlands. It included the national parks and the timber production forests. And it was random, which means it was unbiased. So that is probably the best data set to rely on for current distribution.
>
> (Emphasis added.)

650 I am also satisfied that this evidence is probative of the reaction (or lack of reaction) from VicForests to such detection reports.

The effects of fires

651 The effects of fire on the habitat of the species, as well as on the members of the species, is an important aspect of the applicant's case. The applicant contends that, together with forestry operations, fire is a principal threat to both species. Dr Smith and Professor Woinarski provided a considerable amount of evidence in support of that contention.

652 In addition the applicant contended, and its experts emphasised, that in assessing the threats posed by forestry operations to the two species, and in assessing the threats in the impugned coupes in particular, the role of wildfire (and the role of climate change in how it affects the occurrence, spread and severity of wildfire) must be taken into account. That is, forestry operations are not conducted in an environmental vacuum: they are conducted in forests susceptible to wildfire. Therefore, arguments which have as a premise, or an assumption, that forestry operations have little impact, or are not a serious threat, because there are other vast areas of national park, or reserve, or other native forest not yet harvested, where the species

can live, are flawed from the outset unless they take into account the risks and likely effects of wildfire in those other areas.

653 I accept both these contentions, and the evidence supporting them.

654 In the agreed maps was a map showing how much of the forest in the CH RFA region has been affected by the 2009 fires. In the northern part of the Central Highlands, where approximately half of the impugned coupe groups are located, there was widespread severe fire, marked as "Severity 1" on this map due to what the map identifies as "Crown Burn". This is distinguished on the map's legend from other damage: "Crown Scorch", "Moderate Crown Scorch", "Light or No Crown Scorch, Understorey Burnt", "No Crown Scorch, No Understory Burnt" and "Burnt Woodlands".

655 Parts of Kinglake National Park, Murrindindi River Natural Features and Scenic Reserve, Cathedral Range State Park, Mount Bullfight Nature Conservation Reserve and Yarra Ranges National Park were severely burnt in the 2009 fires. In the more southern part of the Central Highlands, Bunyip State Park was severely burnt. These facts alone make good the proposition that, in combination with forestry operations, fire is a principal threat to both species.

656 In noting that habitat loss and fragmentation is the principal threat to the Leadbeater's Possum, the 2019 Conservation Advice identifies extensive wildfires as one of the causes of habitat loss and fragmentation. The 2015 Conservation Advice gives a description of the effects of fire in the Central Highlands region, that being the principal location for the Leadbeater's Possum, which explains why the 2015 Conservation Advice focuses so heavily on it:

> Fire results in direct mortality of Leadbeater's Possums (Lindenmayer et al. 2013b) and loss of habitat (extent and fragmentation).
>
> The Central Highlands has a history of occasional extensive wildfires. The 1939 fire burned most of the potential Ash habitat of Leadbeater's Possum (Lindenmayer & Ough 2006) so that currently approximately 98% of the Mountain Ash ecosystem is <80 years old (Lindenmayer & Sato 2018). Thirty four per cent of the potential Ash forest habitat was burned in 2009 (Lumsden et al. 2013). Lumsden et al. (2013) noted that over the last century, bushfires have occurred in the Central Highlands on average every ten years.
>
> The frequency and intensity of wildfires are likely to increase under climate change scenarios, which predict increased rates of extreme climatic events (Lumsden et al. 2013; Baker et al. 2017). The last decade has seen a significant and measurable increase in the number, intensity and area burnt by bushfires and projections suggest that this will continue to escalate (Emergency Management Victoria 2014).

657 The contents of the Conservation Advice illustrate why the effects of fire need to be a primary consideration in determining how to assess the threats from forestry operations in the impugned

coupes in the CH RFA region to the Greater Glider for the purposes of s 38, and how to assess the nature of the impact of forestry operations in the impugned coupes in the CH RFA region for both the Greater Glider and the Leadbeater's Possum.

658 Dr Smith's estimate, by reference to Lumsden, is that the 2009 fires appear to have burnt about 36% of the Central Highlands area with variable intensity. The Conservation Advice states that "34–36 per cent of potential ash forest habitat / suitable forest ash was lost in the 2009 fires", also citing Lumsden.

659 Dr Smith's opinion is that any Greater Gliders in forest which was subject to intense fire in which trees were all killed are likely to have died. Dr Davey did not indicate he disagreed with these opinions. However, fire itself is not seen by Dr Smith as a serious threat to the Greater Glider. That is because, as he explained in his first report (at 42):

> Intense wildfires have occurred at regular intervals in the Victorian Central Highlands over the past 200+ years and appear to be a normal part of the ecological system. Ash Forests are adapted to regeneration after fire (Ashton 1982). Under natural conditions the size, extent and topographic diversity of habitat in the Central Highlands has been sufficient for Greater Glider populations to withstand periodic intense fires by surviving in unburnt refuges and dispersing from these refuges into surrounding regrowth as it ages.

660 He notes that "[i]n Mixed Species forests recovery may be rapid (about 10 years)", although "[i]n Ash forests recovery will be slower": more than "35 years in forests with habitat trees (eg burnt old growth and uneven aged forest in National Parks and protected areas)", and more than "120 years in forests without habitat trees". Recovery may not occur (or may be negligible) "in clearfelled coupes under current [forestry] management practices".

661 The problem, Dr Smith considers, is "the excessive removal of old growth and uneven aged Ash forests and old growth Mixed Species forests by timber harvesting over the past 60 years", which has, in his opinion, "disrupted the opportunity for natural recovery patterns after wildfire by shifting too high a proportion of forest into early regrowth stage dominated by trees that are too small to develop hollows".

662 So far as I have been able to ascertain, Dr Smith was not cross-examined about his opinions outlined above. I accept his opinion.

663 Dr Davey's opinion was that the 2009 fires had a "catastrophic" effect on the Leadbeater's Possum in the Central Highlands. In relation to the Greater Glider, his opinion (in his second report at [55]) was:

> Dr Smith's Point 4 identifies infrequent disturbance by fire as a habitat requirement. Fire frequency and intensity are an important determinant of the presence of Greater Glider in forest habitats. I have observed that low intensity prescribed fire even at frequent intervals generally does not affect Greater Gliders in forest. I found that fire affects the presence of Greater Gliders in forest when scorch height was more than half stand top height. I noted the presence of Greater Glider records in 2017 in areas mapped as crown and moderate-crown scorch (fire severity classes 2 and 3) following the 2009 wildfire reported in Bridle coupe (10.10) in Dr van der Ree's report (van der Ree 2018, pdf page 32 of 56). Generally, I have found Greater Gliders are not present in forest where fire has burnt the tree crowns. Recolonisation by Greater Gliders of these forests with burnt crowns takes between 10 and 20 years depending on the extent and severity of the fire.

664 Repeating the fact he seemed most to emphasise (detections in forest burnt by the 2009 fires), Dr Davey also said in his second report (at [67]):

> It is my opinion that the quality and extent of Greater Glider habitat that was burnt in 2009 would be improving and therefore habitat for Greater Glider in the Central Highlands is likely stable or increasing rather than declining, with improvements in habitat in burnt forests offsetting any current losses caused by timber harvesting. Recent Greater Glider records have been found in forest burnt in 2009 (e.g. van der Ree 2018, refer to Paragraph 55).

665 Dr Davey was not cross-examined on this statement. In its closing written submissions at [229], the applicant characterises Dr Davey's opinion as being "that the 2009 fires would improve Greater Glider habitat and 'offset' for losses from logging". It contends that this opinion should not be accepted. I consider the applicant may have misread Dr Davey's opinion (as VicForests contends in its Table annexed to its closing reply submissions). He did not say that the 2009 fires would "improve" Greater Glider habitat as the applicant contends; he said, as the extract shows, that Greater Glider habitat burnt in the 2009 fires would now – in 2019 – "be improving". That is consistent with at least part of Dr Smith's opinion that Mixed Species forest recovers after about 10 years. That may well provide some basis for Dr Davey's opinion that forest which may be suitable for the Greater Glider may be "increasing rather than declining", although there is a lack of logic, with respect, about this, because it does not take account of the Greater Glider's need for hollows and it is difficult to see how habitat with suitable hollows would be available 10 years after the fires. In my opinion, the evidence is clear that the Greater Glider requires forest that has both resources for foraging (which may include younger Mixed Species forest) but with an appropriate range and number of hollows in sufficiently close proximity. Dr Davey did not explain how this kind of habitat would exist only 10 years after the 2009 fires, although I do note Dr Smith's opinion in his first report that some old large trees with hollows may persist in Mixed Species forests after wildfire. Much

may depend, as Dr Smith notes at the same part of his first report, on the frequency of fire, as Greater Glider are scarce or absent from old-growth forest that has been frequently burnt.

666 As for the evidence Dr Davey relied on about a single detection in a coupe burnt during the 2009 fires (said to be Bridle coupe), as far as I have been able to ascertain, neither the applicant nor Dr Smith directly responded to this. Dr Davey's work was desktop only, so his opinion relies on the area being "mapped as crown and moderate-crown scorch (fire severity classes 2 and 3)". Dr Smith's first report identifies Bridle coupe as mapped as 1939 Mixed Species, and does not refer to it as burnt in 2009. The photo in his report (at p 91) shows forest with some blackened trunks, but what Dr Smith has called "senescent old growth". I do not consider the evidence is reliable enough to make any finding about what can or cannot be made of an asserted detection in forest said to have been severely burned in 2009. The evidence is contradictory.

667 Even if I were to find, contrary to the view just expressed, that at least one Greater Glider was found in a coupe part of which was burnt in 2009, the real reason I have separated out the effects of fire is not so much about isolated examples of recolonisation, but rather the need to factor in the risks and prospects of severe wildfire both in reserves, and in state forest available for logging, when considering the effects of forestry operations. The two are not independent train tracks to be separately assessed.

668 In his second report at [8], Professor Woinarski makes this point, on the larger scale, which is an important level at which to consider it, especially for the operation of the precautionary principle:

> Dr Davey further notes (e.g., at paragraphs 85-90), the implementation of NFPS through the Regional Forest Agreement (RFA) process and the role of the Central Highlands RFA in the fate and management of Leadbeater's possum, with that documentation recognising that "*Loss of further potential nest trees in Leadbeater's Possum habitat due to timber harvesting would further reduce the ability of the species to survive*" (as quoted in Dr Davey's report, page 31), and that "*The 1998 Central Highlands Regional Forest Agreement also applied a strategy to develop future habitat and mitigate future risks to the conservation of Leadbeater's possum by protecting 85,000 ha of forest, 44% of the total ash eucalypt forest in the Central Highlands. These forests were located in conservation reserves and SPZs, and* ***if not burnt*** *would become more than 150 years old (and nesting habitat) by 2148. This strategy was implemented to help manage the risk caused by the significant anticipated gap in supply of suitable nest sites in hollow-bearing trees during the period 2050-2100, which was predicted to result from collapse of hollow-bearing stags resulting from the 1939 fire*" (as quoted in Dr Davey's report, page 34) [emphasis added]. I add the emphasis to note that much of the conservation planning undertaken in the Central Highlands RFA failed to build (or inadequately built) in contingencies for the

> inevitable (and subsequently realised) eventuality of broad-scale destructive wildfire, and that the planning process has not dealt well with the consequences. Conservation objectives may possibly have been met in the unrealistic scenario of the absence of wildfire, but once the reality of marked loss of habitat (and especially of the limiting factor of large hollow-bearing trees) due to wildfire was realised, those plans and prescriptions have not been flexible enough, or been changed sufficiently, to ensure that they would meet the underlying objective of "*the conservation of the biological diversity associated with forests (particularly endangered and vulnerable species and communities)*" (NFPS, p. 4) or "*to maintain viable populations of native forest species throughout their natural ranges*" (JANIS, p. 2).
>
> (Original emphasis.)

669 A more general, but still important statement was made by Professor Woinarski at [40] of his first report:

> The protection offered by the formal reserve system to Leadbeater's possum cannot be guaranteed because habitat suitability within the system can be suddenly subverted by extensive and severe wildfire, leading to an abrupt and long-lasting decline in population size and increase in extinction risk.
>
> (Footnote omitted.)

670 Another effect of fire is discussed by Professor Woinarski at [44] of his first report:

> The ongoing chronic decline of Leadbeater's possum and its current dire conservation outlook is a consequence of historic and current, incremental and cumulative pressures and losses. Across its range, no population is secure from the risk of wildfire, most of its population occurs in areas without formal protection, many to most subpopulations are likely to be affected by timber harvesting in their vicinity, and many of its increasingly fragmented subpopulations are likely to be unviable and destined for extirpation. In this context, the fate of any subpopulation or location may not of itself radically change the conservation outlook of the species but rather it will contribute gradationally to the likelihood of the species' persistence or extinction.

671 Mr Paul refused to acknowledge the 2009 fires as having made any contribution to the decline in the habitat and populations of Greater Glider. This occurred during that part of his cross-examination as to why VicForests had refused to agree certain facts in this proceeding. It was a somewhat remarkable position taken by VicForests, given the expert evidence and given what is in documents such as the Conservation Advice for the Greater Glider. Nevertheless, it illustrates the extremity of the position taken at times by VicForests in this proceeding. Thus, even in relation to an event which was disconnected with forestry operations, this was Mr Paul's evidence:

> And similarly, VicForests doesn't accept that another cause of the glider's decline in this area may include, in 54.4, extensive wildfires in ash forests and mixed species forests in 2009; correct?---Correct.

672 There was no re-examination of Mr Paul on this matter, which might have explained why VicForests took the position it did on these fairly obvious facts.

673 The applicant's overall contention (see [223] of its closing written submissions) is that:

> fire is relevant because it increases the value of the remaining habitat (which becomes a scarcer resource) and therefore increases the damage caused by the destruction of that habitat.

674 I am comfortably persuaded that is so: it flows as a matter of logic and common sense, before one even reaches the considerable expressions of opinion from Dr Smith and Professor Woinarski about it, and the absence of any disagreement from Dr Davey.

675 Other than in one line in a table, VicForests' closing written submissions did not address this issue at all. That line relates to the submissions about Mr Paul's evidence, which I have just discussed. VicForests contends:

> The applicant's suggestion that Mr Paul refused to recognise the 2009 fires "may" cause decline to the habitat and population of Greater Glider should be seen in the context of Dr Smith's own evidence that "on their own wildfires do not appear to represent a threat to Greater Glider habitat".

676 First, that contention misstates Dr Smith's evidence. Dr Smith's opinion, as I have explained above, relates to the effects of wildfires on the Greater Glider in its natural state, not in combination with the changes to the forest brought about by timber harvesting. It also misses the point about the effects of fire, to which this section of my reasons is directed.

Assessment beyond a coupe-by-coupe scale

677 Part of VicForests' response to the applicant's case is the contention that the applicant has "pleaded and advanced this case on a coupe by coupe basis": see [56] of VicForests' closing written submissions. To an extent that is correct: the structure of the applicant's pleadings takes the division of forest into coupes by VicForests as the method by which forestry operations, both past and present, can be identified.

678 However, dividing a forest into coupes is an operational and planning tool employed by foresters and, relevantly here, by VicForests. It is not a concept to be found in the CH RFA, nor in the RFA Act, nor in the EPBC Act. Since the use of this planning and operational tool leads to discrete conduct by VicForests, as it and its contractors log the forest by reference to coupe boundaries, dividing a forest into coupes may have significance within the scheme of the EPBC Act and in relation to the concept of an "action". Therefore, to the extent that the applicant submits it is of no consequence because it is "an incident of VicForests' forest management" (see reply submissions at [7]), I do not accept that submission.

679 Nevertheless, I do accept the applicant's contention that its case is not limited to the coupe level, and any assessment of both the exemption in s 38(1) and significant impact under Pt 3 is also not invariably restricted to that level. In determining whether, in the Logged Glider Coupes, and in Scheduled Coupes, VicForests has complied or is likely to comply with cl 2.2.2.2 in the conduct of its forestry operations (and planning for them), while consideration must be given to planning and execution at a coupe level (for that is part of the applicant's case), I agree with the applicant's submissions that compliance with an obligation such as that in cl 2.2.2.2 also requires a wider focus.

680 Similarly, the aggregation of groups of coupes in the Central Highlands forest may mean that threats of serious damage (for s 38(1)) or likelihood of significant impact (for s 18) are also aggregated.

RESOLUTION: THE S 38 ARGUMENT

681 In the Separate Question reasons (at [155]) I set out my findings about the consequence of the accreditation of the Code under the CH RFA. In substance, I accepted the submissions put on behalf of the Commonwealth about how the legislative schemes were intended to operate. As I set out there, where a regulatory mechanism such as the Code has a direct bearing on the conduct of forestry operations, then the intention of s 38 and the RFA Act, read with (relevantly here) the CH RFA, is that forestry operations must be undertaken "in accordance" with such a regulatory mechanism to maintain the benefit of the exemption in s 38. I found (at [202]) that the phrase "in accordance with" meant "consistently with" or "in conformity with". In this way, the EPBC Act, the RFA Act and the RFAs create a substitute regime of regulation not intended to be any less effective in protecting matters of national environmental significance than the scheme in the EPBC Act itself.

682 For ease of reference, the core legislative provisions are set out again here. Section 38 of the EPBC Act provides:

> **Division 4—Forestry operations in certain regions**
>
> **Subdivision A—Regions covered by regional forest agreements**
>
> **38 Part 3 not to apply to certain RFA forestry operations**
>
> (1) Part 3 does not apply to an RFA forestry operation that is undertaken in accordance with an RFA.
>
> (2) In this Division:
>
> ***RFA*** or ***regional forest agreement*** has the same meaning as in the *Regional*

Forest Agreements Act 2002.

RFA forestry operation has the same meaning as in the *Regional Forest Agreements Act 2002*.

Note: This section does not apply to some RFA forestry operations. See section 42.

683 The current meaning of "RFA forestry operation" appears in s 4 of the RFA Act:

RFA forestry operations means:

(a) forestry operations (as defined by an RFA as in force on 1 September 2001 between the Commonwealth and New South Wales) that are conducted in relation to land in a region covered by the RFA (being land where those operations are not prohibited by the RFA); or

(b) forestry operations (as defined by an RFA as in force on 1 September 2001 between the Commonwealth and Victoria) that are conducted in relation to land in a region covered by the RFA (being land where those operations are not prohibited by the RFA); or

(c) harvesting and regeneration operations (as defined by an RFA as in force on 1 September 2001 between the Commonwealth and Western Australia) that are conducted in relation to land in a region covered by the RFA (being land where those operations are not prohibited by the RFA); or

(d) forestry operations (as defined by an RFA as in force on 1 September 2001 between the Commonwealth and Tasmania) that are conducted in relation to land in a region covered by the RFA (being land where those operations are not prohibited by the RFA).

For the purposes of paragraph (b), the East Gippsland RFA (as in force on 1 September 2001) is taken to include a definition of ***forestry operations*** that is identical to the definition of ***forestry operations*** in the Central Highlands RFA (as in force on 1 September 2001).

684 It is para (b) of this definition which is applicable to the circumstances of the current proceeding.

685 The CH RFA defines forestry operations as follows:

"Forestry Operations" means

(a) the planting of trees; or

(b) the managing of trees before they are harvested; or

(c) the harvesting of Forest Products

for commercial purposes and includes any related land clearing, land preparation and regeneration (including burning), and transport operations[.]

686 In this case and aside from the miscellaneous breaches, the applicant focuses on the failure to apply the precautionary principle in the conduct of VicForests' forestry operations. The

provisions of the Code dealing with the precautionary principle have been set out at [137]-[138] above.

687 It is important to emphasise that what follows in no way purports to be an exhaustive analysis of the operation of s 38 of the EPBC Act. The constructional choices which are raised and determined occur in a specific context in this proceeding and it is upon that context that these reasons focus.

688 It is also important to recognise that the applicant's case on s 38 and non-compliance with cl 2.2.2.2 is restricted to the conduct of forestry operations by VicForests in what I have described as the Logged Glider Coupes. There are 17 Logged Coupes in this category. There are another 9 Logged Coupes outside this category. As I have noted earlier, those coupes are all covered by the applicant's miscellaneous breaches allegations, and it is through those breaches and the consequent alleged non-compliance with the Code and Management Standards and Procedures that the applicant contends the s 38 exemption has been lost for the remaining 9 Logged Coupes.

VicForests' deeming argument

689 VicForests put forward what it contends is a complete answer to the applicant's s 38 arguments. It contends that cl 1.3.1.1 of the Management Standards and Procedures provides that operations that comply with the Management Standards and Procedures are deemed to comply with the Code, and therefore it has complied with cl 2.2.2.2 in the Code in respect of the precautionary principle.

690 To recall, cl 1.3.1.1 of the Management Standards and Procedures, and the clauses which surround it, provide:

> **1.1 Scope**
>
> 1.1.1.1 The Management Standards and Procedures apply to all commercial timber harvesting operations conducted in Victoria's State forests where the Code applies.
>
> **1.2 Role**
>
> 1.2.1.1 This document provides standards and procedures to instruct managing authorities, harvesting entities and operators in interpreting the requirements of the Code.
>
> 1.2.1.2 These Management Standards and Procedures do not take the place of the mandatory actions in the Code.
>
> 1.2.1.3 Where there is conflict between the Code and these Management Standards

and Procedures, the Code shall prevail.

1.3 Application

1.3.1.1 Notwithstanding clause 1.2.1.3, operations that comply with these Management Standards and Procedures are deemed to comply with the Code.

1.3.1.2 Requests for exemptions or temporary variations to these Management Standards and Procedures will demonstrate to the satisfaction of the Minister or delegate that they are consistent with the Operational Goals and Mandatory Actions of the Code.

691 Clause 1.2.8 of the Code should also be set out:

1.2.8 Terminology

The following terms are used in the Code to provide a structure for the Code's intended outcomes and the mechanisms within the Code to achieve these. The glossary provides further definitions.

A Code Principle is a broad outcome that expresses the intent of the Code for each aspect of sustainable forest management.

An Operational Goal states the desired outcome or goal for each of the specific areas of timber harvesting operations, to meet the Code Principles.

Mandatory Actions are actions to be conducted in order to achieve each operational goal. **Timber harvesting managers, harvesting entities and operators must undertake all relevant mandatory actions to meet the objectives of the Code. Mandatory Actions are focussed on practices or activities. Failure to undertake a relevant Mandatory Action would result in non-compliance with this Code.**

(Underlining in original; bold emphasis added.)

692 VicForests accepted it was a "timber harvesting manager" for the purpose of the Code.

693 VicForests does not raise the deeming argument with respect to the miscellaneous breaches. Those miscellaneous breaches are said to involve non-compliance with the Management Standards and Procedures directly (not the Code), and I assume this is why the argument is not raised in relation to them, although VicForests does not explain the difference in its submissions.

694 However, as I understand the argument, it is contended that if VicForests' forestry operations comply with the Management Standards and Procedures (which VicForests contends they do), then by operation of cl 1.3.1.1 of the Management Standards and Procedures, VicForests is deemed to have complied with the precautionary principle in cl 2.2.2.2 of the Code. That is the construction argument. The application of it here, VicForests contends, is that, because there is no prescription contained in the Planning Standards based on detection of Greater Gliders in

the CH RFA (in contrast to the position that obtains in the East Gippsland RFA), it cannot have breached the Code by failing to act as if there were such prescriptions.

695 Section 46 of the SFT Act is the provision which imposes an obligation on VicForests, and those persons who have entered into harvesting agreements with VicForests, to comply – in relation to timber harvesting operations – with any relevant code of practice. For present purposes there is no dispute that VicForests' conduct in the present case is both a forestry operation and a timber harvesting operation. I put to one side the debate about the singular and the plural and how to identify a forestry operation, with which I deal with below.

696 VicForests accepts that the mandatory actions in the Code contain obligations, and that it is "timber harvesting managers" (including VicForests), harvesting entities and operators that must undertake the mandatory actions. All of the applicant's allegations relate to mandatory obligations. VicForests accepts cl 2.2.2.2 is a mandatory action, although as I explain it has some other arguments about why it is an obligation of a different nature that cannot, inherently, lead to loss of the s 38 exemption: see [790]-[799] below. However, it contends (at [300] and [302] of its closing written submissions):

> As has already been noted, the Code and the Management Standards and Procedures are directed towards VicForests and operators for the purpose of conducting timber harvesting operations, and the reforms in 2014 were intended to streamline the environmental regulatory framework. The Code is intended to be a repository of the obligations for operators, such that, if operators comply with the Management Standards and Procedures, they will be deemed to comply with the Mandatory Actions in the Code. This construction of the deeming provision provides certainty to timber harvesting entities and operators. Where known values are concerned (by way of contrast to detection of previously unknown species where the precautionary principle would have a clear application), it is not for timber harvesting entities to second-guess the executive's promulgated regulatory position in regard to that value.
>
> …
>
> In light of the practical considerations to which the Code, the Management Standards and Procedures, and the Planning Standards are directed, and in the absence of any identified prescription alleged to be breached in the Scheduled Coupes, the deeming provision operates to ensure that in the circumstances of this case VicForests' operations will be deemed to comply with the Code, and thus the precautionary principle.
>
> (Footnote omitted.)

697 As VicForests properly drew to the Court's attention, the Secretary to DELWP does not share its view about the construction and operation of cl 1.3.1.1. The parties referred the Court to the submissions made on behalf of the Secretary in a case in the Victorian Supreme Court: *Flora and Fauna Research Collective Inc v Secretary to the Department of Environment, Land, Water*

and Planning S CI 2017 04392. VicForests also made submissions in that proceeding, and advanced the deeming argument, in the specific context of its contended obligations under cl 2.2.2.2: that is, the same way the applicant here puts this aspect of its case. The Court was not referred to any final orders and reasons in this proceeding, and I have assumed the matter remains reserved. That proceeding concerns old-growth forest in two ecological vegetation classes in the East Gippsland FMA, and how much of that forest, modelled to be "old growth", is protected from timber harvesting in conservation reserves and SPZs.

698 In this proceeding, the applicant adopted the Secretary's submissions on cl 1.3.1.1 in the Victorian proceeding, and made further submissions of its own. A copy of the Secretary's submissions was filed with the Court, and VicForests did not object to the Court being referred to them. Senior counsel for VicForests summarised the Secretary's argument in oral closing submissions.

699 Due to the subject-matter of that other proceeding, the Secretary's submissions contain many contentions touching on matters relevant to this case, but I have not considered those aspects of the submissions. Rather I have only considered the part adopted by the applicant in this case, and to which VicForests also referred.

700 I agree with the Secretary's construction of cl 1.3.1.1, and of the role of the Code. The Secretary submitted (at [307]-[312]):

> The first matter to note is that cl 1.2.1.2 in the MSPs says, in terms, that the MSPs "do not take the place of the mandatory actions in the Code".
>
> Secondly, cl 1.3.1.1 commences with "[n]otwithstanding clause 1.2.1.3", which is the clause regarding conflict between the Code and the MSPs. Clearly, cl 1.3.1.1 is concerned only with the limited situation where there is a conflict between the MSPs and the Code (and is not concerned with matters beyond that situation).
>
> Thirdly, the Code (and *a fortiori* the MSPs) is not a "code" in the strict sense – i.e., a document containing the universe of regulation of a subject matter. See cl 1.2.4 of the Code. Therefore, and contrary to the thrust of VicForests' submission, it is not possible for an operator to focus just on the Code, *a fortiori* just on the MSPs, and then argue it has complied with all of its obligations.
>
> The Secretary submits that cl 1.3.1.1 means that, where timber harvesting operations are done pursuant to something which the MSPs expressly require (i.e. where they, in the words of cl 1.2.6, provide "detailed mandatory operation instructions"), but where that something happens to conflict with obligations under the Code, VicForests will not be taken to be in breach of the Code by carrying out the detailed mandatory instructions.
>
> For cl 1.3.1.1 to have any operation, there must be a true conflict, meaning an impossibility of two commandments being both obeyed. On a proper, contextual construction of cl 1.3.1.1, existence of a conflict is an implicit (if not express)

> precondition for its operation. Put differently, cl 1.3.1.1 will have no operation where a mandatory action in the Code and a detailed instruction in the MSPs can both be obeyed.
>
> Given the nature of the particular mandatory action in question – i.e., the precautionary principle – and given that the MSPs, which VicForests would be required to comply in conducting harvesting operations in the Coupes, are congruent with that principle, it is unlikely in the extreme that VicForests would be able to point to a conflict.

701 Those submissions are, in my respectful opinion, correct and should be accepted.

702 Further, I accept the additional submissions of the applicant that if the only available construction were that for which VicForests contends, then cl 1.3.1.1 of the Management Standards and Procedures would be invalid to the extent it had such an operation. The Management Standards and Procedures are an executive instrument. The Code is a legislative instrument: see s 31(1) of the CFL Act. There is a process to amend or vary a Code, which is set out in Pt 5 of the CFL Act. An executive instrument such as the Management Standards and Procedures cannot circumvent the process for which Pt 5 provides.

703 As the applicant contends, s 31(2) of the CFL Act allows for a code of practice, such as the Code, to incorporate external standards and rules into its application, but such an external standard cannot operate to "reach back" into the Code, and restrict or nullify the operation of its provisions. Any such effect requires an exercise of legislative power. Clause 1.2.6 of the Code incorporates the Management Standards and Procedures, but does so on the express basis they are "consistent with" the Code, not that they override it or nullify its effect.

704 In principle, this is, as the applicant submits, consistent with the approach taken as between a regulation and an Act of parliament, giving effect to the maxim that the stream cannot rise higher than its source: see *Morton v Union Steamship Co of New Zealand Ltd* [1951] HCA 42; 83 CLR 402 at 410 cited in *Plaintiff M47/2012 v Director-General of Security* [2012] HCA 46; 251 CLR 1 at [174].

705 In oral submissions, VicForests sought to develop its submissions by adding that even if the Secretary's argument be accepted, contrary to its position, then the executive has, "by omission", decided there ought not be a prescription in the Management Standards and Procedures for the Greater Glider in Central Highlands. Therefore, the argument ran, if the Management Standards and Procedures do not provide a prescription because of a deliberate decision by the executive, there is a relevant conflict or inconsistency between the terms of the Management Standards and Procedures and the terms of the Code, and cl 1.3.1.1 operates to deem there to be compliance with the Code. Thus, VicForests contended, failing to act as if

there *was* a prescription cannot be a breach of the precautionary principle in cl 2.2.2.2 and cl 1.3.1.1 would deem VicForests' timber harvesting actions to comply with the Code.

706 The answer the applicant made to this contention was that there was no deliberate or conscious decision by the executive that created a conflict of the kind which the Secretary's submissions posited could give an operation to cl 1.3.1.1. The prescriptions in the Management Standards and Procedures were drafted in 2014, and the Greater Glider was not listed under the EPBC Act as a threatened species until 2016, and under the FFG Act until 2017. There was, the applicant contended, no deliberate or conscious decision by the executive not to provide for the protection of the Greater Glider and its habitat in the Central Highlands by way of prescription. Rather, it is the listing of the Greater Glider that has changed the circumstances since 2014, and brought it into the category of species for whom prescriptions are provided in the Management Standards and Procedures, all of which are listed threatened species.

707 I accept that submission. It is also consistent with a matter VicForests raised in its opening submissions: namely, that the introduction of the 2014 Code altered the previous situation where State Action Statements and Forest Management Plans could impose enforceable obligations on VicForests and other timber harvesters. Those instruments are now prescribed by reg 5 of the Subordinate Legislation Regulations *not* to be legislative instruments. As VicForests submitted:

> Since the Code came into effect, FMPs have had no regulatory force insofar as the conduct of timber harvesting operations is concerned, with the Code and its incorporated documents being the sole repository of mandatory instructions to VicForests and harvesting entities and operators.
>
> (Footnote omitted.)

708 What this means is that it is the Management Standards and Procedures which must be constantly updated to maintain consistency between the listing of threatened species and the enforceable obligations on those responsible for the harvesting of native forest which are designed to protect and conserve those species. If the executive has not kept up with developments – for whatever reason – more would need to be established before a Court could infer this was some kind of deliberate executive decision not to introduce protective measures, so as to require consideration of the possible operation of cl 1.3.1.1.

709 A further difficulty with VicForests' argument is that it does not answer the construction of cl 1.3.1.1 put by the Secretary and adopted by the applicant. The Secretary's argument, as I have outlined above, is that where there is a conflict between what the Management Standards

and Procedures *expressly* require, and the Code, then if a person in the position of VicForests carries out – by way of positive conduct – what the Management Standards and Procedures expressly require, cl 1.3.1.1 will have the effect of deeming that conduct to be compliant with the Code.

710 For those reasons, VicForests' arguments about cl 1.3.1.1 must be rejected, and the Court must consider the applicant's principal contentions about the operation of cl 2.2.2.2 and s 38.

The issues raised about s 38

711 A number of choices need to be made about the construction and operation of s 38(1). In the context of this proceeding, in my opinion the constructional choices are more about the operation of s 38(1), in light of the way the applicant has put its case, than they are about the actual meaning of s 38(1). Section 38(1) is capable of applying quite differently, in different factual circumstances, because of the wide definition of "RFA forestry operation" in s 38(2), by reference to the RFA Act and the various RFAs, and because of the variety of substitute regulatory regimes which may have been accredited under different RFAs.

712 For example, as I understood VicForests to accept, the applicant could have framed its case around the preparation and issuing of the Timber Release Plan as an RFA forestry operation, in the sense that this conduct fell within the definition in s 4 of the RFA Act and the CH RFA. As VicForests contended, and I have found, the applicant did not frame its case that way, but I use this as an example of why in my opinion the issues raised are not so much about the meaning of s 38(1) in some global or absolute sense, but rather about its operation in the context of the applicant's pleaded case.

713 The issues raised by the parties are as follows:

(a) What is the RFA forestry operation to which the applicant's pleaded allegations are to be applied?

(b) Is there a correlation between the concept of an "action" in the EPBC Act and a forestry operation, and how does this affect the applicant's pleaded allegations?

(c) When is the s 38 exemption lost, and what are the consequences of it being lost?

(d) Can non-compliance with cl 2.2.2.2 lead to the loss of the s 38 exemption?

What is the RFA forestry operation to which the applicant's pleaded allegations are to be applied?

714 The applicant's pleaded case, and its submissions, skirt around the question of what, precisely, is the forestry operation or forestry operations that is or are the focus of its allegations. VicForests is correct to identify this as problematic.

715 As stated above, the CH RFA defines forestry operations as follows:

> "Forestry Operations" means
>
> (a) the planting of trees; or
>
> (b) the managing of trees before they are harvested; or
>
> (c) the harvesting of Forest Products
>
> for commercial purposes and includes any related land clearing, land preparation and regeneration (including burning), and transport operations[.]

716 I have found, at [382] to [418] above, that in its use of the term forestry operation, the applicant's pleaded case refers to the activities which take place when VicForests (whether itself or through its contractors) is engaged in timber harvesting in and around coupes within the CH RFA region, or – to use the language in the CH RFA – the "the harvesting of Forest Products … for commercial purposes … includ[ing] any related land clearing, land preparation and regeneration (including burning), and transport operations". I have found that the applicant has not pleaded that the preparation and publication of the Timber Release Plan, and the decision-making about its content, is a forestry operation, despite a solitary plea in [8] of the third further amended statement of claim that the preparation and publication of the Timber Release Plan is an "action" for the purposes of the EPBC Act. I found this allegation is not carried through to any alleged contravention. I found that although the planning and preparation of the Timber Release Plan conduct may well be capable of falling within the second limb of the definition of forestry operation in the CH RFA, the point is that the applicant has not put its case in that way, and VicForests has answered the case as put.

717 I also found that the preparation and publication of the Timber Release Plan, and its content, may be relevant to the applicant's arguments as pleaded. As I explain in this section, that is because those activities are one of the ways in which VicForests must consider how the precautionary principle applies to the forest it is deciding to harvest, how the precautionary principle should guide its decision-making about the method of harvest, and what the area of harvest should be. These decisions are ultimately reflected in the actual forestry operation

which takes place, because those decisions inform in part what is done during the operation itself.

718 Accordingly, this section of my reasons proceeds on the basis that what has been pleaded, and what must be decided by the Court, is whether VicForests has complied with the Code in the conduct of its forestry operations in the impugned coupes – that is, the harvesting of forest products. I do not consider that, read in context, and taking account of the purpose served by the definition of forestry operation, and of its being picked up by the RFA Act and the EPBC Act, the phrase "harvesting of forest products" is to be given any narrow meaning.

719 The two other aspects of the CH RFA definition – "the planting of trees" and "the management of trees before they are harvested" – support the third limb of the definition being construed as including all aspects associated with the harvesting of forest products. The planting of trees will include all activities leading up to planting (including planning) as well as the actual planting. The "management of trees" concerns the intermediate stage between planting and harvesting and will cover such matters as management of forest for fire risks; thinning; management of any biological threats to the forest, such as the disease *Phytophthora*; and pest-plant- and pest-animal-control programs (see cl 59 of the CH RFA for this latter activity). It will also cover planning for all such matters.

720 The specific inclusions at the end of the definition (land clearing, land preparation and regeneration, transport operations) indicate that no isolated view of the conduct covered by each of the three limbs is to be taken. Together these three limbs of the definition cover what is described in cll 46 and 47 of the CH RFA as "Victoria's forest management system". Therefore, to take a pertinent example, the decision about what coupes to include in the Timber Release Plan and the identification of the method of harvesting are matters which in my opinion are properly seen as within the third limb "harvesting of forest products". That is because the whole purpose of the promulgation of the Timber Release Plan is to identify which parts of (relevantly here) the Central Highlands state forest are scheduled to be *harvested*, and comes after property in the trees has been allocated to VicForests for the purpose of timber harvesting. This approach is consistent with the text of the CH RFA definition, where the second limb is "management of trees before they are harvested". In my opinion "before they are harvested" is not to be read literally, as at any time before trees are cut down. That would mean "management" extends right up until the commencement of an actual logging operation in a coupe. That is not the division envisaged by this definition. Rather, as I have found,

"management" before harvesting is, in substance, about the growth phase of timber and of a forest. Extending "management" too far into "harvesting" would also make the extension in the final part of the definition (transport operations, burning etc) difficult to reconcile with the concept of management of trees before harvesting. Those matters fits comfortably within the concept of harvesting of forest products.

721 To recognise that the preparation and promulgation of the Timber Release Plan is included in the third limb of the definition of forestry operation is not to deviate from the finding the Court has made about the scope of the applicant's pleaded case: rather, it is to recognise, as VicForests has accepted, that this conduct falls within the concept of a forestry operation, and to explain why it fits where it does.

722 The assessment of whether the harvesting of forest products in the impugned coupes has not complied with the Code, as the applicant alleges, will be confined to how those allegations are made in the third further amended statement of claim.

723 The applicant's closing written submissions at [23]-[41] do not descend to any particularity about what are the "forestry operations" against which the alleged non-compliance with the Code is to be measured. Rather, at [20], the applicant maintains the following general allegation, which is also made in the third further amended statement of claim:

> The conduct that constitutes the past, present and proposed conduct that did and will constitute contraventions of ss 18(2) and 18(4) of the Act, and therefore ground the injunction under s 475, is "forestry operations" in the logged and scheduled coupes.

724 This section of the applicant's submissions does deal with some discrete issues which may contribute to the resolution of what are the particular forestry operations said to be non-compliant, but, with respect, even those submissions do not grapple with the central question.

725 The discrete issues are as follows:

(a) What is the significance of the use of the singular in s 38 ("an RFA forestry operation") and the use of the plural in the definition in s 4 of the RFA Act and in the CH RFA?

(b) Should the definition be approached at a coupe-by-coupe level?

(c) What are the consequences of the loss of the exemption – that is, what conduct does the loss of the exemption extend to?

726 These are all important issues, but only the second is capable of bearing on the fundamental question of what is the conduct of VicForests that the applicant is challenging by its allegations

that "[f]orestry operations in each[,] or alternatively some or all, of the Logged Glider Coupes" failed to comply with cl 2.2.2.2 of the Code (see [113A] of the third further amended statement of claim).

727 The applicant's reply submissions do not advance the matter very much. At [4], it contends:

> The Respondent's assertion that "forestry operations" has always been synonymous with "logging, i.e. the harvesting of trees" and that only the latter is relied upon for the s 18 analysis: VCS [22] and [493] is baseless. "Forestry operations" is a term derived from the legislation and regulatory instruments and has the meaning derived from those instruments. If forestry operations was synonymous with "logging" there would have been no need for the Applicant to amend to change "logging" to "forestry operations". Further, the third further amended statement of claim and Reply plead failure to comply with cl 2.2.2.2 in the scheduled coupes in the past, present and future tense, which necessarily agitates management not only harvesting, c.f VCS [606] (see Applicant's closing submissions (ACS) [37], third further amended statement of claim [113H]-[113I], Reply [2.5.7] and [2.5.6]).

728 The continued references to "management" and "not only harvesting" add to rather than detract from the confusion. As the applicant's own pleading states (at [6]) the point of the Timber Release Plan is to identify areas of forest planned for forestry operation, including the nett area to be logged, the method of logging ("silviculture system"), the period in which forestry operations are proposed in each coupe, and the operational status of each coupe (whether logging is completed, commenced or not yet commenced).

729 In other words, in my respectful opinion, the applicant's pleading gives the correct context to the use of the Timber Release Plan, although its submissions may not. As I have explained, the second limb of the definition of "forestry operation" in the CH RFA is not directed at conduct involved in the Timber Release Plan, but conduct anterior to that, when trees and the forest are being "managed" in their growth phase (and after the planting phase, if that has occurred), prior to any harvesting decisions.

730 In its closing written submissions at [22], VicForests submits the third further amended statement of claim essentially uses the term "forestry operation" as synonymous with "logging". That submission is repeated (although the language used there is "timber harvesting") in [8] of VicForests' reply. To a point, I accept that submission, although my acceptance needs to be qualified by what I say in the next paragraph. Although the applicant protests in reply that if that is the case, there would be no need for it to have amended the pleading to remove logging and substituted "forestry operation", there is no evidence at all about why that amendment was made, and there may be several explanations, including the wholesale change of the applicant's case following the Separate Question reasons. The

pleading read fairly discloses that the focus of the applicant's allegations is on what is done, in the forest, as part of timber harvesting.

731 I have accepted that what is done in the forest also reflects what has been *planned* to occur, or what is *required* to occur, in the Timber Release Plan, in the Management Standards and Procedures and the Code, and in coupe plans. All these planning steps are reflected (to varying extents) in what is done in the forest and are in my opinion within the applicant's pleaded case. But they are only within the applicant's pleaded case insofar as they inform what is done in the harvesting (and non-harvesting) of the forest and *not* as separate "forestry operations" in and of themselves.

732 The lack of precision in both parties' submissions, but especially those of the applicant, on this critical issue, has made the Court's task rather more challenging, but not impossible. As noted above, in *Wotton (No 5)* at [64], relying in part on the approach outlined by Allsop J (as his Honour then was) in *Baird* at [17], I observed:

> Although, especially in a large and wide-ranging proceeding such as this, it is important to hold a party to the party's "case" (including, as a cornerstone, the pleadings), in order to do justice between the parties, the Court must strive to ascertain, as Allsop J put it, what is "thrown up for debate and consideration" by the case as it has been framed. At times, the respondents' approach in final submissions was, in my opinion, too narrow and sought to have the Court quarantine and assess in isolation the applicants' factual allegations. In my opinion, the approach taken by the applicants in final submissions remained broadly consistent with their pleadings and properly grouped the conduct of QPS officers into four categories. Within each category there may be several "acts" for the purposes of s 9 of the RDA, but it is appropriate to deal with the applicants' allegations in a more holistic way than the respondents' submissions suggested.

733 Although the applicant did not return to its pleadings in final submissions to deal with some of the legitimate issues raised by VicForests, a return to the applicant's pleadings does illuminate what is "thrown up for debate and consideration" by the case as framed. That is rather more confined than the applicant's submissions, but that is where, as I have found, the applicant must be fairly held to the way it has pleaded its case. Not pedantically, or unduly narrowly, but fairly. Relevantly what is pleaded is as follows.

734 At [9], the conduct of forestry operations by VicForests in specified coupes, with the method of harvesting (or silvicultural method), is alleged. Mostly, the allegation is that the method used was clear-felling. This is the pleading about the Logged Coupes. It is apparent that the focus of the allegation – what is "thrown up" – is how VicForests conducted its timber harvesting

operations in the specified coupes, including implementing whatever plans had been made about the method of harvesting.

735 At [10], the conduct of proposed forestry operations by VicForests in specified coupes "by clear-fell or seed tree retention" is alleged. These are the Scheduled Coupes. Again, it is apparent that the focus of the allegation – what is "thrown up" – is how VicForests proposes to conduct its timber harvesting operations in the specified coupes, including implementing whatever plans have been made about the method of harvesting.

736 I return to the next relevant pleadings ([17], [17A], [31], [31A], [41], [41A], [72], [72A] and [105]-[105D], about significant impact on each of the Leadbeater's Possum and the Greater Glider) in a moment. The pleadings about s 38 commence at [108]. At [110]-[111] the applicant pleads:

> The forestry operations in the logged coupes were forestry operations for the purposes of the RFA Act.
>
> The proposed forestry operations in the scheduled coupes are forestry operations for the purposes of the RFA Act.

737 These can only be read as references to what was done, and is proposed to be done, in the forest, defined by the applicant by reference to the Logged Coupes and the Scheduled Coupes.

738 Next, relevantly, is [113A], which I have extracted at [399] above. For present purposes, what is material is how the applicant has particularised the non-compliance, because it informs how the statutory concept of forestry operation is alleged by the applicant to be applied to VicForests' conduct. Relevantly, the particulars to [113A] step through the applicable clauses of the CH RFA, then cl 2.2.2.2 of the Code and then allege (in substance):

(a) the absence of any Action Statement or Recovery Plan for the Greater Glider;

(b) the absence of any conservation measures or prescriptions in the Management Standards and Procedures for the Greater Glider in the CH RFA area; and

(c) the logging of each, some or all of the Logged Glider Coupes, individually or, alternatively, as a whole, posed and continues to pose a threat of serious or irreversible damage to the Greater Glider and there was and remains scientific uncertainty as to that threat.

739 Particular (f) of [113A] is important, because in my opinion it sets out what is fairly "thrown up", in terms of detail, by what are to this point the applicant's more general allegations:

VicForests has failed to take a precautionary approach to its timber harvesting operations in coupes in the Central Highlands RFA Area in which the Greater Glider is present because:

(i) VicForests has not conducted detection activities or surveys or adequate detection activities or surveys for the Greater Glider in all or any of the Logged Glider Coupes; or

(ii) VicForests has not specified any timber harvesting prescriptions to protect the Greater Glider consequent upon the detection or report of a detection of Greater Glider in all or any of the Logged Glider Coupes;

(iii) VicForests has failed to act on reports that the Greater Glider is present in all or any of the Logged Glider Coupes;

(iv) VicForests has not specified any timber harvesting prescriptions to protect the Greater Glider in all or any of the Logged Glider Coupes:

A. at all;

B. proportionate to the threat posed by timber harvesting operations.

(v) VicForests' "Interim Greater Glider Conservation Strategy" does not require in coupes in the Central Highlands RFA area:

A. detection activities or surveys for the Greater Glider;

B. the application of timber harvesting prescriptions for the Greater Glider:

1. at all;

2. upon detection of the presence of a Greater Glider; or

3. at all within Ash forest; or

4. proportionate to the threat posed by timber harvesting operations.

740 There is no real difficulty in understanding these allegations are the gravamen of the applicant's case under s 38: namely, that what VicForests has done and is proposing to do in the forest in the impugned coupes does not involve the application of the precautionary principle as set out in cl 2.2.2.2 and is therefore not in compliance with the Code.

741 The "forestry operations" identified by the applicant are the timber harvesting operations conducted or proposed to be conducted by VicForests in the impugned coupes, which have been or are proposed to be carried out in the context of planning and preparation about the silvicultural method to be used, the amount of forest to be harvested (or not harvested) in each coupe, and the prescriptions and conservation measures to be applied (or not applied).

742 Those allegations are indeed made by the applicant by reference to individual coupes, which are identified by name. VicForests is correct to characterise this as the way the case is put, but

again, only to a point. The applicant also clearly alleges that forestry operations in "any" or "each" or "some" or "all" of both the Logged Coupes and the Scheduled Coupes are not exempt under s 38, because of non-compliance with cl 2.2.2.2 of the Code. The third further amended statement of claim also makes allegations concerning s 18 in respect of "all" or "some" of the impugned coupes, as well as each of them: see [17], [17A], [31], [31A], [41], [41A], [72], [72A] and [105]-[105D].

743 Therefore, read fairly, the applicant's pleaded case picks up and relies on the statutory concept of a "forestry operation" at a coupe-by-coupe level, treating each timber harvesting operation (together with all its planning and preparatory phases) as a course of conduct. In large part, the applicant was compelled to plead its case this way because of the practice of VicForests of conducting its timber harvesting operations through the use of coupes as a method of grouping and logging the forest. The applicant's pleaded case then explicitly alleges that each, any, some or all of those separate forestry operations is, first, not exempt under s 38, and, second, has a significant impact on the Greater Glider and the Leadbeater's Possum.

744 VicForests submits that this leaves a challenging task to the Court in making findings about which coupes, or which combination of forestry operations in which combination of coupes, first, are exempt or not exempt, and second, are likely to have or not likely to have a significant impact on the Greater Glider or the Leadbeater's Possum. VicForests is correct: the applicant's pleading leaves that task to the Court, on the evidence. The applicant is not to be criticised for that. The complications arise, as I have noted, largely because of the employment of the traditional forestry method of dividing the forest into coupes. VicForests is not to be criticised for that either: dividing the forest into coupes is standard forestry practice.

745 While the exercise could have been immensely complicated and challenging, had the evidence varied tremendously between coupes, as I explain below, that is not the case.

746 Therefore, the approach I have taken, reflecting the applicant's pleading of "each, some or all", is to find that VicForests' "forestry operations" or – more accurately – "RFA forestry operations" are:

(a) its conduct at a coupe-by-coupe level;

(b) its conduct as part of a planned sequence or series of activities in geographically connected coupes;

(c) its conduct in a series of activities in the Logged Glider Coupes; and

(d) its conduct in a series of activities in the Scheduled Coupes.

747 In each case, this includes the planning necessary for such conduct to be undertaken.

748 For completeness, I note the miscellaneous breaches pose less difficulty in terms of understanding how the applicant's case is put, in relation to the use of the term "forestry operations", because many of the allegations are made in relation to a specific coupe. Thus, for each of the miscellaneous breaches it is clearer that the applicant uses "forestry operations" to mean the timber harvesting operations conducted by VicForests in the specific coupes, as carried out in the context of planning and preparation about the silvicultural method to be used, the amount of forest to be harvested (or not harvested) in each coupe, and the prescriptions and conservation measures to be applied (or not applied).

The use of the singular in s 38, and the use of the plural in s 4 of the RFA Act and the CH RFA

749 Section 38 operates on "an RFA forestry operation". Yet the defined phrase in the CH RFA is in fact "forestry operations".

750 Certainly, in the context of the CH RFA, when regard is had to the other places in the CH RFA where the phrase is used, the use of the plural is explicable. The CH RFA is speaking in more general terms than the EPBC Act. Further, I accept the submissions made orally by the applicant's counsel that the use of the plural in the CH RFA definition can be explained by the fact that the definition incorporates three different categories of activities or conduct, and not one.

751 The RFA Act does not define the term otherwise than by reference to the various RFAs. Just to continue the confusion, it does so in s 4 in the plural. However, what is of more importance for present purposes are the terms of s 6(4) of the RFA Act:

> Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* does not apply to an RFA forestry operation that is undertaken in accordance with an RFA.

752 This provision, as I explained in the Separate Question reasons, is the mirror provision of s 38. And it is also in the singular (despite s 4). Outside s 4 (which is of course a definition and a substantive provision), the plural "forestry operations" is not used in any substantive provision of the RFA Act, only in the heading and notes to s 6.

753 At [28] of its closing submissions, the applicant contends none of these grammatical differences matter:

> The Applicant contends that no particular significance should be given to the plural/singular use of RFA forestry operations. First, as a matter of language, the ultimate definition of forestry operation in the CH RFA is in the present participle which is not susceptible of a singular or plural meaning. Second, if a strict approach were applied, the Court would have to conclude that there was in fact no definition of "an RFA forestry operation" in the RFA Act, and that the term was undefined for the purposes of s 38. This would lead to an absurd result. In such circumstances, it is open to the Court to conclude that the singular/plural definition is a drafting error that the Court can correct: *DPP (Nauru) v Fowler* (1984) 154 CLR 627 at 629-630.

754 I do not accept this submission. In my opinion there is no drafting error in the use of the singular in the EPBC Act and in s 6(4) of the RFA Act. That choice, in my opinion, is quite deliberate. Therefore, and although the parties did not refer the Court to this provision, I do not consider the presumption in s 23(b) of the *Acts Interpretation Act 1901* (Cth) should be applied to s 38(1).

755 Section 38(2) provides:

> RFA forestry operation **has the same meaning as** in the *Regional Forest Agreements Act 2002*.
>
> (Emphasis added.)

756 Strictly, this is not simply a cross-reference to a defined term. The use of the phrase "has the same meaning as" is itself a definition.

757 While there may appear to be some minor inconsistency within the RFA Act itself, it is of no importance in the present circumstances. As I noted in the Separate Question reasons at [200], it is s 38(1), not s 6(4), which is the lead and operative provision for the purposes of the EPBC Act.

758 At least one purpose of using the singular is to equate an RFA forestry operation with the concept of an "action" in the EPBC Act. That term is also expressed in the singular, as is the exclusionary provision in s 524 (noting the plural is in the headings to both sections).

759 In both cases (a forestry operation and an action) the use of the singular says nothing about the size or complexity of the conduct involved. Rather, it is part of the necessary focus of the scheme of the EPBC Act on what it is that is said to have, or be likely to have, a significant impact on a matter of national environmental significance. The singular best compels an assessment which involves identifying the conduct with some specificity, and then assessing its impact.

760 This leads into the next issue between the parties: whether there is a correlation between "an RFA forestry operation" in s 38(1) and the concept of "an action" in s 18.

Is there a correlation between "action" and "forestry operations"?

761 At [59]-[60] of its closing submissions, VicForests contends:

> Two matters are apparent from the terms of s 38(1). *First*, that in respect of an area, there may be many separate forestry operations in relation to land, and therefore many separate "actions". *Secondly*, by the use of the singular "RFA forestry operation" the focus in s 38(1) of the EPBC Act is a particular forestry operation.
>
> In this case, forestry operations are the actions that the EPBC Act seeks to regulate so as to avoid a significant impact on a listed threatened species included in the critically endangered category (s 18(2)) or a listed threatened species included in the vulnerable category (s 18(4)). It is the taking of the action (that is, the actual conduct of a forestry operation) that must be undertaken "in accordance with" the RFA.
>
> (Footnote omitted.)

762 I accept those submissions, while noting the findings I have made at [719] above about the incorporation into the conduct of harvesting timber from a coupe the preparation and planning, and the imposition of prescriptions and conservation measures, which comes before the harvesting actually commences, and which continues alongside the harvesting itself, and into any regeneration burning or clearing afterwards. What I have tried to emphasise is that, on the applicant's pleading, the focus is on what is done in the forest, taking into account how that was planned and the preparations VicForests engaged in before undertaking the harvesting itself.

763 In contrast, the applicant contended:

> VicForests at [59]-[60] ff seeks to confine the term "action" by suggesting that a single "forestry operation" (which remains undefined as a matter of fact) will equate to an "action". However, that is not necessarily so. VicForests is effectively attempting to re-run the argument that failed in *Wielangta* [*Brown v Forestry Tasmania* [2006] FCA 1729; 157 FCR 1] at [63]-[65].
>
> A similar approach should be adopted here. The couping of the Central Highlands constitutes a "project" and/or an undertaking and/or a series of activities. That is not to say that a single forestry operation cannot be an action, it is just that an action is not necessarily confined to a single forestry operation (whatever that is). After all, s 38(1) specifically uses the term "forestry operation", not "action", unlike other provisions in Part 3, indicating a deliberate choice not to equate forestry operations with actions.

764 The reference to the *Weilangta* case is a reference to the finding of Marshall J at first instance. It appears that the main object of the applicant's submissions is what Marshall J said at [63]:

> On one view, the actual or likely impact of any proposed forestry operations outside coupes 17E and 19D is a different issue from whether forestry operations in the 11

> coupes planned provisionally for harvesting between 2008 and 2013 also constitute an action for the purposes of the EPBC Act. **However, it is artificial to seek to break down the forestry operations of Forestry Tasmania in Wielangta into a series of individual actions and thereby avoid scrutiny under the EPBC Act**. I accept the submission of counsel for the applicant that the relevant "action" for the purposes of this proceeding is Forestry Tasmania's forestry operations in Wielangta. Although there are varying degrees of certainty concerning the extent of forestry operations in individual coupes, there is evidence that harvesting operations are planned for Wielangta up to and including 2013.
>
> (Emphasis added.)

765 His Honour's observation was made on the facts and pleadings as they existed in the *Weilangta* proceeding. In the present proceeding, the applicant has explicitly chosen to identify the conduct of VicForests in each individually specified coupe as a forestry operation. It has then made an allegation that the forestry operation in each coupe is likely to have a significant impact in each of the species. In the alternative, or cumulatively, it has also alleged that forestry operations in some or all of the specific coupes are likely to have a significant impact. That is its case. VicForests is not attempting to avoid scrutiny under the EPBC Act by breaking down its forestry operations into a series of individual actions: the applicant's pleadings do that.

766 The applicant's reply is also contrary to its own pleading.

767 At [17] (repeated at [31]), the applicant pleads (with my emphasis in this and following paragraphs):

> Forestry operations **in each** of the logged coupes was an action.

768 At [17A] (repeated at [31A]) the applicant pleads:

> Forestry operations **in some or all** of the logged coupes was an action.

769 At [41] (repeated at [72]):

> Forestry operations **in each** of the scheduled coupes will be an action.

770 At [41A] (repeated at [72A]):

> Forestry operations **in some or all** of the scheduled coupes will be an action.

771 At [105A] the applicant pleads:

> Forestry operations **in some or all** of the Logged Leadbeater's Possum Coupes and Scheduled Leadbeater's Possum Coupes is an action.

772 At [105C] the applicant pleads:

> Forestry operations **in some or all** of the Logged Glider Coupes and scheduled coupes is an action.

773 As VicForests has submitted, this approach is consistent with my findings on the separate question. That is apparent from a number of passages in the Separate Question reasons. The applicant made no submissions that any aspect of the Separate Question reasons was wrong or that the Court should revisit its analysis.

774 At [132] of the Separate Question reasons (dealing with the applicant's then argument about the difference between the active and passive voices in s 38 and s 40) I said:

> That finding is subject to the importance, to which I return below, of the focus of s 38(1) on an RFA forestry operation. The use of the passive voice ("a RFA forestry operation that is undertaken") increases the emphasis of the section on the particular "action" for which the exemption is provided. The "action" is the undertaking of a forestry operation, and no wider than that. As I set out below, it is that action — that conduct — which must be "in accordance with" an RFA.

775 Also at [135]:

> For present purposes, I note that the use of the two alternative phrases "RFA forestry operations" (if the region is covered by a RFA) and "forestry operations (if it is not) confirms that the focus in this entire Division is on forestry operations as the "action" for the purposes of the EPBC Act and the definition of "action" in ss 523 to 524 of the EPBC Act.

776 And at [155]:

> That construction is consistent with the construction I prefer in relation to s 38(1). The actual conduct of forestry operations (being an action for the purposes of the EPBC Act) must be undertaken in accordance with the contents of the Central Highlands RFA – that is, in compliance with any restrictions, limits, prescriptions, contents of the Victorian Code of Practice for Timber Production – in order to secure the benefit of the exemption in cl 38(1).

777 And at [195(a)]:

> As I have found, although the provision uses the passive voice, it is clear that the phrase "RFA forestry operation that is undertaken" is intended to have the same meaning as those other EPBC Act provisions which state that "a person may take an action". The only difference is that s 38(1) is limited in its operation to actions which fall within the definition of forestry operations, rather than using the statutory phrase "action". The explanation for the different language, in my opinion, stems only from the fact that the current version of s 38(1) was introduced through a separate piece of legislation (the RFA Act), but no different meaning was intended.

778 And at [197]-[198]:

> I consider this to be one of the most important factors in the correct constructional choice. Textually, the link drawn by s 38(1) is between the conduct of forestry operations and the requirements of an RFA. That is to be expected, as I have set out earlier in these reasons, because the forestry operations are the "action" which the EPBC Act seeks to regulate, so as to avoid significant impact on any matter of national environmental significance. Although the subject matter of the RFA Act is only RFAs,

> the subject matter of the EPBC Act is quite different. As I noted above in discussing the objects of the EPBC Act, the sole focus of the Act is on environmental protection, biodiversity conservation and ecologically sustainable development in respect of matters of national environmental significance. The EPBC Act regulates the taking of actions (that term being defined in the broadest of ways) so as to advance those objects. As s 3(2) demonstrates, the scheme contemplates a variety of kinds of regulation, not only directly through the controlling provisions of the EPBC Act. Whatever the method of regulation, the objectives do not change.
>
> Once the focus is set on the taking of an action (the undertaking of forestry operations), then the meaning of the substantive limb of s 38(1) becomes clear — the taking of the action (that is, the actual conduct of the person or entity) must be "in accordance with" the RFA. The correlation to be found is between what the RFA requires by way of regulation of the taking of actions, and the conduct of the person or entity concerned. There is no additional correlation between what the RFA requires of the parties to it, or by way of policy or planning, and the taking of the action.

779 There are other references, but these suffice to indicate the centrality of the proposition that the undertaking of a forestry operation (using the language in s 38(1)) is to be equated, for the purposes of the scheme of the EPBC Act (and the RFA Act), with the taking of an action.

780 To reaffirm the findings made in the Separate Question reasons, and to reject the applicant's submissions on this point, does not inevitably lead to a rejection of the applicant's case as pleaded. Quite the contrary. However, it does lead to a rejection of some of the more expansive ways in which the applicant put its case in final submissions, as I explain below.

When is the s 38 exemption lost?

781 I put to one side those aspects of the applicant's submissions on these issues which stem from arguments about the Timber Release Plan and the "management of trees", which I have found were not part of its pleaded case. Paragraphs [32(a)] and [577(a)] of the applicant's closing submissions are examples.

782 As I understand the applicant's contentions, although they were not always easy to follow with precision throughout the documents and oral submissions, the applicant contends:

(a) If the Court finds VicForests has breached and will breach the Code in its forestry operations or proposed forestry operations in *any* of the coupes, the consequence is that VicForests loses the benefit of s 38(1) of the EPBC Act in respect of *that coupe*. This proposition is set out at [139] of the applicant's opening submissions, and is repeated in [32(b)] of the applicant's closing submissions.

(b) The exemption is lost (I infer, within a particular coupe) regardless of the nature of the Code breach. In the event of a breach of the Code, for whatever reason – for example,

a breach concerning destruction of Tree Geebung – the forestry operations are no longer exempt. This proposition is taken from [141] of the applicant's opening submissions, and is repeated in [34] of the applicant's closing submissions.

(c) Thus, if the Code breach relates to the Greater Glider, the s 38 exemption is lost for that coupe in relation also to the measures adopted in that coupe for the Leadbeater's Possum, and an assessment under s 18 for the Leadbeater's Possum must be carried out. This proposition is taken from [144] of the applicant's opening submissions.

(d) As for the miscellaneous breaches, as I understand the applicant's argument, it is that non-compliance with the Code – in any of the ways identified in the miscellaneous breaches allegations – will result in the loss of the s 38(1) exemption for that coupe as a whole. This proposition is taken from [575]-[577] of the applicant's closing submissions, setting [577(a)] to one side as I have ruled that forms no part of the applicant's pleaded case.

783 Further (and this appears only in the applicant's closing submissions), if the s 38 exemption is lost, then the applicant contends VicForests' conduct should no longer be evaluated through the prism of the concept of a "forestry operation", but through the prism of an "action", being the language of s 18. This proposition is taken from [580] of the applicant's closing submissions. It is developed in [582]-[589] of the applicant's closing submissions, and it will be necessary to return to those paragraphs when consideration is given to the s 18 issues.

784 In response, VicForests contends:

(a) In relation to the Scheduled Coupes, the only alleged breach said to arise in respect of the forestry operations is non-compliance with cl 2.2.2.2 of the Code in respect of the Greater Glider. Therefore, VicForests contends, any loss of the exemption contained in s 38(1) of the EPBC Act in respect of the Scheduled Coupes is limited to forestry operations insofar as they affect the Greater Glider, and questions of significant impact in respect of other values (such as Leadbeater's Possum) do not arise.

(b) In relation to the Logged Coupes, putting the miscellaneous breach allegations to one side, again, the only alleged non-compliance related to non-compliance with cl 2.2.2.2 of the Code is in respect of the Greater Glider. Therefore, and as with the Scheduled Coupes, any loss of the s 38(1) exemption is limited to forestry operations insofar as they affect the Greater Glider. Questions of significant impact in respect of other values (such as Leadbeater's Possum) do not arise.

(c) In relation to the miscellaneous breaches, although VicForests deals with the substance of its response to each of them in its closing submissions, it does not deal with the consequence of the loss of the s 38(1) exemption. However, I infer its answer would be the same as that given in respect of cl 2.2.2.2: namely, that the s 38(1) exemption is only lost for the "value" which is the subject of the breach. For example, if the Court found there had been harvesting or destruction of Tree Geebungs in Skerry's Reach coupe, contrary to cl 2.2.2.4 of the Code, the s 38(1) exemption would only be lost in relation to VicForests' forestry operations in Skerry's Reach insofar as that forestry operation removed Tree Geebungs which should not have been removed, and therefore no question of significant impact on either the Greater Glider or the Leadbeater's Possum would arise.

785 VicForests also makes a global submission, in respect of the Scheduled Coupes, that the applicant cannot identify with sufficient precision an RFA forestry operation in each of the Scheduled Coupes that will constitute a breach of cl 2.2.2.2 of the Code, and therefore not be undertaken in accordance with the CH RFA. I deal with this submission at [1118]-[1127] below.

786 It should also be noted that VicForests accepts (see [69] of its closing written submissions), properly, in my respectful opinion, that:

> There is no reason why the exemption in s 38 should have any temporal limitation. The exemption in s 38 may apply to a forestry operation to be undertaken in the future or to a forestry operation that has already been undertaken.

My findings: what are the consequences of a loss of the s 38 exemption?

787 I consider the applicant's approach on this matter is broadly correct. Section 38(1) operates on "an RFA forestry operation". As I have already explained, that phrase can – at a factual level – encompass a range of conduct. The applicant has pleaded its case, I have found, with a focus on what VicForests does in the forest when it is harvesting timber, including how its plans those harvests and the prescriptions and conservation measures it observes. Putting the miscellaneous breaches to one side for the moment, the applicant has pleaded that it is those activities which VicForests has undertaken without complying with cl 2.2.2.2 by applying the precautionary principle to the conservation of biodiversity values in the coupes it is logging.

788 It has made that allegation in relation to each Scheduled Coupe, and in relation to "some or all" of the Scheduled Coupes, and each, some or all of the Logged Glider Coupes (which is not all

of the Logged Coupes, but 17 of the 26 Logged Coupes). It has alleged that in each coupe VicForests has conducted an RFA forestry operation. That allegation covers all of VicForests' activities within that coupe before, during and after harvesting (including its planning for harvesting in that coupe and burning afterwards), as a single course of conduct and a single "RFA forestry operation" for the purposes of s 38(1). And, as I have also found, as an "action" for the purposes of s 18.

789 If the forestry operation, as pleaded, is not undertaken "in accordance with" the Code, then Pt 3 applies to that forestry operation as an "action". That is the effect of s 38(1). The exemption is lost for whatever, factually, is identified as the forestry operation. It is not the case that Pt 3 applies only to any particular "value": there is nothing in the text, context or purpose of s 38(1) to put a gloss of that kind on it.

Can non-compliance with cl 2.2.2.2 lead to the loss of the s 38 exemption?

790 One of VicForests' overarching submissions is that non-compliance with the precautionary principle cannot lead to the loss of the s 38(1) exemption. It contends that the obligation imposed on VicForests by the Code to apply the precautionary principle involves "matters of degree … and subjective judgment" which are "not sufficiently clear and capable of practical implementation" such that non-compliance could be intended to result in the loss of the s 38(1) exemption. It also submits that this requirement for clarity and certainty is all the more important because loss of the exemption could result in "potential criminal liability" under Pt 3.

791 At [138]-[139] of its closing written submissions, VicForests submits:

> On its own terms, the clause does not direct any particular outcome on any particular scenario (and nor should it because, as is explained in section C below, the precautionary principle requires a degree of cautiousness, and generally does not dictate action or inaction, or one form of action over another). In other words, there may be many ways to apply the precautionary principle.
>
> The precautionary principle is thus in a different category to those prescriptions capable of clear and objective practical application. It is not the sort of requirement that provides an actor, prior to taking an "action" in a given coupe with the clarity required so that the actor has sufficient certainty as to whether they are exposing themselves to potential criminal consequences under the EPBC Act.

792 In my opinion, VicForests erects a false distinction between the imposition by the Code of an obligation to apply the precautionary principle in VicForests' timber harvesting operations and other obligations imposed by the Code. Almost all of the obligations involve some aspects of degree and subjective judgment when they are actually applied to "real world" timber harvesting operations. That this is so is demonstrated by VicForests' submissions on the

miscellaneous breaches. Most of the miscellaneous breaches are obligations in the Code of the kind VicForests seeks to hold up as distinct from the precautionary principle: for example, the obligation to maintain a 20 m buffer around timber harvesting operations and new road alignments (cl 5.3.1.5 of the Management Standards and Procedures, read with cl 2.5.1.1 of the Code) or the obligation to have no more than a 150 m gap between retained vegetation (cl 4.1.4.4 of the Management Standards and Procedures, read with cl 2.5.1.1 of the Code). In relation to the miscellaneous breaches, VicForests' closing submissions go into considerable detail about the "proper construction" of each obligation, and the meaning of terms such as "retained vegetation" and what is or is not "retained vegetation" in any given coupe, and whether the 20 m buffer requirement relates to all timber harvesting operations or not. On VicForests' own arguments, there is little certainty about these other obligations, if by that VicForests means that a person about to conduct a forestry operation can know clearly when she or he will be in breach of the Code, and when she or he will not. All these matters have considerable complexity when applied to a concrete factual situation. The precautionary principle obligation in cl 2.2.2.2 is no different.

793 In making this argument, VicForests seeks to resurrect, in a slightly different guise, an unsuccessful submission made in *Brown Mountain*. It is recorded at [305] of Osborn J's reasons:

> Conversely, while VicForests accepts the prescriptions of an [action statement made under the FFC Act] are binding on it, VicForests expressly contends by its amended defence that neither the [East Gippsland Forest Management Plan], nor the precautionary approach, nor s 4(1) of the FFG Act create obligations actionable at law.

794 His Honour rejected that submission, stating at [314]:

> I do not accept that the precautionary principle is a matter which may not be the subject of an enforceable obligation. It is a matter to which regard must be had in the course of relevant decision-making. The circumstances in which it can be said that it will require a particular outcome are constrained by the considerations I have previously set out, but are also capable of demonstration in a particular case.

795 The content of the precautionary principle is no more a matter of "degree and subjective judgment" than the concept of significant impact in Pt 3. Both may have a qualitative or evaluative aspect, but making findings of that kind is a familiar task for a court, no different for example than deciding what is "reasonable care".

796 Further, as the applicant points out, VicForests appears to accept (see [141] of its closing submissions) that the non-compliance with the precautionary principle, like other Code breaches, is:

> susceptible to injunctive relief in the Supreme Court of Victoria, as was the case in *Brown Mountain*, and on an interim interlocutory basis, in *My Environment*.

797 That is the kind of relief in issue in this proceeding. This is not a criminal prosecution. In any event, for the reasons given, I would not be inclined to accept that a breach of cl 2.2.2.2 of the Code is, in all circumstances, inherently incapable of giving rise to a criminal offence, if s 38(1) does not apply and the elements of the offence in Pt 3 are otherwise met. However, that is not this case and no final conclusion need be reached.

798 VicForests also relied on the Separate Question reasons, at [41]-[51], in support of this argument. I do not accept that anything said in the Separate Question reasons supports this argument by VicForests. The passages quoted (and especially [49]-[50] and the references to the Full Court reasons in *Australian Building and Construction Commissioner v Powell* [2017] FCAFC 89; 251 FCR 470 at [15]) were directed at supporting the conclusions reached in the Separate Question reasons about the operation of s 38(1) and the correlation between a forestry operation and an action, and as part of the explanation given for rejecting the applicant's contentions on the Separate Question reasons that alleged breaches of clauses such as cl 36 of the CH RFA.

799 Returning to the observations of the Full Court in *Powell*, the approach which I have adopted in these reasons, the equating of a forestry operation with an action, and the restriction of the operation of s 38(1) to conduct that is compliant with the mandatory aspects of Victoria's forest management system, is, in my opinion, a construction of the scheme which is practical and capable of being implemented on a day-to-day basis in the conduct of forestry operations. As VicForests' arguments about the miscellaneous breaches demonstrate, any mandatory obligation in the Code can be the subject of "fine distinctions" (to adopt the language of *Powell*) which might undermine a common sense application of s 38(1) and the Code.

The precautionary principle: definitions and content

Clause 2.2.2.2 of the Code

800 The Code is a legislative instrument and the parties accept it should be interpreted in accordance with the usual principles of statutory construction. I proceed on that basis, although

as I explain I consider there is less complexity about cl 2.2.2.2 and the operation of the precautionary principle than the parties' submissions might suggest.

801 There are various expressions of the precautionary principle. The concept is given expression by different language in different sources. There is a statutory expression of it in the EPBC Act, in s 391(2), where it is identified as a mandatory consideration in the making of a range of decisions under the EPBC Act. There are, as the parties' submissions recognise, different statutory expressions in other statutory regimes, such as s 6(2) of the *Protection of the Environment Administration Act 1991* (NSW), being the provision in issue in Preston CJ's decision in *Telstra*. The precautionary principle also appears in s 5(4) of the Victorian SFT Act. The different ways in which the precautionary principle is expressed may reflect different emphases arising from the context in which the term is used. Whether or not in substance there is any difference may be a live question, but not one I need decide.

802 The present context is that the Code forms one of the key components of Victoria's forest-management system. That forest management system was accredited under the CH RFA as a substitute regulatory regime which would adequately protect and conserve matters of national environmental significance so that the protections enacted by Pt 3 of the EPBC Act would ordinarily not need to be engaged. I do not propose to accept VicForests' invitation in closing written submissions for the Court now to move away from the view expressed in the Separate Question reasons (eg at [197]) that the relevant parts of the EPBC Act have a "sole focus" on environmental protection, biodiversity conservation and ecologically sustainable development in respect of matters of national environmental significance, and that the EPBC Act regulates the taking of actions (that term being defined in the broadest of ways) so as to advance those objects. That remains my view.

803 Clause 2.2.2.2 has been set out in earlier in these reasons but for convenience I repeat it:

> The precautionary principle must be applied to the conservation of biodiversity values. The application of the precautionary principle will be consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on forest ecology and conservation values.

804 It is also convenient to repeat the definition of "biodiversity" in the Code:

> '**biodiversity**' means the natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats, and the ecosystems of which they are an integral part.

805 The comprehensive definition of "biodiversity" underlines why the role of cl 2.2.2.2 as a mandatory obligation travels far beyond ensuring that other specific prescriptions are applied during forestry operations. Rather, this is an overarching obligation, intended to require a "bigger picture" view to be taken by VicForests of how biodiversity values are to be considered in the conduct of forestry operations. In some circumstances, it will also operate to fill gaps left by more specific management prescriptions.

806 The Code explains what the application of the precautionary principle involves. It does so in a glossary, stating that the "terms used have the following definitions", although in substance and read with cl 2.2.2.2 what this text does is, as the applicant submitted, more akin to the description of a mandatory process:

> '**precautionary principle**' means when contemplating decisions that will affect the environment, careful evaluation of management options be undertaken to wherever practical avoid serious or irreversible damage to the environment; and to properly assess the risk-weighted consequences of various options. When dealing with threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

807 One the one hand, VicForests contends the Court should follow the approach taken by Osborn JA in *Brown Mountain* at [177]-[211] and *MyEnvironment* especially at [271] and [276]. VicForests relies on a number of authorities which have emphasised that the need to apply the precautionary principle, or to take a "precautionary approach", does not dictate how a person or entity must act, or how a decision must be made, or what eventual decision should be taken. The following extract from *Bridgetown/Greenbushes Friends of the Forest Inc v Executive Director of Conservation and Land Management* (1997) 18 WAR 102 at 118-119 is relied upon (and was cited by Osborn J in *Brown Mountain* at [186]):

> Adopting for the moment a very broad characterisation of the precautionary approach, a requirement that a decision maker "be cautious" says something about the way in which the decision must be made. There must be some research, or reference to available research, some consideration of risks, and a more pessimistic rather than optimistic view of the risks should be taken. However, such a requirement does not in any particular case specify precisely how much research must be carried out, or when a risk should be considered to be so negligible that it may safely be disregarded. Still less, does such an approach dictate what courses of action must be taken after the possibilities have been cautiously weighed.
>
> No doubt there are extremes at either end of a spectrum, where one would be able to say that a decision maker had or had not been "cautious". Where endangered species are concerned for example, one can see that where readily accessible and unambiguous research material pointed to a serious risk that numbers of the species would be dramatically reduced by a course of action, then the adopting of that course of action, in the absence of any evidence of consideration of alternatives, would seem to point inevitably to a finding that there had been no relevant "caution". At the other extreme,

> an absence of any action, other than research and study, is clearly cautious but is not the only option available in most cases. Although there has been very little judicial consideration of the precautionary approach or "precautionary principle" (a similar or perhaps identical concept which appears in a number of intergovernmental agreements) the clear thread which emerges from what consideration has been given to the approach is that it does dictate caution, but it does not dictate inaction, and it will not generally dictate one specific course of action to the exclusion of others.
>
> (Citations omitted.)

808 Relying on this passage, VicForests contends that:

> A reasonable balance must be struck between the stringency of the precautionary measures, which may have associated costs, such as financial, livelihood and opportunity costs, and the seriousness and irreversibility of the potential threat.
>
> (Footnote omitted.)

809 On the other hand, the applicant contends there was an error in Osborn J's approach, stemming from too ready an application of what had been said in *Telstra* at [128], without sufficient regard to the fact this approach came from a "different statutory scheme, with different text, in which those preconditions were part of the statutory text". Rather, the applicant contends that:

> the question to be answered is whether VicForests has, in relation to its past and proposed forestry operations, failed to:
>
> a. carefully evaluate management options to wherever practical avoid serious or irreversible damage to the Greater Glider; and
>
> b. properly assess the risk weighted consequences of various options in respect of the Glider.

810 This, the applicant contends, is a question of fact to be answered in relation to the Logged Glider Coupes and the Scheduled Coupes. VicForests accepts a question of fact is involved in whether proposed forestry operations pose a threat of serious or irreversible damage. However, VicForests emphasises the need for the hypothesised threat to be grounded in scientific evidence. VicForests also accepts a question of fact is involved in whether there is a "lack of full scientific certainty" about the hypothesised threat. VicForests submits the Court should take the same approach as Osborn J in *Brown Mountain* of asking whether there is "substantial uncertainty".

811 VicForests also makes a number of contentions about the context in which the precautionary principle appears in the Code, relying for example on a finding of Tate JA in the *MyEnvironment* appeal at [62]:

> s 5 of the [SFT] Act, in its statement of the principles of ecologically sustainable development designed to guide sustainable forestry management, makes plain that decision making processes should effectively integrate both long-term and short-term

> economic, environmental, social and equity considerations, as recognised by [Osborn JA in *MyEnvironment*].
>
> (Footnote omitted.)

812 Many of VicForests' submissions have this kind of emphasis – that is, on balancing considerations which may pull in different directions. It is encapsulated in [76] of its opening submissions:

> The management of State forests in the Central Highlands FMA generally, and particularly in respect of particular species of flora or fauna, is a matter of policy for the Executive branch of the State of Victoria. Moreover, it is a matter of policy to be put into effect, as best considered by the Executive, in the context of a framework operating at an intergovernmental level, and in the context of managing a dynamic forest resource with competing demands upon it.

813 So too, VicForests submits the Minister's decision in making a timber allocation order is said to reflect an executive judgment which includes the application of the principles of ecologically sustainable development (in the SFT Act, and therefore also involves the precautionary principle as set out in s 5(4)(b) of that Act), and the Court should not intrude into such areas of executive judgment.

814 I have explained earlier in these reasons why I do not find contentions of this kind by VicForests – about the need for the Court to leave matters to the executive – to be of any assistance in resolving the issues between the parties. Further, the various aspects of the reasons of the Victorian Court of Appeal in the *MyEnvironment* appeal upon which VicForests relied, especially in relation s 5(4) of the SFT Act, provide no real assistance in resolving the question in this case, which is about the circumstances in which it can be said, for the purposes of the EPBC Act and the s 38(1) exemption, that VicForests has failed to undertake an RFA forestry operation "in accordance with" the obligation imposed on it by cl 2.2.2.2 of the Code. The *MyEnvironment* appeal, especially in the passages to which VicForests referred the Court, was focused on s 5 of the SFT Act, which provides for a statutory description of the principle of ecologically sustainable development, its objectives and guiding principles. The observations of the Court of Appeal in the *MyEnvironment* appeal occurred in a different forensic and statutory context. They do not advance the resolution of the issues in the present proceeding.

815 The real debate between the parties about the operation of cl 2.2.2.2 was whether the approach taken by Osborn J to the operation of the precautionary principle in *Brown Mountain* could, and should, be adopted in this proceeding. The key passage appears at [188] of his Honour's reasons for judgment, which extract a passage from Preston CJ's reasons in *Telstra*:

> I respectfully accept the careful analysis of the precautionary principle by Preston CJ in *Telstra Corporation Limited v Hornsby Shire Council*. I accept his Honour's fundamental conclusion:
>
> > The application of the precautionary principle and the concomitant need to take precautionary measures is triggered by the satisfaction of two conditions precedent or thresholds: a threat of serious or irreversible environmental damage and scientific uncertainty as to the environmental damage. These conditions or thresholds are cumulative. Once both of these conditions or thresholds are satisfied, a precautionary measure may be taken to avert the anticipated threat of environmental damage, but it should be proportionate.
>
> (Footnotes omitted.)

816 Osborn J adopted the language of "conditions precedent" in his own analysis: see [194] and [199]. At [199], his Honour said (quoting *Telstra* at [150]-[151]):

> If the conditions precedent are satisfied, the burden of showing the threat of serious or irreversible environmental damage will not occur effectively shifts to VicForests to show that the threat does not exist or is negligible.
>
> > If each of the two conditions precedent or thresholds are satisfied — that is, there is a threat of serious or irreversible environmental damage and there is the requisite degree of scientific uncertainty — the precautionary principle will be activated. At this point, there is a shifting of an evidentiary burden of proof. A decision-maker must assume that the threat of serious or irreversible environmental damage is no longer uncertain but is a reality. The burden of showing that this threat does not in fact exist or is negligible effectively reverts to the proponent of the economic or other development plan, programme or project.
> >
> > The rationale for requiring this shift of the burden of proof is to ensure preventative anticipation; to act before scientific certainty of cause and effect is established. It may be too late, or too difficult and costly, to change a course of action once it is proven to be harmful. The preference is to prevent environmental damage, rather than remediate it. The benefit of the doubt is given to environmental protection when there is scientific uncertainty. To avoid environmental harm, it is better to err on the side of caution.
>
> (Footnotes omitted.)

817 It is unclear whether in this proceeding VicForests embraced the aspect of Osborn J's reasoning about the shifting of the burden of proof. The shifting of the burden of proof, as described by Preston CJ in *Telstra*, was an integral part of Osborn J's approach in *Brown Mountain* to the operation of the precautionary principle in the previous Code. VicForests' closing submissions did not proceed on the basis that, if (contrary to its primary contention) the two "preconditions" were met, it assumed the burden of proving that the threat(s) do not in fact exist or are negligible.

818 Whether or not that result should flow need not be decided, because in my opinion the argument which is now put on behalf of the applicant in this proceeding was not put to Osborn J, and his Honour's approach can be distinguished.

819 I accept the applicant's submissions that the statutory context is important, as is the particular textual expression of the precautionary principle, in its particular context. The context in which legislative provisions about the precautionary principle can appear can be quite different.

820 Section 391(1) of the EPBC Act, in effect, makes the precautionary principle a mandatory relevant consideration in the making of specified decisions under the EPBC Act, including a decision under s 75 whether or not an action is a controlled action. Section 391(2) provides a meaning for the precautionary principle:

> The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.

821 It is clear this is quite a different formulation to that in the Code, both in terms of text, and in terms of scope. It correlates (and then only generally) to only the second sentence in the "definition" in the Code.

822 *Telstra* concerned an appeal to the New South Wales Land and Environment Court from a decision about Telstra's development application relating to the installation of a mobile telephone base station and consequent alterations and additions to a building which housed the Cheltenham Recreational Club in New South Wales. The local council had refused Telstra's application. The central issue concerned the effect of the emission, by the proposed base station, of radiofrequency electromagnetic energy.

823 In resolving this issue, Preston CJ was concerned with the application of an Australian Standard (RPS3 on "Maximum Exposure Levels to Radiofrequency Fields 3kHz to 300GHz"). His Honour found (at [101]) that AS RPS3 "embraces a precautionary approach" and (at [103]) that Telstra had adopted a precautionary approach in its proposal. His Honour then found (at [107]) that:

> The issue of the effect of radiofrequency electromagnetic energy emitted from the proposed base station raise[d] the question of the ecological sustainability of the development, and in particular the applicability of the precautionary principle to the development.

824 Preston CJ then discussed a number of sources which dealt with the concept of ecologically sustainable development and at [113] turned to the precautionary principle. His Honour noted

at [113] that there were numerous formulations of the precautionary principle, but then stated that:

> the most widely employed formulation adopted in Australia is that stated in s 6(2)(a) of the *Protection of the Environment Administration Act*.

825 That is a piece of New South Wales legislation. It is unclear how his Honour determined this was the "most widely employed formulation". The provision Preston CJ then extracted was from a section in that legislation which set out the objectives of the Environment Protection Authority, which is established by that Act in New South Wales. The objectives are set out in s 6(1). What Preston CJ quoted from is in s 6(2), which forms part of the New South Wales Parliament's statement about how "ecologically sustainable development" can be achieved. Subsection (2) states:

> Ecologically sustainable development can be achieved through the implementation of the following principles and programs:
>
> (a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
>
> In the application of the precautionary principle, public and private decisions should be guided by:
>
> (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
>
> (ii) an assessment of the risk-weighted consequences of various options …

826 The context of *Telstra* could hardly be more different, including by reason that the description of the precautionary principle was set out in the context of describing how the New South Wales Parliament saw the objective "ecologically sustainable development" being achieved.

827 The applicant's submission is that Preston CJ was concerned with different text and an entirely different statutory scheme. Given the context just described, it appears that Preston CJ considered the precautionary principle at a much wider and more general level. So far as the reported decision in *Brown Mountain* discloses, no submission was made to Osborn J that he should not adopt what was said by Preston CJ because of the very different context in which Preston CJ was considering the precautionary principle, nor that he should take a different approach because of the textual differences. The reported decision does not disclose whether any arguments were put to Osborn J about other aspects of cl 2.2.2.2 and of the definition in the Code of the precautionary principle. As the applicant submitted, there is more to the text of

both cl 2.2.2.2 and the definition than the part on which VicForests' submissions were focused, by reference to *Brown Mountain*.

828 The applicant submits (at [55] and [58] of its closing submissions):

> The correct approach to the application of cl 2.2.2.2 is to apply that clause in its terms. The clause is engaged where a person or entity is considering "decisions" that will "affect the environment". Where the provision is engaged, the obligation is upon VicForests to:
>
> a. "carefully" evaluate management options;
>
> b. "properly" assess the risk weighted consequences of "various options";
>
> c. in a manner so as to "wherever" practicable avoid serious or irreversible damage to the environment.
>
> …
>
> The factual question for determination is whether, on the balance of probabilities, the Court is satisfied that VicForests, in identifying forests for harvesting and designating silvicultural methods for those coupes, carefully evaluated management options to wherever practical avoid serious or irreversible damage to the Greater Glider and properly assessed the risk-weighted consequences of those options.

829 The applicant also makes an alternative case, applying the approach taken by Osborn J in *Brown Mountain*, and contends that in any event there is sufficient scientific uncertainty on the evidence about how to manage the threats to the two species. Given the views I have reached it is not necessary to take this approach, but if it were, I would have accepted the applicant's submissions on this matter. It will be apparent from other parts of these reasons that I have found that forestry operations in the CH RFA region do pose a serious threat to the Greater Glider; and that I have found, based on Dr Smith's evidence, that there is still much that is not known about how the Greater Glider is able to cope with the impacts of forestry operations in and around its habitat.

830 One further issue that VicForests raises, if the precautionary principle is engaged, is that it does not require VicForests to conduct its forestry operations in a way which might provide for the recovery of the species from its threatened status.

Findings on the construction and operation of cl 2.2.2.2 as it applies to VicForests' RFA forestry operations

831 In broad terms, I accept the applicant's submissions about the correct approach to cl 2.2.2.2.

832 It is cl 2.2.2.2 which is the mandatory action for the purposes of the Code: the entirety of it. Similarly, what is incorporated into and inherent in that obligation is the whole of the definition

of the precautionary principle, not simply the second sentence, on which VicForests' submissions almost entirely focused. As far as it is apparent from the reported decision in *Brown Mountain*, Osborn J was not invited to approach cl 2.2.2.2 in this more holistic way.

833 At [790] to [799] above, I have rejected VicForests' argument that cl 2.2.2.2 of the Code concerns matters of degree and judgment in a way which renders it not susceptible to clear application in a given factual situation, and I have rejected the purported conclusion that non-compliance with cl 2.2.2.2 cannot result in the loss of the s 38(1) exemption. Clause 2.2.2.2 is a mandatory action under the Code. Section 46 of the SFT Act imposes a mandatory obligation on VicForests to comply with the Code. The substitute regulatory scheme, which was accredited by the CH RFA, could not be clearer about VicForests' legal obligation to apply the precautionary principle to the conservation of biodiversity values, including doing so in the conduct of its RFA forestry operations in native forest in Victoria, and, relevantly here, in the CH RFA region. Non-compliance with this obligation will result in the s 38(1) exemption not being applicable, and Pt 3 of the EPBC Act is likely to be engaged.

834 Any examination of cl 2.2.2.2 must be done in its proper context. I have explained the context of the Code earlier in these reasons and set out the definition the Code gives to "biodiversity": see [122]-[140]. Much of Dr Smith's and Professor Woinarski's evidence resonates with this definition: their emphasis on maintaining the Greater Glider and Leadbeater's Possum where they naturally occur, their emphasis on the importance of genetic diversity and their emphasis on seeing the threatened species and their habitat as part of broader ecosystem. Where cl 2.2.2.2 speaks of "biodiversity values", I understand this to include a reference to each of the species (flora or fauna) which form part of the biodiversity of any given environment. The "values" of biodiversity should be taken to mean the individual components which, together, make up the ecosystem which is to be protected and conserved.

835 This approach is generally consistent with the use of the word "value" in cl 2.2.2.4 of the Code; with Appendix 3, Table 13 of the Management Standards and Procedures; and with the use of the term "environmental values" in the RFA Scoping Agreement referred to in the CH RFA, which also refers under the heading "Biodiversity" to the identification of "elements" of biodiversity "at the species and ecosystem level". It is also consistent with the use of the term "forest value" in the JANIS report.

836 The two relevant Operational Goals for cl 2.2.2 of the Code are stated to be as follows:

> Timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and management.
>
> Harvested State forest is managed to ensure that the forest is regenerated and the biodiversity of the native forest is perpetuated.

837 The Code defines an "Operational Goal" as "the desired outcome or goal for each of the specific areas of timber harvesting operations, to meet the Code Principles". Two aspects of the first operational goal should be expressly noted:

(a) part of the desired outcome is that timber harvesting operations "specifically address biodiversity conservation risks"; and

(b) another part of the desired outcome is that timber harvesting operations "consider relevant scientific knowledge at all stages of planning and management".

838 Seven mandatory actions are stipulated to achieve this first operational goal. One is cl 2.2.2.2. A mandatory action is defined in the Code an action "to be conducted in order to achieve each operational goal". Clause 1.2.8 states:

> Timber harvesting managers, harvesting entities and operators **must** undertake **all relevant mandatory actions** to meet the objectives of the Code. Mandatory Actions are **focussed on practices or activities**. Failure to undertake a relevant Mandatory Action would result in non-compliance with this Code.
>
> (Emphasis added.)

839 There is nothing equivocal or optional about these provisions. They are not conditioned on VicForests' satisfaction, or any other person's satisfaction, that the mandatory actions are appropriate or justified. They are consistent with the obligatory language in s 46 of the SFT Act.

840 The applicant's submissions paid attention to cl 2.2.2.2 itself, but VicForests' did not. The first sentence of cl 2.2.2.2 of the Code provides:

> The precautionary principle **must be applied** to the conservation of biodiversity values.
>
> (Emphasis added.)

841 There is no equivocation in this statement. To comply with the Code, in its timber harvesting, VicForests must apply the precautionary principle to the conservation of biodiversity values. And *how* must it do so? It is clear, from the definition of the precautionary principle, that VicForests is to do so by:

> when contemplating decisions that will affect the environment, [engaging in] careful evaluation of management options be undertaken to wherever practical avoid serious or irreversible damage to the environment; and to properly assess the risk-weighted consequences of various options.

842 That is what VicForests is required to do, as the applicant submits. This obligation arises whenever VicForests is contemplating decisions in respect of its timber harvesting operations (and planning for them) that will "affect the environment". Relevantly to the issues in this proceeding, it is patently obvious from the Conservation Advice for the Greater Glider, and from the listing recommendation for the Greater Glider under the FFG Act (which I have extracted at [58]) that VicForests' timber harvesting operations in native forest such as that found in the CH RFA region, and in the impugned coupes, will "affect the environment", in that it will "affect" the Greater Glider and its habitat. Indeed, it is obvious from some of the expert evidence in this case that timber harvesting operations in native forest such as that in the impugned coupes affects may hollow-dwelling species other than the Greater Glider and the Leadbeater's Possum, some of which are also listed threatened species. The trigger point for the obligations then set out in the precautionary principle definition is readily met.

843 Therefore, as the applicant has contended, in its timber harvesting operations (and in planning for them) VicForests must:

(a) carefully evaluate its management options to wherever practical avoid serious or irreversible damage to the environment (here, relevantly, to the Greater Glider); and

(b) properly assess the risk-weighted consequences of various options.

844 This is the "precautionary approach" which the Code requires and with which VicForests must comply. This process (as the applicant describes it) must be undertaken, as cl 2.2.2.3 makes clear, with the advice of relevant experts and relevant research in conservation biology and flora and fauna management, because as the first operational goal states, the desired outcome is to consider relevant scientific knowledge at all stages of planning and management.

845 The second sentence of the definition of the precautionary principle, the one VicForests urged Osborn J to focus on in *Brown Mountain*, and the one it has entirely focused on in this case, is a secondary or consequential aspect of VicForests' obligations under cl 2.2.2.2. The second sentence applies when VicForests is engaging in the evaluation and assessment I have set out at [841]-[844]. It means that if the circumstances of VicForests' forestry operations mean it is "dealing", objectively, with circumstances where there are likely to be threats of serious environmental damage, or threats of irreversible environmental damage, then in undertaking

its evaluation and assessment of how (and if) those forestry operations should be conducted, VicForests cannot justify its lack of measures to prevent environmental degradation by relying on a lack of scientific certainty about what it needs to do.

846 Despite the amount of time spent in submissions on this matter, I consider it is a relevantly straightforward proposition that there are threats of serious damage to the Greater Glider. That is a form of "environmental damage" for the purposes of the precautionary principle in cl 2.2.2.2. I have described those threats, based on government documents at both Victorian and Commonwealth level, at [55]-[66] above.

847 The threats do not need to be only from forestry operations, although that is identified as one of the principal threats and its impact on the Greater Glider is rated as "high" (eg by DELWP in the Forest Protection Survey Program document which was in evidence). The definition does not require that. All threats to the species can be considered in deciding if, objectively, there are threats of "serious" damage to the species. For a listed threatened species, this is not a very difficult threshold to meet. In substance, it is inherent in the listing of a species that there are threats of serious damage to it: that is the purpose of the listing criteria. These matters should not be overcomplicated, or the point of the precautionary principle may be frustrated or lost.

848 This wider view of threats of damage is an important point to understand. It was overlooked in VicForests' submissions. In my opinion, this matter renders much of Dr Davey's opinions of marginal relevance because, as VicForests states at [367] of its closing submissions, Dr Davey's analysis was undertaken from the assumption that the relevant question was *whether forestry operations in the Logged Coupes* posed a serious or irreversible threat to the Greater Glider. The same is true of Dr Davey's analysis in respect of the Scheduled Coupes. While those questions (and his opinions) may be relevant to the s 18 issue, albeit with different language, in relation to compliance with the Code, Dr Davey was asked to answer a question which is not the question posed by cl 2.2.2.2. Rather cl 2.2.2.2 requires VicForests to take a precautionary approach when it is "dealing" with a situation where there are threats of serious or irreversible damage (here, to the Greater Glider), irrespective of the source of those threats. That, for example, is why, as Dr Smith and Professor Woinarski pointed out, it is so critically important for the planning and conduct of forestry operations to take account of the risk of wildfire and the threats it poses to the Greater Glider. That would be a precautionary approach.

849 In conducting timber harvesting operations (or RFA forestry operations) in native forest in (relevantly) the CH RFA region where the Greater Glider is present or likely to be present

(including the impugned coupes), VicForests is "dealing" with that threat of serious damage. The threat of damage to the Greater Glider is present, and VicForests must "deal" with it. It must "deal" with it in the manner I have set out in [841]-[844] above, and it cannot excuse inaction, or inadequate or insufficient action, by saying that there is a lack of scientific certainty (ie a lack of research, a lack of scientific evidence, insufficient data) to enable it to adopt effective measures. It cannot do nothing or procrastinate until it has better research or data. It cannot take half-hearted or minor measures because it doesn't have enough data to take stronger measures. These are the effects of the precautionary principle, as defined, on the obligation imposed by cl 2.2.2.2.

850 It is not therefore necessary to decide if there are, in the alternative, threats of "irreversible" damage to the Greater Glider for cl 2.2.2.2 to be engaged. To be clear, as with threats of "serious" damage, the threats of damage are not restricted to threats arising from timber harvesting. They may, for example, arise from the risk of wildfire and timber harvesting combined. However, if I had been required to decide it, Dr Smith's evidence would have persuaded me, on the balance of probabilities, that the Greater Glider as a species may be exposed to threats that cannot be reversed: see, for example, his opinion in his answer to Question 29 of his first report.

851 These findings are sufficient to address, if need be, observations such as those made by Griffiths J in *Australian Conservation Foundation Inc v Minister for the Environment* [2016] FCA 1042; 251 FCR 308 at [177]-[184] about the precautionary principle only being "enlivened" where there are threats of serious or irreversible environment damage, although this case (and the authorities cited by Griffiths J) dealt with challenges to Ministerial decision-making by reference to s 391(2) of the EPBC Act.

852 At [24] of its reply, the applicant submitted:

> All that said, cl 2.2.2.2 is not uncertain in what it requires (cf VCS [139]). To a large extent, what it requires is a process – the process of carefully evaluating and properly assessing management options to avoid serious or irreversible damage where practicable. If there is evidence of a good faith attempt to engage in that process, there will likely be compliance. The difficulty for VicForests is that there has been no good faith attempt to engage in that process. It therefore seeks to argue the Court that cl 2.2.2.2 should be given no operation. Questions about the margins of the operation of cl 2.2.2.2 do not arise (cf VCS [140]).
>
> (Original emphasis.)

853 Save for the attribution to VicForests of a lack of good faith, I accept this submission. Much of the "application" of the precautionary principle in harvesting of native forest which is home to threatened flora and fauna will indeed be about the process undertaken prior to and during timber harvesting. Conscientious and careful engagement in a process designed to be attentive to the protection and conservation of threatened fauna and flora is likely to comply with the obligation in cl 2.2.2.2. For reasons I explain below, that was not, I accept, a process of the kind adopted by VicForests in relation to the Logged Glider Coupes, and is not likely to be a process adopted in relation to the Scheduled Coupes.

854 Therefore, what now falls to be decided is:

(a) whether VicForests failed to comply with cl 2.2.2.2 in the Logged Glider Coupes; and/or

(b) whether VicForests is likely to fail to comply with cl 2.2.2.2 in the Scheduled Coupes.

855 Those matters are to be decided under the framework I have set out at [841]-[844] above, and on the basis that there are threats of serious damage to the Greater Glider.

856 In answering the question in [854(a)], the following matters need to be considered:

(a) On the evidence and to the point of trial, what have been the management options evaluated and used by VicForests in its timber harvesting operations (and planning for them) to wherever practical avoid serious damage to the Greater Glider?

(b) On the evidence and to the point of trial, what assessments of the risk-weighted consequences of various options have been undertaken by VicForests in its timber harvesting operations (and in planning for them)?

(c) To the point of trial, have those processes been applied to conserve the Greater Glider?

857 In answering the question in [854(b)], the following matters need to be considered:

(a) On the evidence, and in relation to the Scheduled Coupes, what are likely to be the management options which will be evaluated and used by VicForests in its timber harvesting operations (and planning for them), to wherever practical avoid serious damage to the Greater Glider?

(b) On the evidence, and in relation to the Scheduled Coupes, what are likely to be the assessments of the risk-weighted consequences of various options which will be

undertaken by VicForests in its timber harvesting operations (and in planning for them)?

(c) In relation to the Scheduled Coupes, are those processes likely to be applied to conserve the Greater Glider?

858 Although expressed differently from the applicant's closing submissions at [59], in substance the Court will consider the factual issues put forward by the applicant and answered by VicForests. Indeed, in parts of its closing submissions, VicForests couched its contentions in the language of a "careful evaluation of management options": see for example the heading at C.2.5 of its closing submissions. I am satisfied that even if the Court has described the issues somewhat differently, they are the issues in which the parties have engaged with evidence and submissions.

859 Before turning to my findings as to the Logged Glider Coupes and the Scheduled Coupes, it is appropriate to make some general findings which are relevant to both categories of coupes and compliance with cl 2.2.2.2.

What is certain and uncertain about the damage to the Greater Glider from forestry operations?

860 During his cross-examination, Dr Smith encapsulated some the principal certainties and uncertainties about what kinds of damage to the Greater Glider may occur because of timber harvesting in the impugned coupes. I understood his evidence to also address the certainties and uncertainties at a broader level: that is, as general certainties and uncertainties about the damage to the Greater Glider because of timber harvesting. In considering whether VicForests has applied the precautionary principle to the conservation of the Greater Glider in planning and executing its forestry operations in the impugned coupes, it is not necessary for the description of the certainties and uncertainties to be expressed at the particular level of the impugned coupes. The obligation in cl 2.2.2.2 operates across VicForests' forestry operations in (relevantly) the CH RFA region, and the evidence is that what VicForests did in the impugned coupes, or proposes to do in relation to the Greater Glider, is not substantially different to what it did, or proposes to do, across other areas of the CH RFA region:

> It's the case – isn't it – that in approaching the task of assessing either the threat of harvesting or the impact of harvesting you are faced with a number of uncertainties?---Yes.
>
> And as a result of that you're not able to be more specific in giving the opinions you have?---I could be a little bit more specific in terms of numbers or percentages on

> individual coupes, if you took them to me. But I – the area in which I'm least confident is the capacity of the greater-glider population to re-invade a logged coupe at some point in the future.
>
> Yes?---I'm certain that there is an immediate short-term loss of gliders, and in the majority of coupes I'm sure that this loss will be permanent, because the number of habitat trees retained is not sufficient to maintain even an average density of gliders, but in the areas where habitat trees are retained – I still can't be certain that gliders will get back to that space to recolonise it in 40 or 50 years' time, when the trees have regrown, unless I know more about where the greater gliders are residing close to that coupe to allow them to get back to that space. That is – the area of uncertainty is in recovery. The area of uncertainty is not in assessing the immediate short-term impact, which is a – quite a major loss.

861 He emphasised this issue about recolonisation a little later:

> Why would you not accept that in considering the application of the precautionary principle in this case you must have regard to the conservation reserves and the SPZ areas which have been established in Victoria as part of the RFA process?---I believe I have taken that into account, and my point is that I can't be certain that there will be re-colonisation of coupes that I've inspected, unless I know that they are connected by a corridor to these larger green areas and that the area – the connecting corridors and the green areas or the large pink areas that they connect to have gliders in them, and I don't have that data.

862 As I understood Dr Smith's evidence, it was not just that he did not have the data personally, but that it was not available.

863 And again a little later:

> And you would accept that the impact of logging then in relation to the greater glider would be minimal in respect of Bromance?---No, I – I don't agree with that. It comes back to the problem of the capacity of greater gliders to reinvade that site in 40 or 50 years time, so it comes back to the issue of are the corridors leading into that habitat sufficient to return Greater Gliders to the site in 40 years time when the forest regenerates. My position is that there is a short term impact. The long term impact is uncertain. And on a precautionary basis, in the absence of information on the adequacy of a corridor leading into it, and 100 hectare reserves – or 100 – 250 hectare reserves within three kilometres connected by corridors to that coupe to facilitate recolonization, that it would be a precautionary – precautionary and reasonable to assume that there is a risk of a long term impact as well as a certainty of a short term impact.

864 This is consistent with a passage in Tyndale-Biscoe's *Life of Marsupials* headed "Response of greater gliders to habitat loss":

> Populations of greater gliders are able to recover from predation and natural calamities such as forest fires, but how do they respond to the more profound changes brought about by logging and clear felling for pine plantations? In the Buccleuch State Forest, near Tumut, NSW, we were able to determine how they responded to the loss of their habitat by following the subsequent fate of animals marked when their home trees were pushed over (Tyndale-Biscoe and Smith 1969b). During the five years of the study 1105 greater gliders were handled but only 40 were harmed at tree fall, because most

> glide free as the tree goes over. However, less than one-quarter of those released were ever seen again, most during the next eight days. By then they had lost weight and, if female, had lost their pouch young. In the subsequent year only 6% of the gliders that had been marked in the previous year were recaptured, predominantly in the *Eucalyptus* forest adjacent to the area felled the previous year. While almost all gliders survived tree fall very few survived the next week, unless their home range extended into the forest that was not felled.
>
> It was not clear whether they could not survive because they were killed by predators – powerful owls, quolls, foxes or wedge-tailed eagles, *Aquila audax* – or had moved into adjacent forest and been unable to find empty refuges there. When an adjacent block of forest was depleted of gliders before felling began, so that there would be unoccupied sites for displaced gliders to move into, the number of them later recovered from this block was no greater. So it is not a lack of unoccupied den sites that prevents the gliders surviving but rather that they are unable to move to and occupy strange habitat. Because greater gliders are living so close to the limit of their resources the total disruption of their habitat, especially loss of den trees and their prime food source, would very quickly put them into negative protein and energy balance. With little or no fat reserves they would be physiologically unable to survive for more than one week and would not have the energy to travel long distances to other food trees.
>
> Kavanagh and Wheeler (2001) tested this by fixing radio transmitters to nine greater gliders and tracking them for 11 months in two areas of forest, one of which was logged half way through the study. Each glider used up to three den sites and the average home range was 1.8 ha for males and 1 ha for females. In the logged area the home ranges of the greater gliders were reduced to the unaffected parts of their former home ranges and the remaining den sites: none moved into other unlogged forest. While the greater glider has physiological limits to leaving destroyed habitat, common ringtail possums and bobucks also show strong site attachment and will not move to unfamiliar habitat when their own habitat is destroyed.

865 I accept Dr Smith's evidence on these matters. I accept that adaptive management and a precautionary approach would assume there might be a likely long-term impact on, and long-term damage to, the Greater Glider from forestry operations in this Central Highland unless and until there is more certainty about the existence of adequate corridors connecting the logged forest to areas of 100-250 ha reserves within 3 km. I accept what is implicit in his evidence that a careful evaluation of management options would give rise to consideration that coupes such as the impugned coupes should not be logged until the existence and adequacy of connecting corridors to adequately sized reserves was more certain, because otherwise the Greater Glider could not and would not recolonise the logged areas in 40-50 years, and would be cut off in small, isolated populations, if indeed sustainable numbers of individuals survived the "certain" short-term damage from the forestry operations.

The role of the Interim Greater Glider Strategy

866 It is possible, and VicForests submits, that one of the clear illustrations of VicForests carefully evaluating management options to avoid, wherever practical, serious or irreversible damage to

the Greater Glider in the conduct of its forestry operations is the preparation of the Interim Greater Glider Strategy.

867 I note that the terms of cl 2.2.2.2 are "*wherever* practical" not "*where* practical": the difference is subtle but important. The latter might leave a great deal more to the judgment and discretion of VicForests, whereas the former shifts the presumption towards avoidance of serious or irreversible damage to the Greater Glider, *unless* it is not practical to do so. That is consistent with the concepts underlying the precautionary principle.

Development of the Interim Greater Glider Strategy

868 Mr McBride gave evidence about how the Interim Greater Glider Strategy came about, and I accept his evidence on this matter. He deposed it was adopted from around 30 November 2017 by VicForests. Mr McBride describes how he had been working on the development of the Interim Greater Glider Strategy since around December 2016 when he became aware the status of the Greater Glider was an "emerging issue". He started doing some research on secondary sources about the Greater Glider and discussed the issues with Mr Lachlan Spencer, who was then the General Manager, Stakeholders and Planning at VicForests and to whom Mr McBride deposed he was "effectively reporting through Nora Devoe". DELWP provided VicForests with the Greater Glider High Quality Habitat Class 1 layer mapping tool or "predictive model" to use Mr McBride's description, which I have discussed earlier in these reasons.

869 Mr McBride describes how he developed a framework that was to form the basis of the Interim Greater Glider Strategy, based on:

> habitat elements in coupes that were to be retained under any interim conservation strategy for Greater Glider, being large trees with hollows and adjacent younger trees for food source.

870 Mr McBride then set out in his affidavit what he described as the "operative provisions" of the Interim Greater Glider Strategy, and which should be reproduced:

> **5.2 Existing Hollow-Bearing Tree Protection**
>
> Living, large, hollow-bearing trees have been identified as a critical resource for the Greater Glider. An Action Statement relating specifically to the Loss [sic] of hollow-bearing trees from Victorian native forests and woodlands was produced in 2003. As noted in that Action Statement, the Code of Forest Practice requires VicForests to address the protection and recruitment of old trees. All ash trees estimated to be pre-1900 are protected. Each Forest Management Area (FMA) has a requirement for habitat tree retention and hollow-bearing tree protection within harvesting operations.
>
> **5.3 Additional Interim Coupe-Level Conservation Measures**

> High-quality Greater Glider habitat has been defined as areas of mixed-species forest where at least 15 living, large, hollow-bearing trees per 3 ha are located. Scientific literature reports the home range of the Greater Glider at 1-2 ha (Henry 1984, Kehl and Borsboom 1984); 3 ha has been agreed as a conservative patch size for success of isolated greater glider populations. The density of living, large hollow-bearing trees corresponds to most habitat-tree protection provisions in the Code of Forest Practice (4-5 trees per ha).
>
> For the purposes of this prescription, **Live Large Hollow-Bearing Trees** are to be:
>
> - living eucalypts of any species;
> - at least 150 cm DBH; and
> - contain 1 or more hollows of at least 15 cm entrance.
>
> Coupes that contain areas identified in the Greater Glider High Quality Habitat Class 1 layer will be assessed to determine if High Quality Glider Habitat occurs within the coupe. This assessment is to be made by visual inspection of the inside-coupe area within 75 m of the coupe boundary. If five live trees meeting the [criteria] for living, large, hollow-bearing trees can be seen within approximately 50 m of the viewer in any direction, it is likely that the density of living, large, hollow-bearing trees meets the threshold for High Quality Greater Glider Habitat. In this case, living, large, hollow-bearing trees additional to Code requirements may be retained for the purpose of providing additional denning sights for Greater Glider.
>
> In High Quality Greater Glider Habitat, VicForests will endeavour to retain within coupes additional live, large, hollow-bearing trees that occur within 75 m of retained habitat. Retained habitat is defined here as any intact forest unlikely to be harvested within the next 20 years, including stream buffers, coupe buffers, and any permanently reserved areas[.] The "within 75 m" provision is to provide habitat connectivity needed for the Glider to make optimal use of the live, large, hollow-bearing trees. Trees other than the additional retained live, large, hollow-bearing trees may be harvested as per normal. No additional habitat tree retention is required beyond 75 m from retained habitat. Additional retained live, large, hollow-bearing trees are to be protected through all forest management activities including regeneration burning.

871 Mr McBride deposed that the high quality habitat layer had been incorporated into VicForests' Cengea mapping system. He then described how the maps were used in coupe planning:

> Flora and fauna context maps are maps produced by VicForests in the course of and for the purpose of conducting its business. The maps are generally placed on the Coupe File for a particular coupe. The maps are mostly the output of a desktop assessment using different spatial layers of data. As can be seen on the map that is annexure "TCM-6" the map depicts Tree Geebung and the presence of two 200 m radius timber harvesting exclusion zones centered on verified detections of Leadbeater's possum colonies in Skerry's Reach coupe 9.36 as well as a research coupe, stream buffers, growth plots and the Yarra Ranges National Park in areas adjacent to the coupe.
>
> The blue cells on the map that is annexure "TCM-6" depict the 75 m blocks or cells of modelled High Quality Layer. As can be seen, one half of a square is modelled in Skerry's Reach coupe 9.36.
>
> During coupe marking, the context map and GPS coordinates are used to physically mark out the features or values of the coupe that are to be retained, excluded or protected from timber harvesting operations. The blue cells (that is, the modeled High

> Quality Layer indicating that high quality habitat suitable for Greater Glider may be present) tell the forester to look for Greater Glider habitat (that may or may not be present) and, where it is possible to do so, endeavour to retain additional large, live hollow-bearing trees.
>
> Where there are additional large, live hollow-bearing trees occurring outside the blue cells, foresters can retain such trees where it is possible and safe to do so. This practice is not recorded in any formal policy or procedure document, but forms part of the forester's operational discretion when working on the coupe.

872 He described how he had been involved in training other VicForests staff:

> I have trained both conservation staff and operational and planning staff at VicForests regarding the identification and retention of habitat for Greater Glider, including before and after the implementation of the Interim Strategy.
>
> At the end of September 2018, I spent a day in each of Noojee and Alexandra (where VicForests has regional offices) in the field walking coupes with biodiversity and conservation and planning and operational staff and undertaking practical exercises involving the identification of habitat trees and hollow-bearing trees and their retention. Staff in these offices work in coupes that are in the Central Highlands RFA Area.
>
> The biodiversity and conservation staff I have trained in turn spend time in coupes with operational staff identifying, amongst other biodiversity values, habitat trees and hollow-bearing trees, including Greater Glider Habitat, for retention.

873 Mr McBride then deposed to how he also answered questions from foresters working in the coupes, and annexed an email chain of one such example. It is worth reproducing this email chain, to demonstrate what Mr McBride's evidence establishes, and what it does not.

874 The initial inquiry was on 25 May 2017, and in the subject line said "Active logging operations - Baw Baw (South Face)_Various Locations - Greater Glider Detections". It was from Mr Lincoln, who is a witness in this proceeding for the applicant:

> Please find attached a report prepared by Fauna and Flora Research Collective (FFRC) of the Central Highlands (WOTCH) detailing the presence of Greater Gliders adjacent VicForests logging coupes 483-503-0008, 483-504-0015 and 483-505-0002.
>
> Please attend to the details of the attached report as a matter of urgency as logging operations are currently ongoing in coupes.
>
> Thank you. I look forward to your response including confirmation VicForests will refrain from logging each of these coupes.

875 This was passed on the same day to a number of VicForests staff, including Mr Paul. One VicForests staff member then sent it to Mr McBride:

> Hi Tim,
>
> Please see the below report outlining the alleged presence of 7 Greater Gliders in West Gippsland coupes.

> I realise there are no regulatory management requirements for this species in this area however was keen just to run it by yourself to see if we would implement any actions regarding the detections?

876 Mr McBride's reply was:

> Thanks. I did review It. Greater Gliders have very small home ranges - 1 - 2 ha on average. Prohibiting logging from all areas adjacent to glider observations does not tell us anything more than "logging has stopped".
>
> While the critical habitat element for gliders is hollows in trees, these hollows have to be fairly large as this animal is large. I recommend retaining the largest diameter hollow bearing trees near to the locations where gliders have been observed. Younger trees adjacent to these HBT should also be retained for food source for gliders as they are exclusively leaf eaters.

877 Mr McBride's reply was then sent on to two further VicForests staff, with the following message:

> Hi Trev and Wayne,
>
> Please see Tim's recommendations highlighted below regarding the Greater Glider detections received earlier today.
>
> If you see any issues with being able to implement Tim's recommendations at all 3 currently active coupes please let me know as soon as possible.
>
> Coupes are 483-504-0015 Lazarev, 483-505-0002 Rowels and 483-503-0008 Poke. The coupe 483-504-0001 Lure is not currently scheduled.
>
> Can you please confirm if we are able to implement Tim's recommendations.

878 The email chain stops at this point. There is no evidence what happened to Mr McBride's recommendations or whether they were, in fact, implemented, nor how they were implemented, nor whether they were implemented in time to be effective or whether logging operations were completed. This evidence establishes very little. It stops at the very point of relevance. The fact that VicForests adduces such a chain without adducing evidence of the result is a specific example of its approach in this proceeding, to which I refer at various points in these reasons: a focus on policy and documenting and not on what actually happens in the forest to proposed or planned measures. Mr McBride agreed during cross-examination that VicForests does not keep records of whether any additional hollow-bearing tree has been retained in a particular instance, although he added that "things are changing". Evidence at that level of vagueness is not probative of anything.

879 Indeed, making the point that his last comment might have been no more than optimism, Mr McBride agreed it was possible (as at the date of his evidence on 13 June 2019) that "no

additional trees have been retained on account of the greater glider since November 2017" on the basis of the Interim Greater Glider Strategy.

880 Mr McBride added that:

> any interim conservation measure adopted by VicForests pending development of the Action Statement for the Greater Glider must necessarily by flexible and adaptive to respond to the natural vagaries and variabilities of the forest estate, operational considerations and realities on the ground.

881 Mr McBride then explained why, although the Interim Greater Glider Strategy was due for review in May 2018, that review did not occur – essentially because VicForests thought an Action Statement for the Greater Glider would be released in mid-2018 (which it was not) and also because VicForests was:

> undertaking significant work looking at ways it [could] better preserve hollow-bearing trees across its entire operations (i.e. not just limited to the Central Highlands RFA Area).

882 It was unclear whether this "significant work" was related to FSC accreditation or not. The Court was not directed to any further evidence about any "significant work" VicForests was undertaking specifically about preserving hollow-bearing trees.

Mr Paul's evidence in cross-examination

883 Mr Paul was cross-examined about what the Interim Greater Glider Strategy meant, on the ground, and how it might affect the management options considered by VicForests. This was his evidence:

> So does that mean that if there's habitat, that is suitable habitat for the Greater Glider, that VicForests would accept that that means that there's the potential for serious or irreversible damage, and therefore management options might need to be modified?---We've accepted some modification is required in this – this strategy.
>
> Yes, but is it triggered by – is the acceptance of a need to consider management options triggered by the fact of habitat assessed to be suitable?---By habitat assessed according to the class 1 habitat layer, if it is there present in the coupe.
>
> Okay. So would it also be triggered in VicForests' assessment by the physical location, or spotting, if you like, of the Greater Glider?---We haven't got that in a procedure, but we do, when we find them, certainly in high numbers, seek to protect additional trees in those – in those areas.
>
> So should her Honour understand, then, from that answer that if there's either habitat listed as class 1 or if there's within a coupe, I think you said, large numbers or something similar to that of Greater Gliders - - -?---We find a reasonably high concentration.
>
> Okay, but in those circumstances VicForests would accept that there's then a need for careful evaluation of management options?---We accept, and do, make changes and

> modify how we harvest that coupe by **retaining additional habitat trees**.
>
> (Emphasis added.)

884 Mr Paul's evidence was if Class 1 Habitat was mapped in a coupe, or a "high concentration" of Greater Glider was actually found to be present, VicForests *may* retain additional habitat trees. His evidence did not go beyond this. It did not, although he was expressly invited to, indicate that VicForests would reconsider its management options for timber harvesting in those coupes. Rather, it *may* retain some extra habitat trees, that is all. This suggests an approach of looking to what the most minimalistic reaction might be, and the one which interferes least with timber harvesting. Further, as Dr Smith's evidence clearly shows, retention of habitat trees in a way which might be effective is poorly executed in coupes by VicForests and its contractors. As the applicant submits and I have found, the Class 1 Habitat model is inadequate and therefore identifying where to retain additional habitat trees may be ineffective. Dr Davey had accepted this in his second report. Yet Mr Paul pressed on and suggested VicForests would rely on it.

885 Another piece of evidence indicated just how resistant VicForests was to changing its "on the ground" approach in the face of clear evidence that the Greater Glider was using and occupying the native forest it wished to harvest. A letter which is undated, on VicForests letterhead, and addressed to an officer within DELWP deals with the Interim Greater Glider Strategy, and a trial in East Gippsland of some modified harvesting measures. This letter refers in the past tense to a meeting held on 26 July 2017, so it was clearly written after that date. In the letter, VicForests proposed that it would:

> implement a retention of not less than 40% of the pre-harvest basal area timber volume measured within harvest coupes, in areas where Greater glider densities are observed to be greater than 3 gliders per kilometre in the East Gippsland management region … Harvest treatments will vary, according to the research design, from standard harvest procedures of seed tree retention, modified retention levels (not less than 40%), and unharvested control areas. This strategy also incorporates modified regeneration treatments that include various fire intensity levels.

886 The letter stated that the response of the Greater Glider to different harvesting intensity would be monitored. However, the letter goes on:

> A critical component of this strategy is based on the certainty that areas identified for harvest **will remain available to harvest throughout the research timeline, and that all harvest and regeneration treatments will be unconstrained by glider observations. It is imperative that the department recognise this aspect** of the research and conservation strategy and provide certainty that opportunistic glider observations will be appreciated but not influence research design and implementation.

(Emphasis added.)

887 What VicForests is saying to DELWP is – do not let the research interfere with our timber harvesting, as plain as that. This is in respect of an EPBC Act listed threatened species, which has no Action Statement and no Recovery Plan and therefore no clearly formed, scientifically based strategy for its protection and conservation. And VicForests is saying to those responsible for the research that they can do some monitoring, so long as VicForests can keep harvesting.

The application of the Interim Greater Glider Strategy and VicForests' submissions about it

888 VicForests' closing submissions do not deal with the Interim Greater Glider Strategy in any detail. At [331], VicForests notes Dr Davey's endorsement of Victoria's "systems and processes for conservation and management of biodiversity and ecologically sustainable forest management with the draft Greater Glider Action Statement and Interim Strategy providing guidance and enhancing those systems and processes". Table A – the table setting out VicForests' factual contentions about each Logged Coupe (including the Logged Glider Coupes) – refers to one coupe where it is contended the Interim Greater Glider Strategy was applied: Skerry's Reach. In reply, the Interim Greater Glider Strategy is mainly referred to in the context of responding to the apprehended argument that the drafting of the Interim Greater Glider Strategy could be an RFA forestry operation for the purpose of s 38.

889 In the table attached to the reply, VicForests contends that "many" of the Logged Coupes were harvested before the Interim Greater Glider Strategy was formally adopted by VicForests. Unfortunately, VicForests' "Table A" of all the Logged Coupes, including the Logged Glider Coupes, contains no summary of the evidence about the dates harvesting commenced and was completed. However, the applicant's "Table A" does. Using the applicant's table, it is clear and I find that harvesting in a number of the Logged Glider Coupes was completed before the publication of the Interim Greater Glider Strategy on 30 November 2017.

890 However, the following Logged Glider Coupes have a harvesting start or completion date after 30 November 2017: Camberwell Junction, Bromance, Lovers Lane and Estate. For those coupes there is no evidence of the application of the Interim Greater Glider Strategy to them.

891 Some coupes, like Guitar Solo, were harvested very close to the publication of the Interim Greater Glider Strategy (harvesting concluded on 3 October 2017). This coupe had numerous detections, which were marked on the coupe plan, most of which were marked within the

harvest area. There was in evidence an email dated 28 August 2017 from Mr Wilson to various VicForests employees including Mr Potts. In the email, Mr Wilson stated:

> Potts - as discussed I will liaise with you regarding retention of appropriate habitat trees.
>
> At these stage harvesting may continue as planned.

892 There is, however, no evidence as to what, if anything, happened after this exchange. There is no evidence of what, if anything, happened on the ground. There is also no evidence of whether there were any further discussions after the Interim Greater Glider Strategy was published on 30 November 2017.

893 Another example is Rowels coupe, where harvesting was completed on 24 November 2017. There was one recorded Greater Glider detection in this coupe, in an area not harvested. This was one of the coupes the subject of the 25 May 2018 email chain extracted above. Again, there is no evidence of what, if anything, was done on the ground or whether further discussions were had after the Interim Greater Glider Strategy was published.

894 Another example is Glenview, where harvesting was completed on 6 November 2017. Mr Paul gave evidence about this coupe which should be set out:

> On 14 August 2017, VicForests was notified by email from the Forest Reports division at the Department that the Department had received a report of a detection of Greater Glider in Glenview coupe 9.5.
>
> …
>
> For convenience I note the email provided:
>
> > Please find attached a report submitted to Forest Reports by WOTCH for a detection of the Greater Glider in Toolangi State Forest near Mt Despair at coupe 298-516-001 "Glenview".
> >
> > The case reference number is 2017-0058.
> >
> > Note that there are no detection based rules for the Greater Glider in the Code of Forest Practice for Timber Production 2014 in this FMA.
> >
> > Could you please provide a coupe status update and let us know if a targeted pre-harvest survey for greater gliders was conducted?
>
> …
>
> On 14 August 2017, James Gunn copied me into an email which responded to the queries raised in the email from the Forest Reports Division:
>
> > The coupe 298-516-0001 – Glenview is currently scheduled with a proposed commencement date of 1/09/2017. The contractor is signed into the coupe, but they are currently on their winter break. As this coupe is the start up coupe for the season it is possible they may float machinery there prior to the proposed

> start date.
>
> A general preharvest habitat survey was completed. No targeted species survey for the Greater Glider has been undertaken.
>
> …
>
> On 29 August 2017, I was notified by email from the Forest Reports division at the Department that the Department had received a secondary report of a detection of Greater Glider in Glenview coupe 9.5.
>
> …
>
> On 30 August 2017, I was copied into an email from Lachlan Wilson (Acting Manager Forest Policy and Compliance at VicForests) regarding the secondary report. The email was addressed to operational and planning staff at VicForests.
>
> …
>
> For convenience I note the email provides:
>
> > Please see the below report of further Greater Glider detections with and adjacent coupe 298-516-0001 Glenview.
> >
> > Please note there is no further actions, as habitat requirements have been addressed following the first Glider report.
>
> I make the following observations regarding Glenview coupe 9.5 by reference to the post-harvest map for Glenview coupe 9.5 which appears at page 684 of annexure WEP-35 and the table at paragraph 151 above:
>
> (a) Glenview coupe 9.5 is a mixed species coupe, of which approximately 30.01 ha of a gross area of 40.92 was harvested suing the seed tree silvicultural system; and
>
> (b) An area of approximately 10 ha was retained for stream buffers and habitat protection in the vicinity of the coupe where five of the nine Greater Gliders were detected. A further Greater Glider was detected in the vicinity of the stream buffer in the coupe, as depicted by the red hatched area on the map.

895 Importantly for present purposes, there is no evidence about how, if at all, the Interim Greater Glider Strategy was used in relation to Glenview. Nor is there any evidence about what options were considered and why it was determined that area which was not harvested should be retained. The evidence that there is suggests that VicForests' approach did not properly engage with the reality on the ground. Why, otherwise, would the sighting of further Greater Gliders, as recorded in the second report, have not affected VicForests' approach?

896 In the table attached to its reply submissions, in response to [290] of the applicant's closing submissions, VicForests states:

> As described in Table A to VicForests' closing submissions, there are a number of directions and comments **regarding the retention of trees and/or habitat specifically for Greater Glider** in relation to the following coupes: Mont Blanc, Kenya, Camberwell Junction, Swing High, Skerry's Reach and Backdoor.

(Emphasis added.)

897 The footnotes reference given is (at fn 131) to the "8th column" of Table A. Looking at those references for those coupes, VicForests' submission is incorrect. For Kenya and Mont Blanc, VicForests' table shows there are coupe notes with advice from Mr McBride about retaining extra habitat trees for gliders. There is no evidence whether this occurred, except evidence against the proposition it did from Dr Smith, who found insufficient protection of habitat trees in both coupes. There is no entry of this kind for Camberwell Junction, although there is a general reference to retaining "larger trees with hollows for habitat value and suitability for arboreal mammals". The coupe plan for Camberwell Junction states:

> No detection based requirements exist for Greater Gliders within the Central Highlands FMA. Prioritise the largest, live, hollow-bearing trees for habitat retention.

898 This does not suggest retention of any "additional" trees. Backdoor is not in this table, but is in Table B, although it has no entry about additional habitat tree protection for Greater Gliders.

899 VicForests contends that for Skerry's Reach and Swing High, the Interim Greater Glider Strategy was "implemented": see VicForests' Table in Reply in response to [274] of the applicant's closing submissions.

900 Swing High was harvested between 14 March 2018 and 30 April 2018. That was well after this proceeding had been commenced, on 14 November 2017. There were no records of Greater Glider detections in this coupe, but there were historic records in neighbouring stands of forest. Dr Smith described the old-growth Ash forest in this coupe as "a very rare and critical resource in the Central Highlands". This coupe was modelled as high quality habitat, and the coupe plan contains a specific instruction to "apply" the Interim Greater Glider Strategy in these terms:

> If Greater Glider High Quality Habitat is confirmed within 75m of the planned harvest area boundary, **endeavour to retain** additional live, large, hollow-bearing trees that occur **within 75m of forest that is likely to be retained for at least the next 20 years**. This may include stream or other coupe buffers and any permanently reserved areas.
>
> (Emphasis added.)

901 Dr Smith's finding about the actual harvesting of this coupe was:

> Compliance with Code: Poor, habitat tree numbers less than prescription, habitat trees not protected during logging operations no habitat trees in clumps, no recruited habitat trees in gaps, old growth clear felled contrary to Code (failure to maintain a diversity of forest structures).

902 The photograph in his report shows relatively small, isolated trees standing amongst completely cleared ground. In its closing submissions, VicForests did not point to any evidence of where,

in fact and on the ground, there was compliance with the instructions and what that compliance looked like. As with some of the other coupes (eg Camberwell Junction) an entry in the coupe plan is not probative of compliance with cl 2.2.2.2. Clause 2.2.2.2 is not complied with in the conduct of forestry operations merely by a notation on a coupe plan. It is complied with when that notation is translated and implemented accurately and appropriately in the forest. Dr Smith's opinion on inspecting the coupe, which I accept, is that no such implementation occurred.

903 Skerry's Reach was harvested from 2 February 2018 to 19 March 2018, again well after this proceeding had commenced. The same instruction to the instruction given in Swing High is given on the coupe plan. A coupe diary entry for 2 February 2018 (the day harvesting is recorded as commencing) states:

> Habitat has been retained outside marked bdry, additional hollow bearing habitat > 1 m [diameter] to be retained where possible. Jim to select [seed tree] and habitat trees. No tree, stag or spar to remain within 1 tree length of bdry or road.

904 This note suggests that no extra habitat was retained within the harvest boundary, only outside it.

905 Two further coupe notes state:

16/2/18	Checked on habitat tree and Tree Geebung, good selection of habitat trees, and Tree Geebung have been harvested around with no damage at this point.
21/2/18	Had a look with Jim on suitable habitat trees, doing a good job of selecting large hollow bearing trees.

906 These comments are not probative of compliance with the Interim Greater Glider Strategy.

907 Dr Smith's report on this coupe was:

> Compliance with Code: Poor, low numbers of habitat trees, habitat trees not recruited in areas without old growth or dead stags. Habitat trees not scattered throughout the logging coupe. Large trees (1.2m diameter) not retained as recruitment trees.
>
> Significance of Impacts[:] High. Before logging this coupe was structurally complex with scattered old growth, two ages of regrowth and dead stags. This type of habitat supported both Greater Glider's and Leaadbeaters Possums and had long term refuge conservation potential … A number of stumps on the site exceeded 120 cm diameter and would have made ideal recruitment habitat trees if retained and not felled.

908 This evidence is probative of non-compliance with the Interim Greater Glider Strategy and suggests that the contractors did not do such a "good job" as the coupe notes suggest.

909 Therefore, on the evidence, I do not accept VicForests' contention that the Interim Greater Glider Strategy was "implemented" in Skerry's Reach and Swing High. There is simply no probative evidence that VicForests "endeavour[ed] to retain additional live, large hollow-bearing trees that occur[ed] within 75m of forest that [was] likely to be retained for at least the next 20 years". VicForests' evidence did not descend to enough detail, nor extend sufficiently into what was left in the coupe post harvesting, to make good such a contention. On the other hand, Dr Smith's detailed inspection confirmed nothing but poor compliance with existing prescriptions, let alone anything additional.

910 It is somewhat curious that the Interim Greater Glider Strategy does not feature more prominently in VicForests' closing submissions, if it is said to be evidence of how VicForests is engaging in careful evaluation of management options to wherever practical avoid serious damage to the Greater Glider. The Court could have little confidence the strategy was intended to play a pivotal role in its forestry operations where Greater Glider were likely to be present, given that Mr Paul's evidence (see below) went no higher than that VicForests would "give consideration" to implementing the strategy. The lack of emphasis on the use, on the ground, of the strategy is particularly curious given it was to be a specific tool to assist the protection and conservation of the Greater Glider into the foreseeable future, and at least until a formal State Action Statement is promulgated under the FFG Act. As VicForests emphasised, Action Statements made under the FFG Act no longer have any enforceable effect. They must be translated into management prescriptions under the Management Standards and Procedures. How long that would take after any Action Statement was finalised was not the subject of any evidence. Nor did VicForests adduce any positive evidence that it intended to ensure that whatever measures were in the Action Statement were translated into the Management Standards and Procedures as soon as reasonably practicable. That may well be because, as the evidence shows with the Leadbeater's Possum, specific prescriptions and SPZs impinge to a material degree upon the harvestable area of a coupe.

The text of the Interim Greater Glider Strategy

911 The Interim Greater Glider Strategy is the only document produced by VicForests which deals in any detail with the Greater Glider. Neither Mr McBride nor Mr Paul gave any evidence suggesting the Interim Greater Glider Strategy could not be used or relied on by the Court, or no longer represented VicForests' policy approach to the Greater Glider in the conduct of its

forestry operations. Mr Paul's evidence was that when notified of a Greater Glider detection, VicForests would:

> **give consideration** to implementation of the Interim Greater Glider Conservation Strategy (Interim Strategy) within a particular coupe.
>
> (Emphasis added.)

Mr Paul thus described the implementation as occurring "at a less formal level".

912 The purpose of the Interim Greater Glider Strategy is described as follows:

> This instruction outlines VicForests interim conservation strategy and coupe level management prescriptions for Greater Glider. These are in place while a Landscape based conservation strategy and an Action Statement for the species are developed.

913 It is not unimportant that VicForests describes the document as a "conservation strategy". That, of course, is the very purpose of mandatory application of the precautionary principle in cl 2.2.2.2 – to "conserve" biodiversity values, which includes the conservation of the Greater Glider.

914 It is notable that in a document said to concern the "conservation" of the Greater Glider, there is little about the threats to the species, as outlined in either the Victorian listing advice or the Commonwealth Conservation Advice. Instead, in the section headed "Background", the Interim Greater Glider Strategy repeats the now discredited assertions of fact about estimated amount of suitable habitat for the Greater Glider in Victorian State forest and the amount of this estimate which is in reserves. The document then notes:

> This model does not predict glider occupancy of this forest; it is likely that a significant proportion may not currently support Greater Gliders.

915 If VicForests had included more information about the Greater Glider as a species, then the undisputed scientific fact that the Greater Glider has a small home range and does not move into unoccupied forest as part of the natural features of its behaviour would have been apparent. Thus, the limited relevance of tracts of native forest measured only by their hectare size and asserted mapped suitability would have been more apparent.

916 The Interim Greater Glider Strategy then contains the following statements:

> In response to the listing of the Greater Glider, the Department of Environment Land Water and Planning is developing an Action Statement. This is anticipated to be completed in the next 12 – 18 months. When this action statement is enacted, VicForests will review its provisions and the following interim prescription. VicForests is represented in the process to develop the action statement.

917 The document has a date of 30 November 2017. The trial in this proceeding was held in June 2019. There was no evidence of any Action Statement having been finalised or published in Victoria for the Greater Glider, and, as stated, Mr McBride's evidence was that the Interim Greater Glider Strategy was not reviewed precisely because of a forthcoming Action Statement, which, in fact, has not been forthcoming.

918 The Interim Greater Glider Strategy then makes this statement:

> VicForests has considered the need for additional Greater Glider protection measures to be taken on an interim basis while this Action statement is developed. VicForests has no legal obligation to undertake additional protection at this time, but seeks to demonstrate responsible stewardship and fidelity to the precautionary principle. VicForests' proposed interim measures are outlined below.

919 This somewhat defensive statement demonstrates that, contrary to the case made by VicForests in this proceeding, VicForests itself considers the precautionary principle is applicable to the circumstances of the effect on the Greater Glider by its forestry operations. It is difficult to know precisely what is meant by "fidelity" in this context but given the context in which the statement is made, in a document said to be a "conservation strategy" for the Greater Glider, I am satisfied this document is evidence that, in performing its functions relating to the planning and carrying out of forestry operations in native forest in Victoria (including in the Central Highlands), VicForests has been in fact conducting itself on the basis cl 2.2.2.2 should be observed in relation to the Greater Glider.

The problems with the Interim Greater Glider Strategy

920 As Mr Paul's evidence made clear, any informal "consideration" of whether to implement the strategy in a coupe is tied in part to the mapping of Class 1 Habitat in the coupe. The applicant put forward a number of criticisms of the Interim Greater Glider Strategy, and to his credit, in cross-examination Mr McBride accepted many of them. He was a credible witness who made appropriate concessions. They included the following:

(a) Mr McBride made a frank and unqualified acceptance of the unreliability of the Class 1 Habitat model and therefore an acceptance that the Interim Greater Glider Strategy itself may not be useful:

> And [the Interim Greater Glider Strategy] states in the second substantive paragraph:
>
> > *Coupes that contain areas identified in the greater glider high quality habitat class 1 layer will be assessed to determine if high quality greater glider habitat occurs within the coupe.*

> Now, they've put greater glider high quality habitat class 1 layer is a desktop prediction of habitat?---Yes, it is.
>
> And that is in the first instance how greater glider habitat – high quality habitat is to be predicted?---Using that predictive model, yes.
>
> And that is followed up with a visual inspection of coupes where the relevant habitat is detected?---Yes.
>
> Do you accept that, as the experts in this case have agreed, the model used to predict greater glider high quality habitat is unreliable and inaccurate?---Yes, I do.
>
> Do you agree that a model that is unreliable and inaccurate is of no use in informing any conservation plan?---It has very little reliability, has very little improvement to identifying habitat, yes.
>
> Now, given that the interim greater glider strategy is premised on a model that is unreliable and inaccurate, do you agree that it has no use as a conservation strategy?---It's hard to determine its usefulness, yes.

(b) Mr McBride also accepted that a conservation strategy that fails to predict presence is inconsistent with his experience of successful conservation management in the United States.

(c) Mr Bride agreed that the Interim Greater Glider Strategy was inconsistent with scientific research indicating that what often prevents Greater Gliders surviving forestry operations is their inability to move into and occupy strange habitat, and he acknowledged that VicForests had no scientific basis to depart from this research.

(d) Mr McBride also agreed that if VicForests were serious about protecting Greater Gliders, the Interim Greater Glider Strategy would approve provision for this strategy to be triggered upon detection, and there was no such provision in the Interim Greater Glider Strategy. And as Mr McBride himself had deposed, the Interim Greater Glider Strategy had not been reviewed.

921 Tellingly, the evidence revealed that experts within VicForests had recommended further protective measures, but they had not been adopted. Mr McBride was taken to the views of Dr Maria Cardoso, employed by VicForests to provide conservation advice. Dr Cardoso had made comments in the margin of a version of the Interim Greater Glider Strategy. Where the document stated that "living, large, hollow-bearing trees additional to Code requirements may be retained for the purpose of providing additional denning sites for Greater Glider", Dr Cardoso commented:

> "May" is not a good word here. You either will or you won't. Surely if the coupes meet the threshold, then trees "will" be retained if you're serious about applying and testing

> an interim strategy

922 And where the document stated that "VicForests will endeavour to retain within coupes additional live, large, hollow-bearing trees that occur within 75 m of retained habitat", Dr Cardoso commented:

> Get rid of endeavour! You either will or you won't. Need to be specific also as to the number of trees that will be retained. Additional doesn't mean anything really and is too subjective.

923 These comments had been made after a VicForests employee, Mr Deon Kriek, had made similar comments, and in the email Dr Cardoso sent attaching her mark-up of the document, she said:

> I agree with Deon that the use of subjective words such as "endeavour", "additional" and even "may" is problematic! We need to have concrete number of trees that are to be retained. **"Additional" doesn't really mean anything to the guys on the ground who have to mark the trees.**
>
> (Emphasis added.)

924 Earlier, Mr Kriek had advised VicForests of the New South Wales approach, which was clear and not vague in a way that would make the measures difficult for foresters to implement. These observations are consistent with the approach Dr Smith has said is necessary: that is, clear prescriptions that do not leave matters to the discretion of VicForests' contractors on the ground. In this respect, a New South Wales prescription referred to by Mr Kriek – that "[a] minimum of 12 HBT must be retained in every 2 hectares of nett logging area" – provides a marked contrast to the Interim Greater Glider Strategy.

925 There is no evidence adduced from VicForests to suggest such an approach was even considered. Mr McBride, when asked whether the New South Wales approach was considered, said:

> We discussed – we discussed metrics around some level of retention. **We never discussed specific targets.**
>
> (Emphasis added.)

926 That evidence is revealing: specific targets – apparently in force in another State for the Greater Glider – were not even discussed. That is hardly an approach fitting the description of a careful evaluation of management options to avoid serious damage to the Greater Glider. The advice from VicForests' experts and managers was not adopted, and the terms of the Interim Greater Glider Strategy did not change. Mr McBride was unable to shed any light as to why. No other evidence from VicForests explained this.

927 Other aspects of the Interim Greater Glider Strategy were pointed out to Mr McBride, who (again commendably frankly) agreed with the difficulties they posed. Some were inherently practical problems which again demonstrate the gap between policy and practice which I find infects much of VicForests' conduct in its forestry operations. For example, Mr McBride was taken to the science about how far a Greater Glider can glide, and how it glides. Mr McBride was asked about the undisputed evidence that for every metre that a Greater Glider drops it can glide 1.2 m forward, and so, for example, to glide to a tree that is 12 m away it will need a 10 m drop. He agreed, and also agreed that the glide path is something that is relevant to a conservation plan for the Greater Glider.

928 Pausing there, the logic is irrefutable. These are tree dwelling animals who avoid coming to the ground. If they cannot glide between trees, they are unlikely to survive. Mr McBride also agreed that because of their size, Greater Gliders need a relatively large landing pad, a tree stem of 40 cm in diameter. However, he agreed that neither the Interim Greater Glider Strategy nor his individual recommendations (such as those in the email to which I have referred above) contain any requirements about the size of the food source trees, so as to ensure the Greater Glider can actually use them.

929 Later in his cross-examination, Mr McBride also agreed that under the Interim Greater Glider Strategy retained habitat trees could be up to 75 m apart. He then agreed that a Greater Glider will not be able to glide this far in all circumstances, and that such distances did not take account of what predation risks were posed by this kind of measure – predation of the Greater Glider, that is, by owls (a known threat, as I have identified earlier in these reasons). He agreed the Interim Greater Glider Strategy made no provision for habitat corridors as a measure which might address these threats.

930 At [287] of its closing submissions, the applicant contends:

> The Strategy says nothing about reported sightings of Greater Gliders in coupes. The evidence is that Mr Paul was responsible for co-ordinating VicForests' responses to third party reports (Paul, CB 3.2 [25], T208.30-.36). Despite that role, there was no evidence he had taken any steps to work with Mr McBride to include guidance in the Strategy as to the steps that should be taken upon the reported sighting of the species. It was his evidence that it was not part of the Strategy to set guidelines for surveys (Paul, T216.25-.27), that the Strategy says nothing about what is to be done if there is a sighting of a Greater Glider or a colony of them (Paul, T288.23-.26). Further, whilst the interim Strategy document is the only document that potentially gives guidance as to how to assess the likelihood of serious or irreversible damage to the Greater Glider, in fact, it is entirely silent on that topic (Paul, T219.35-.48). The Strategy simply fails to tell staff how to go about working out if a decision they are contemplating may cause serious or irreversible damage to the Greater Glider and there is no VicForests

> document in existence that performs that role (Paul, T220.20-.30).
>
> (Original emphasis.)

931 I accept this submission. It accords not only with the evidence to which the applicant refers in that passage, but also with the matters I have outlined above, including Mr McBride's concessions about the lack of usefulness of the Interim Greater Glider Strategy.

932 Dr Smith also highlights the lack of utility in the Interim Greater Glider Strategy, in his first report, saying it will have "negligible ameliorative benefit for protecting and preventing the decline in numbers of Greater Gliders in timber production forests". Leaving aside the inadequate underlying habitat model, which I discuss below, Dr Smith's reasons for this opinion include the incompatibility of measures such as those contained in the Interim Greater Glider Strategy with planned logging rotations:

> It does nothing to prevent or ameliorate the impacts of short harvesting rotations that do not allow forest to reach [an] old growth state. Under current clearfell regimes on short harvesting rotations neither the Interim Greater Glider Strategy nor the Regrowth Retention Harvesting System are likely to have any benefit to Greater Gliders. There is no point in improving habitat tree protection for Greater Gliders if you cut the forests on rotations too short for re-occupation, and if habitat trees are so poorly selected and protected that none will survive to a second cutting cycle.

933 I accept this opinion and consider it important. "Retained" does not mean "retained forever" or until natural senescence. In fact, "retained habitat" is defined in the Interim Greater Glider Strategy as "any intact forest unlikely to be harvest within the next 20 years". Thus, "retained" simply means retained and set aside from the current harvesting schedule. So much is also apparent from VicForests' Regrowth Retention Harvesting Instruction, which is in evidence, and which states that retained patches in coupes are to be retained "for at least one rotation", implying they could be harvested on the second rotation. That is also the understanding of the rotations expressed by Dr Smith in his first report at p 49:

> If coupes are harvested on short rotations retained habitat trees are of no benefit to Greater Gliders because the habitat will be removed before the hollows will be removed before the hollows can be re-occupied.

934 What occurs to the habitat of the Greater Glider because of the logging rotation cycle and harvesting choices to be made in the foreseeable future is something which VicForests' management options do not grapple with. Again, in a sense, this illustrates the gap between having a policy document and ensuring it will work "on the ground", in the forest. Dr Smith makes this point clearly, with respect.

Conclusion on the Interim Greater Glider Strategy

935 The Interim Greater Glider Strategy itself is a somewhat defensive document, in part directed at justifying why little or nothing need be done by VicForests. VicForests has not been at all proactive in reviewing or monitoring any supposed "implementation" of the Interim Greater Glider Strategy. In the impugned coupes, I have found there is little evidence about how the Interim Greater Glider Strategy has in fact been implemented, and despite this being a central issue in this case the actual implementation and result of the implementation of the strategy have featured very modestly in VicForests' evidence. There is no evidence it has been implemented in any coupes which are not the subject of this proceeding, although VicForests could have adduced such evidence if it existed. The fact is that there is no evidence of adequate post-harvest monitoring of compliance with conservation prescriptions, let alone additional proposals such as the Interim Greater Glider Strategy.

936 None of these findings reflect the Court imposing any onus of proof on VicForests. Rather these are findings about where VicForests concentrated its evidence, having elected to address these issues in evidence. There was a significant amount of evidence from Mr Paul, and in documents, about the development of the strategy, and what the strategy said. However, in examining a matter such as VicForests' compliance with cl 2.2.2.2 by applying the precautionary principle to the conservation of biodiversity, the focus is on how the practical, on-the-ground objective of the conservation of biodiversity is advanced. That is not demonstrated by the production of a policy document, although a policy document may be a step along the way. These findings also explain why I have found nothing of sufficient probative value in VicForests' evidence to dislodge the persuasive weight I am otherwise satisfied should be attributed to the opinions of Dr Smith.

937 The Interim Greater Glider Strategy is a good example of why I am satisfied on the balance of probabilities that VicForests has not in the past (in the Logged Glider Coupes), and will not in the future (in the Scheduled Coupes), comply with cl 2.2.2.2 by applying the precautionary principle to the conservation of the Greater Glider so as to avoid wherever practical serious damage to the Greater Glider. This Interim Greater Glider Strategy was and is not a careful evaluation of management options to avoid further serious damage to the Greater Glider in the conduct of VicForests' forestry operations. It was a poor compromise in the face of the need to be seen to be doing something in respect of the Greater Glider, when it became clear the species was being adversely affected by its forestry operations – in which the advice of its own employees, which would have at least involved greater steps towards conservation measures

for the Greater Glider, has been passed over. It would appear that Mr McBride also felt seriously compromised in his efforts, and was well aware of the inadequacy of the Interim Greater Glider Strategy and the core tool underlying it: that is, the Class 1 Habitat layer mapping.

938 In relation to the Class 1 Habitat layer mapping and its use in the Interim Greater Glider Strategy, I accept Dr Smith's opinion in his first report (at 60-61), and I accept that he has more than enough expertise for his opinion to be given considerable weight:

> Firstly, the Greater Glider Distribution Model was found in this study to be unreliable. I would like to state at this point that I am very familiar with this type of modelling. I was one of the first people in Australia and the world to use this method of survey and modelling for wildlife conservation planning (see Smith et al 1990, Ferrier and Smith 1990, Smith et al 1996,97 and others in CV). I taught methods of wildlife survey and habitat modelling at Tertiary level at the University of New England for over a decade. In 1989 I was invited by the US Government and World Wildlife Fund International to lead a wildlife survey, habitat modelling and mapping study in Madagascar to re-design its National Park network (Smith 1997) and in 2015 I was commissioned by the Environment Protection Authority of NSW to review and advise on the adequacy of models for prediction the occurrence of the Koala in NSW timber production forests. Based on this experience I am aware that the Greater Glider Model is unlikely to have any practical value at the coupe level in forest management. This model is based on correlations with broad environmental parameters (eg climate, forest type, topography) that are only indirectly related to Glider abundance. In order to accurately predict Glider abundance at a coupe scale it would be necessary to have a map of the occurrence of all trees with hollows in Victorian forests (because this is the only reliable and important predictor of Glider abundance at local scales) and an accurate map of forest age and the number of trees stems in mature size classes. We have no such maps. In order to reliably predict the occurrence of Gliders in Coupes it is therefore necessary to undertake surveys of habitat trees and trees stems on the ground before logging, commonly referred to as "pre-logging surveys". Alternatively, it is possible to undertake actual surveys for Greater Gliders, as done by Friends of Leadbeater's Possum. Ideally both habitat and Glider surveys should be undertaken because Gliders are not always present in suitable habitat, and Gliders are sometimes present in habitat without hollows if the forest structure is good for feeding and abundant hollows exist nearby.
>
> There has been no prior validation of the Greater Glider Distribution Model by testing it against random samples in the forest to my knowledge. To test the validity of the Greater Glider Model I correlated the approximate percentage of predicted Greater Glider Habitat Class 1 on each coupe (as shown in the agreed maps) with the number of Greater Glider records on each coupe. The relationship was negative, and there was no statistically significant positive correlation with Greater Gliders. Greater Glider Habitat Class 1 was mapped as occurring (> 5% of coupe) on only 12 out of the 58 Coupes examined. **If this model had been relied on Greater Gliders would have been missed on 79% of coupes where they were found to occur by ground survey**.
>
> (Emphasis added.)

939 It is remarkable, but also part of the reason for my findings, that to the point of trial, and having had ample opportunity to consider Dr Smith's opinions and his expertise (and to receive the

opinion of its own expert, Dr Davey, who also accepted the model's flaws in a more circumspect way), VicForests has persisted in reliance on the Class 1 Habitat model and the Interim Greater Glider Strategy. It is difficult to understand how an agency responsible for timber harvesting in areas known to be used and occupied by the Greater Glider, and which sought to comply with a clause such cl 2.2.2.2 of the Code, could have acted in that way.

940 The low level implementation of the strategy, and Mr Paul's evidence that in any event, VicForests will only "give consideration" to implementing it in any given coupe, is also a good example of how VicForests does not engage in any proper process of assessing risk-weighted consequences of various options. Rather, it adopts a default position in favour of maximising areas for timber harvesting. The closer in time its planning and conduct comes to timber harvesting operations in the forest (and the further away from documentary policies), the stronger that default position is. That is hardly surprising and here I refer again to the inherent conflict in expecting or requiring an agency whose statutory and commercial focus currently relies on the harvesting of native timber in mature native forest to act as a conservationist. However, that dual role was the accommodation reached by the RFAs, and Victoria's forest management system was accredited on the basis that it could and would achieve this objective. The exemption in the EPBC Act is not intended to compromise the achievement of the EPBC Act's objectives in native forest subject to forestry operations, nor to accommodate the commercial interests of those engaged in forestry operations at the expense of – relevantly here – the protection and conservation of listed threatened species.

941 I have spent some time in this section on the detail of the evidence about the coupes, because this is – as I have noted several times – the "crunch point". Either policy or planning is translated into conduct before, during and after the forestry operations themselves, or it is not. On the evidence about the Interim Greater Glider Strategy, it is not.

942 All of these findings were confirmed by what the Court saw on the view. The Court saw many coupes with very little left standing in them. What "habitat trees" were pointed out were isolated, and often burned or dying. The forest that the Court also saw on the view, where both experts agreed there would be good densities of Greater Glider, provided a striking contrast. It is difficult to understand how or when the Logged Coupes the Court saw on the view could provide suitable (let alone high quality) habitat for Greater Glider, and how Greater Glider would move back into them in any foreseeable amount of time, assuming (against the evidence) that such recolonisation occurs.

Did VicForests fail to comply with cl 2.2.2.2 in the Logged Glider Coupes?

In the Logged Glider Coupes, what management options were evaluated and used by VicForests in its timber harvesting operations (and planning for them), to wherever practical avoid serious damage to the Greater Glider?

943 At the time of its forestry operations in the Logged Glider Coupes, aside from the Interim Greater Glider Strategy, VicForests had no specific management measures or prescriptions currently in place for the Greater Glider in the CH RFA region. As its documentation (such as coupe plans) repeatedly emphasised, it was not required under the Code to apply any specific prescriptions for this species. Based on the findings I have made above, the development of the Interim Greater Glider Strategy cannot be said to constitute a "careful evaluation of management options". It was also not in existence at the time many of the Logged Glider Coupes were harvested. In contrast, there is the specific expert evidence of Dr Smith about the Interim Greater Glider Strategy, which I have accepted, and which establishes its development and content could not be properly described as a careful evaluation of management options. Rather it was a defensive document, with content suggesting VicForests felt obliged to have a policy addressing further protection for the Greater Glider, but was reluctant to implement it. This is consistent with Mr Paul's evidence, which was only that VicForests would "consider" the implementation of the strategy on a coupe-by-coupe basis.

944 Based on the findings I have made, including what was said by Mr McBride in evidence, and by Dr Smith, the Interim Greater Glider Strategy cannot be described as a management option carefully evaluated and used by VicForests in its forestry operations to wherever practical avoid serious damage to the Greater Glider.

945 I also make the following findings, based largely on an acceptance of the applicant's submissions. They highlight the importance of what is done, or not done, "on the ground" in the forest ahead of and during forestry operations. Many of these points made by the applicant are not answered by VicForests in its factual and evidentiary table annexed to its reply submissions:

(a) VicForests had no in-forest survey system applicable to its forestry operations in the Logged Glider Coupes. VicForests' 2014 "precautionary approach" provides for a desktop assessment, a coupe transect (which involves field work) and – according to Mr Paul's evidence – if suitable habitat is located, the carrying out of a targeted survey.

(b) However, the location of "suitable habitat" is based on the flawed Class 1 Habitat model, not on reported detections of Greater Glider or any thorough assessment of the nature of the forest in a coupe, such as that undertaken by Dr Smith.

(c) The coupe transects occur during the day (see Dr Smith's evidence), and while they are capable of providing an opportunity to identify suitable habitat for the Greater Glider they provide no opportunity for detections, Greater Glider being nocturnal.

(d) The applicant makes the following submissions (at [295]-[296]) about VicForests' planning at the Timber Release Plan stage, which I accept. These were not contradicted by VicForests in its reply table.

> The Coupe Reconnaissance Instructions of July 2016 (CB 3.4.37) sets out five steps to be carried out by VicForests prior to the making of a TRP (Paul (2), 3.4, p79 and 80; CB 3.4.37). Similar steps and processes are set out in the July 2017 "TRP - Process for Preparation and Approval" (CB 3.4.13. pdf p 294-296). None of the processes listed, including coupe transect and field assessment processes, resulted in detection of Greater Glider habitat in any of either the logged or scheduled coupes. The implementation of the July 2016 and July 2017 instructions by VicForests wholly failed to detect the occurrence of the species. Had they resulted in detection, neither document provides any guidance on how to determine if a proposed action will result in serious or irreversible damage to the Greater Glider (Paul, T219.28-.40). The evidence is that the purpose of the July 2016 instructions is to produce "financially viable" risk assessed coupes. It is no part of the document to engage in options or modifications to coupe plans on account of the presence of the Greater Glider (Paul, T302.35-.48, 303.1-.5). To the contrary, the coupe reconnaissance instruction which Mr Paul said informed preparation of the TRP states that coupe boundaries are to be drawn with the principle that over an infinite timescale the entire GMZ layer is coupe up with no gaps between coupe boundaries (3.4.37 p11; Paul (2) [186-188]). Similarly, the 2017 TRP preparation document is silent as to what action or steps ought to be taken in case of Greater Glider detections and the April 2019 TRP when gazetted saw no modifications implemented by VicForests to the 2017 TRP despite all of the reported (and accepted as valid) Greater Glider notifications in and concerning the scheduled coupes.
>
> Mr Paul conceded that VicForests conservation biologist has no involvement in the TRP process (T184-185).

(e) The acceptance of the applicant's submissions about the Timber Release Plan planning is for the purpose of assessing that aspect of VicForests' planning for its forestry operations (being the timber harvesting itself) not, as I have endeavoured to make clear, because I am proceeding on the basis that the preparation and promulgation of the Timber Release Plan is itself pleaded as a forestry operation.

(f) Nor, in the Logged Glider Coupes, was there any general provision for pre-harvesting surveys so that VicForests itself could detect if Greater Glider were present in the

coupes. This is notwithstanding, as I have found earlier in these reasons, that evidence that Greater Glider are in fact occupying and using forest is, as Dr Smith explained, the surest guide to the suitability of the habitat for them.

(g) This is such an obvious proposition, and so firmly rejected by VicForests in the conduct of its defence in this proceeding, and by omission in its policy and planning documents, that it is simply not possible to characterise what VicForests has done in the planning and carrying out of its forestry operations in the Logged Glider Coupes as involving any real evaluation of management options to wherever practical avoid (further) serious damage to the Greater Glider.

(h) While the new DELWP pre-harvest survey program is relevant to the Scheduled Coupes, VicForests does not suggest and there is no evidence that it was applied (if indeed it was in existence in any form) to the Logged Glider Coupes.

946 The state of affairs I have found to exist on the evidence is neither irrational nor inexplicable, such as might otherwise lead to its rejection as implausible. On the contrary, as the applicant explains and as I have observed at several points in these reasons, the conflict of interest inherent in VicForests' role as a commercial harvester of native forest with high biodiversity values, and these kinds of precautionary approaches, explains the difficult situation faced by VicForests. The applicant makes this point in its closing submissions (at [265]), by comparison with the system of pre-harvesting surveys for Leadbeater's Possum:

> The failure to have any system for surveying for the Greater Glider is all the more significant when one considers VicForests' acceptance and acknowledgement that the employment of surveys in relation to Leadbeater's possums has been extremely effective. The evidence discloses that Leadbeater's were found in 28 of 50 coupes surveyed, with a result of 638 ha of forests was excluded from forestry operations, as reported in VicForests' 2017 annual report (CB 3.4.8, pdf p 16 and 6 and Paul, T214.20-215.26). The results of the Leadbeater's successful survey program impacted financially on VicForests. Whilst a financial disincentive to carry out surveys because they are likely to be successful to identify Greater Gliders and their habitat was denied by Paul (T216.30-.36), so much is an objective fact. That financial disincentive may well explain why VicForests has no system in place to survey for the Greater Glider and did not produce any document that set out or purported to identify any such system (Paul, T270.40-.43).

947 In order to understand what VicForests might have done to evaluate management options to avoid, wherever practical, serious damage to the Greater Glider, it is important to recall the characteristics of the species and the threats which have been identified to it in objective materials such as the Conservation Advice: see [96]-[103].

948 In his cross-examination, when being pressed about whether there was sufficient certainty to say, in fact, that there is a threat of serious or irreversible damage to the Greater Glider, Dr Smith gave the following evidence:

> And for those reasons, I suggest to you that you cannot determine whether there exists a real threat of serious or irreversible damage to the greater glider or its habitat in those coupes or in the Central Highlands RFA area generally because of the uncertainty surrounding those matters?---Look, I – I don't believe that. All logging in mixed species forest of the type that I've seen on the coupes in the Central Highlands will cause an immediate short term – at least short term reduction in greater glider numbers.
>
> But the extent of that impact - - -?---Well, the – the question – the uncertainty relates to whether or not those populations will be able to recover and recolonise those in the future, and I have said that I can't be certain because I don't have enough information about the spatial patterns of logging. And what I have done is outline some criteria which I believe would need to be satisfied in order to – in order to deliver that certainty. So I simple said if you – if you – if you have an adaptive management procedure, basically, in which you assess where the gliders are to start with, you monitor them after logging and you determine – you make sure that they're in the coupes before you re-log them, then you have certainty that you're not having an impact.

949 There is no evidence that VicForests had, or "carefully evaluated", having any such adaptive management procedure, so as to avoid the damage. Indeed in this case it steadfastly defended the absence of any pre-harvest surveys or follow-up monitoring for the Greater Glider. While it can be accepted that whether or not an enforceable prescription is imposed is a matter for the Victorian executive, through amendments to the Code and Management Standards and Procedures, the absence of an enforceable prescription might be explained on a number of bases, not necessarily (as VicForests submissions contend) a conscious choice not to impose one. Delay, inaction, overlooking, lack of funding to design the prescription, political considerations, other priorities or distractions at executive level, are all plausible explanations. The explanation is not to the point, where there is already an enforceable obligation in the Code which covers precisely this kind of situation; namely, cl 2.2.2.2.

In the Logged Glider Coupes, what assessments of the risk-weighted consequences of various options have been undertaken by VicForests in its timber harvesting operations (and in planning for them)?

950 This second limb assumes there has been a careful evaluation of management options, which I have found there has not been. If contrary to my opinion, VicForests had engaged in such an evaluation of management options, I do not consider that it has undertaken any assessments of the risk-weighted consequences of the options identified. There was simply no evidence it had done so, perhaps unsurprisingly because, despite the references to the precautionary principle in its policies and documentation, its case in this proceeding was based on the non-engagement

of the precautionary principle in either the Logged Glider Coupes or the Scheduled Coupes. VicForests did not contend, for example, that the modest measures in the Interim Greater Glider Strategy, and its decision to only "consider" whether to apply them, were the result of some assessment it had in fact undertaken which could be described as an assessment of the risk-weighted consequences of a more proactive strategy which was more protective of the Greater Glider.

951 In my opinion, one of the obvious ways in which, in the conduct of forestry operations (and planning for them), risk-weighted consequences of various options for avoiding serious damage to the Greater Glider could be assessed is in the selection of the silvicultural method to be used in harvesting.

952 Insofar as the Logged Glider Coupes are concerned, I accept the applicant's submissions that the evidence shows all coupes were harvested using what the applicant has described as "high-intensity" methods. This was a description that Dr Smith agreed was appropriate to all three of VicForests' traditional silvicultural methods (clear-fell, seed tree and regrowth retention harvesting). Regrowth retention harvesting, for example, is a method that, as Mr Paul put it, involves "retention of forest patches [which must be at least 50 years old] so that more than 50% of the harvested area is located within one tree length of the retained forest". Dr Smith saw this method as of little benefit to the Greater Glider and Dr Davey agreed that, within the coupe, such a method still involved intensive harvesting.

953 While, as VicForests submits, some of the Logged Glider Coupes were identified on the Timber Release Plan as available to be harvested by clear-fell but were in fact harvested by another of the traditional methods (eg Blue Vein and Ginger Cat), the methods used were still intensive harvesting methods, and ones which I find, based on Dr Smith's evidence, are not designed to avoid wherever practical further serious damage to the Greater Glider. For example, although Ginger Cat was harvested by regrowth retention harvesting, and between 4 and 5 ha of an 11 ha coupe were harvested, what Dr Smith found was "[p]oor" compliance with the Code:

> [N]o habitat trees have been retained for habitat tree recruitment in Ginger Cat or Blue Vein (see Figure). Ginger Cat is about 5 hectares net and under the Code should have 20 habitat trees instead of none.

954 Further, the current methods which VicForests contends are less intensive (although I have not found that to be an appropriate description on the evidence), such as regrowth retention harvesting, have not been tested for their effectiveness for the Greater Glider or any comparable species as far as I can understand the evidence. The bare assertion that a particular method is

"less intensive" (even if, contrary to my findings, that be the case for a method such as regrowth retention harvesting) is meaningless and of little relevance to the issues in the proceeding unless there is some scientific evidence that it is a method which is beneficial to the survival of those Greater Gliders affected by the timber harvesting, or to recolonisation of the area harvested, or to some other indicator which is conservation-positive, rather than conservation-negative. Mr Paul was cross-examined about this briefly, and he gave no evidence there had been any such testing. He said that Tasmania may use a similar method, but was then confronted with the proposition that the Greater Glider was not found in Tasmania, which is undoubtedly accurate on the evidence, although Mr Paul replied that he did not know, which seemed rather remarkable in the context of this proceeding and his intimate involvement in it.

955 At points in its submissions, VicForests contends there is no pleaded allegation of non-compliance with the Code in relation to the retention of habitat trees in coupes: that is, VicForests contends that the allegation does not form part of the s 38 case. However, the conduct of VicForests and its contractors in coupes in terms of how – indeed if – habitat trees are in fact retained, whether they survive, and whether the retention has a positive effect on the Greater Glider, are all highly relevant to the question of compliance with cl 2.2.2.2. That is because retention of habitat trees is one of the few concrete mechanisms in the current suite of management prescriptions which is capable of avoiding, or helping avoid, serious damage to the Greater Glider during forestry operations. If, as the evidence suggests, on the ground in the forest that prescription is failing in its implementation, then this is, in the first order, a matter that VicForests ought to be addressing through its careful evaluation of management options to avoid serious damage to the Greater Glider. As far as I have been able to see, Dr Smith was not challenged about the accuracy of his observations of what had happened to habitat trees in the coupes he assessed, including when he found none were retained. VicForests simply asserted this was not part of the applicant's case. But that response reveals the problem with its approach, and why I am comfortably satisfied that in the Logged Glider Coupes it has not complied, and in the Scheduled Coupes it will not comply, with cl 2.2.2.2. It refuses to confront what is happening, on the ground, in the forest, and how that is affecting the Greater Glider. It prefers to remain in the realm of theory. That is not the point of cl 2.2.2.2, of the suite of forest management prescriptions which are in place, or of the EPBC Act in s 38.

956 In its evidence, VicForests did not point to anything on a coupe-by-coupe basis, nor at a wider level such as the Timber Release Plan, which examined the "risk-weighted consequences" of selecting a particular silvicultural method in relation to the Logged Glider Coupes.

957 I accept that, in relation to the Scheduled Coupes, that is precisely what VicForests contends its new silvicultural systems policies are designed to do. They are considered below.

In the Logged Glider Coupes, have those processes been applied to conserve the Greater Glider?

958 My findings are:

(a) The applicant submits, and I accept that, on the evidence, despite multiple detections in 56 coupes (both logged and scheduled) reported to VicForests, on no occasion did those reports have the consequence that VicForests carried out a survey of the coupes for Greater Glider. That is notwithstanding that VicForests ultimately accepted those detections – initially described in its own documents as "alleged" – were accurate, both as to numbers and locations.

(b) There is no evidence VicForests relied on DELWP to carry out surveys for Greater Glider in any of the Logged Glider Coupes, despite the reports of detections. DELWP's new survey program was not operational during the period the Logged Glider Coupes were harvested, or if it was (just), it was not used. The DELWP program document itself acknowledges DELWP is dependent on sufficient notice from VicForests to be able to carry out the surveys, and having the human and other resources to do so.

(c) The absence of any detection-based strategies, together with Dr Smith's coupe-by-coupe assessment of the Logged Glider Coupes, persuades me, on the balance of probabilities, that the processes for which the precautionary principle provides were not applied to conserve the Greater Glider in VicForests' forestry operations in the Logged Glider Coupes.

VicForests' answer

959 What VicForests relies on to answer this aspect of the applicant's case is summarised at [365] of its closing submissions:

> Insofar as the Logged Glider Coupes are concerned, VicForests relies on the evidence summarised in Table A as to the local biodiversity measures, and landscape biodiversity protection measures, as well as the net harvested area (compared to the gross area) of the applicable coupes, as evidence of an appropriate cautious assessment of management options insofar as those coupes are concerned.

960 Table A to VicForests' closing submissions sets out, coupe by coupe, the management measures taken in each coupe, and the assessments done prior to harvesting. So far as it is possible to ascertain, none of the assessments or prescriptions or measures set out in this table

are directed at the Greater Glider. Some are directed at the Leadbeater's Possum (such as the THEZ retentions), although these are required prescriptions set out in the Code and Management Standards and Procedures. However, as the expert evidence revealed, the habitat requirements of the Greater Glider and the Leadbeater's Possum are quite different. Dr Smith summarised in cross-examination what needed to occur for the management options to avoid, wherever practical, serious damage to the Greater Glider:

> [W]hat I've read of the code and the silvicultural systems, they don't adequately protect the greater glider. There's simply not enough requirement for pre-logging survey, for mapping habitat, for identifying corridors and providing links. It's – or doing any kind of adaptive management. It's just not there.

961 As senior counsel for VicForests pointed out to Dr Smith at this point, these are matters outside the present express prescriptions in the Code. However, they are not for that reason outside cl 2.2.2.2, which is intended to enable VicForests to manage its forestry operations in an adaptive manner. That is a central aspect of its purpose: it is a safety net for threatened species when the express terms of the Code and Management Standards and Procedures are insufficient or inadequate. If cl 2.2.2.2 covered precisely the ground covered by other specific prescriptions, it would be redundant.

962 Therefore, it is not necessary to work through VicForests' table, coupe by coupe, and reject each and every entry in it. The findings I have made above apply across all the Logged Glider Coupes.

Is VicForests likely to fail to comply with cl 2.2.2.2 in the Scheduled Coupes?

963 VicForests' general answer to the applicant's allegations about non-compliance with cl 2.2.2.2 in the Scheduled Coupes is set out at [336]-[339] of its closing submissions:

> To the extent there is evidence as to the context in which future forestry operations in the Scheduled Coupes will occur (if they occur at all), that evidence permits the following inferences to be drawn:
>
> *First*, any future forestry operations in the Scheduled Coupes will occur in areas flanked by substantial areas of reservation by way of formal reserve (for example, National or State Parks and reserves) or informal reserves such as SPZ.
>
> *Second*, the net harvest area will comprise a small or relatively smaller portion of the coupe. Dr Smith's evidence was it was relevant to have regard to the difference between the gross area and the net area of the coupes.
>
> *Third*, there is a real possibility that the silvicultural system used will be less intensive than that described on the TRP.
>
> (Original emphasis.)

964 Of these, it is really only the third point which addresses the meaning and content of the obligation in cl 2.2.2.2 as I have found it to be. The first two topics hark back to VicForests' focus on the proposition that there was no threat of serious or irreversible damage to the Greater Glider such that cl 2.2.2.2 was engaged. I have rejected that argument, both in terms of its approach to cl 2.2.2.2 and its application to the evidence. Nevertheless, I address those two topics briefly.

Reserves within forest available for harvesting, and forest in national parks

965 A considerable amount of VicForests' evidence and submissions, and of Dr Smith's cross-examination, concerned the first point, the proportions of the CH RFA region constituted by the Logged Glider Coupes and the Scheduled Coupes, measured against the proportions of the whole of the Victorian native forest estate. The thrust of this was that the impugned coupes, and in particular the Scheduled Coupes, represent a very small proportion: see, for example, VicForests' closing submissions heading C.2.3.6 – "Abundance of reserve and National Park".

966 Dr Smith did not see this as any answer to the threats posed to the Greater Glider by VicForests' forestry operations in the CH RFA region. In his first report at p 24 he said:

> In my opinion Victoria does not have within the Central Highlands a comprehensive, adequate and representative reserve system nor does it provide for the conservation of those areas that it does have because it does not contain adequate areas of uneven-aged old growth and mature forest and does not connect the limited areas that it does have with corridors. Victoria does not provide for the ecologically sustainable management and use of forests in each RFA region because it harvests Mixed Species forests by clear felling instead of single tree selection, and it does not retain a balanced proportion of Ash forests in all successional stages (age and structure) classes and specifically does not manage forest to provide any uneven-aged Ash forest structure. Victoria does not provide for the long-term stability of forests and forest industries because it has caused a steady reduction in harvesting rates and over-committed forward supply to the extent that the industry could be eliminated altogether in the face of future fire or increased conservation requirements. **We are now at the point where the same mistakes that were made with respect to Leadbeater's Possum can and are being made with respect to the Greater Glider, potentially driving it from vulnerable to endangered**. The Greater Glider was found in this study to be abundant in the unlogged areas of higher elevation Mixed Species forests on the boundary of and immediately downslope from Ash Forests. This shows that without timber harvesting the Greater Glider remains naturally common and abundant in the Central Highlands irrespective of past fires, climate change and predation by owls.
>
> (Emphasis added.)

967 Dr Smith is emphasising that what happens during forestry operations in timber production forests is what increases the threat of serious damage to the Greater Glider as a species, and that simply running off large numbers representing the area of land in the Victorian reserve

system does not engage with the problems. Just as it has not solved the crisis faced by the Leadbeater's Possum (which has progressed through the categories of threatened species under the EPBC Act despite the existence of the very reserve system relied on by VicForests in this case), I accept Dr Smith's opinion that the existence of permanent reserves (whether inside or outside the formal national park system) is no panacea to the crisis facing the Greater Glider.

968 Dr Smith also described why connecting the suitable Greater Glider habitat which was left is important, and why SPZs are of little use. As to the need for sustainable and effective connections between current reserves or refuges, Dr Smith said, in his first report, that protecting remaining habitat requires:

> The creation of a much wider and more effective corridor and refuge system for linking reserves and patches of retained and protected habitat (such as those shown in red in Map 5). This would include 200m wide corridors along all major drainage lines and minimum 80m corridors on minor drainage lines (over distances not more than 400m) connecting Special Protection zones including those described above.

969 While VicForests responds to this opinion (in its reply table) by contending that the adequacy of wildlife corridors, streamside buffers and drainage lines is not part of the applicant's pleaded case, that narrow focus again misses the point of what Dr Smith is saying. It also misses the point of the purpose of cl 2.2.2.2. The Greater Glider was listed in 2016, despite the existence of the reserve system and the range of existing prescriptions such as corridors and stream buffers. Those matters had not arrested the species' decline. This opinion from Dr Smith is part of his explanation, found in many places in his reports, about why too much reliance on the reserve system and existing prescriptions (being broadly the approach taken by Dr Davey) is wrong, and why reliance on those matters – as management options to avoid wherever practical serious damage to the Greater Glider – is misplaced and inadequate. I am persuaded by his opinion on this matter.

970 In response to Dr Davey's report, what Dr Smith said about SPZs is extracted below. He was not challenged directly in cross-examination about this passage and I accept his opinion (especially in the part I have marked in bold):

> Assumption that Special Protection Zones (SPZ) and unlogged forest will provide future habitat for Greater Gliders and a buffer against logging impacts is inconsistent with the Precautionary Principle. Dr. Davey appears to rely on an assumption that retained unlogged Special Protection Zones and streamside buffers will provide sufficient habitat in perpetuity to prevent significant impacts on Greater Gliders in logged forest. He states for the coupe Rowles for example that "*Imagery indicates suitable glider habitat in northern part of coupe and extending into northern SPZ. Likely limited impact from harvest events on local GG population with any individuals*

> *affected by harvest event moving into retained forest.*" I disagree with this assumption. **Special Protection Zones are typically small in size, discontinuous and isolated by roads and surrounded by an extensive matrix of unsuitable habitat. There is no scientific evidence that such a dispersed and fragmented reserve system either contains suitable Greater Glider habitat or will sustain viable glider populations over the long term (hundreds of years). There is a real risk that Greater Glider populations remaining in these fragments after clearfelling will gradually die off without replacement over time due to inbreeding and stochastic (random) events such as wildfire, drought, predation and same sex births that gradually eliminate small isolated populations. The permanent logging road network in the Central Highlands is a significant impediment to glider dispersal and movement, particularly in areas where all large trees in the surrounding matrix have been logged. The Greater Glider is clumsy, awkward and vulnerable to predation on the ground and is unlikely to be able to glide across roads bordered by young regrowth forest**. In my opinion it would be appropriate under the Precautionary Principle to assume that Special Protection zones as currently designed and maintained in the Central Highlands are not suitable as long term conservation reserves for the Greater Glider.
>
> (Bold emphasis added; other emphasis in original.)

971 Further, Dr Smith did expressly consider the location and availability of forest in reserves, or outside current logging rotations, in his coupe-by-coupe assessment, as he said in cross-examination:

> So what I've done is assess roughly the magnitude or the area of habitat that - of greater gliders that is likely to be lost on the compartment in the area that's logged and I've looked at whether, in my opinion, that area is likely to be restored in future rotations. In other words, were there sufficient habitat trees or - and is there enough unlogged greater glider habitat next door that would allow that area to be recolonised in a longer rotation? And I've also had as good a look as I can, given the limited data and the special context of the coupe, is it neighboured by another coupe that has been clearfelled or is likely to be clearfelled or is it neighboured by an SPZ or does it have a reserved retention area that contains good greater glider habitat. So I've just made some broad comments based on that - on those criteria as best I was able to assess them on the site with the maps that I had.

972 It is necessary also to consider Dr Smith's evidence in cross-examination about the nature and extent of the reserve system. Dr Smith was taken to some of the agreed maps, which show the reserves and national parks in the CH RFA region, as well as the location of the impugned coupes. On being asked about the wide distribution of the reserves, this was his evidence:

> And you would agree that those national parks and reserves are spread throughout the central-highlands RFA area?---They're clumped, but they are reasonably widely distributed.
>
> Yes. And you would agree that there are national parks and reserves of that kind in close proximity to the logged and scheduled coupes the subject of this case?---I would agree to that – where the coupes occur immediately adjacent to the national parks, there – looking at this, I would say that, generally, they are actually quite distant from the national parks. The cluster down the bottom is uniformly distant from the national parks. The cluster up the top is quite distant from the national parks. The cluster on the

> top left is also close to the national parks on its southern edge but quite distant on its northern edge. To me "close" means several kilometres max.

973 In this evidence, Dr Smith was plainly looking at the distribution of the reserves from the perspective of how, if at all, they could be of use to Greater Glider using and occupying the impugned coupes. His view was they were unlikely to be. I accept that.

974 However, VicForests sought to make a different point, which related to the "abundance" of the Greater Glider in reserves and national parks. This was mostly an assumption rather than a proven fact, as Dr Smith's answers in cross-examination revealed. He was then taken to the markings on the map representing detections of Greater Glider within the parks and reserves.

> And you don't dispute the accuracy of the information depicted by the VBA fauna 25 layer, do you?---Which is the orange dots?
>
> Yes?---No. I have no reason to question the accuracy of those dots.
>
> And you will see that a large number of those orange squares are located within the parks and reserve areas as well?---Yes.
>
> …
>
> Why would you not accept that in considering the application of the precautionary principle in this case you must have regard to the conservation reserves and the SPZ areas which have been established in Victoria as part of the RFA process?---I believe I have taken that into account, and my point is that I can't be certain that there will be re-colonisation of coupes that I've inspected, unless I know that they are connected by a corridor to these larger green areas and that the area – the connecting corridors and the green areas or the large pink areas that they connect to have gliders in them, and I don't have that data.

975 Neither, on the evidence, does VicForests.

976 Dr Smith was then asked about the Victorian forest estate:

> Yes. And as a percentage of the total Victoria forest estate the Logged Coupes comprise – according to Mr Paul – an amount of .01 per cent. So that's one hundredth of one per cent. You've no reason to dispute that?---No.
>
> No. So what I want to suggest to you is – I withdraw that. Do you consider it a relevant matter in considering the threat of harvesting within the Logged Coupes, to have regard to what percentage the Logged Coupes comprise within the central highlands on the one hand and the Victoria forest estate on the other?---No. I don't consider it particularly relevant, if at all.

977 Dr Smith was not asked why he held this opinion. Nor was he re-examined on this. However, a fair inference to draw from other aspects of his evidence is that the fact that the Logged Glider Coupes (or even all the impugned coupes) represent a very small fraction of the entire Victorian forest estate is not relevant if it is the case, as Dr Smith's opinion establishes, that in fact the impugned coupes are not only high quality habitat for the Greater Glider but are used and

occupied by it. That, in his opinion, is the best way to identify suitable and quality habitat that should be protected so as to conserve and protect the Greater Glider as a species. I accept that, in the circumstances faced by the Greater Glider and the threats posed by forestry operations in the CH RFA region including in the impugned coupes, that is the appropriate approach. It is not appropriate to adopt some kind of hypothetical mathematical calculation in order to discount, at a theoretical level rather than a scientific one, the threat to the Greater Glider from VicForests' forestry operations.

The gross versus nett harvest area argument

978 I accept that the evidence shows, as VicForests contends, that there is a substantial difference in the Logged Glider Coupes (and, it can be accepted, there is likely to be a substantial difference in the Scheduled Coupes) between the gross area of the coupe and the nett area: that is, the area which is in fact harvested. Explanations for the difference are not, however, as VicForests' submissions might imply, solely due to prescriptions related to conserving biodiversity. Therefore, the comparison VicForests invites the Court to make is not quite as straightforward as suggested.

979 Putting those issues to one side, it is still the case, I accept, that a proportion of most coupes is not harvested because of prescriptions related to conserving biodiversity. VicForests contended that Dr Smith accepted the difference between gross and nett area as relevant to the assessment of the nature and extent of the threat or damage to the Greater Glider from forestry operations in the impugned coupes. That is not entirely accurate. Rather, Dr Smith qualified his opinion by reference to what might happen in the future:

> Do you consider that, in assessing the threat that logging might pose to the scheduled coupes or the impact that any logging in the scheduled coupes might have on the greater glider – that it is relevant, to have regard to those percentages vis-à-vis the scheduled coupes?---I believe it's relevant to have regard to the difference between the gross area and the net area, provided you have an understanding that this difference is going to be permanent through time, and I don't have that understanding. This may be the difference between the gross area and the net area at the present time, but subject to future logging, that difference may diminish.

980 I accept this opinion.

981 Dr Smith was then asked about some specific examples of the differences, in Blue Vein coupe, which on the evidence had a nett harvestable area of 19.97 ha, although only 2.52 ha had actually been harvested. His response was that he thought that coupe may have had some Leadbeater's Possum SPZs in it. He was asked, in effect, to put the reasons for the difference

to one side and agree with the fact of the difference between the gross and nett figures, which he did. However, the reason matters. When other evidence is considered, Dr Smith's supposition is correct. The coupe itself, and its surrounding area, comprises patches of Zone 1A Leadbeater's Possum habitat, and the coupe plan notes colonies have been detected within 500 m of the coupe boundary. There were other values to be protected as well, as this entry on the coupe plan explains:

> North bdry LBP 200m colony buffer, West bdry 60m RF buffer and LBZ1A, South bdry SPZ and 60m RF buffer, East bdry Federal Road. Coupe contains Pre 1900 MA scattered through coupe and have been retained as Habitat trees. Coupe has been ground truthed in the field and marked using stringline and compass and GPS.

982 Immediately below this, an "operational constraint" is described:

> Starvation Creek catchment in part of the coupe.

983 And later:

> Starvation Creek catchment restrictions: No harvesting slopes >25 degrees

984 This example demonstrates that the gap between gross and nett harvested area might be explained by a number of matters, which are not necessarily directed towards avoiding serious damage to the Greater Glider. As Dr Smith accepted in his oral evidence, it may well be that some other prescriptions are capable of benefitting the Greater Glider, such as stream protection, if the buffer is wide enough, because it can act as a corridor. However, that depends on the existence of an end point of forest which is of use to the Greater Glider; otherwise it is a corridor to nowhere.

985 Therefore, again, VicForests' arithmetical approach of inviting the Court to compare two figures and conclude, it would appear, that there is plenty of forest left to be used and occupied by the Greater Glider, has an inadequate scientific basis. Dr Davey's opinions were, as I have explained, expressed at such a level of generality as to be unpersuasive next to Dr Smith's greater experience and detail. They were also sometimes based on wrong assumptions, for example that Greater Glider detections on maps had been found by VicForests staff and (he appeared to infer) were the result of surveys or consciousness about the presence of Greater Gliders in the area.

986 As no more than an example, consideration of the coupe plan for Blue Vein illustrates the absence of any measures for the Greater Glider. In the table where "biodiversity issues" are to

be identified, and after the entries about the Leadbeater's Possum and the measures to be taken for that species, there is the following entry:

Table 10: Extract from Blue Vein coupe plan

Biodiversity	Value	Identified by spatial overlay as	Identified during field check as	How the value will be managed	Comments
Threatened fauna within 500m of coupe	Petauroides volans	Present	Present	No protection requirements for the special management of the species within the area covered by the Central Highlands Forest Management Plan. No further action required.	Several Greater Glider records located within 500m of coupe boundary.

VicForests' 2019 proposed Harvesting and Regeneration Systems plan

987 Although I would not adopt the same language, in substance I accept the applicant's closing written submissions at [306] that the evidence about VicForests' planning to move to less intensive forms of timber harvesting in native forest such as the forest in the impugned coupes does involve a recognition that its past conduct of forestry operations has not been adequate to conserve the biodiversity values in the native forest in which it operates. I prefer to use the word "recognition" rather than admission or concession in the circumstances. In substance the independent audit conducted for the purposes of the FSC accreditation process reached the same conclusion, when VicForests failed to secure accreditation for products harvested from Victoria's native forests. It should be recalled that the FSC auditors spent 25 days in the field with VicForests foresters and contractors and found that personnel essentially had no awareness of the high conservation value strategy or their roles in it. That failure has spurred VicForests on to introduce policies which describe more flexible and adaptive, and less intensive silvicultural methods. The link between FSC accreditation and the proposed changes leads to the inference, which I draw, that VicForests' primary reasons for the proposed changes are commercial ones.

988 I emphasise that VicForests' policies *describe* more flexible and adaptive, and less intensive, silvicultural methods. That is the first step, and indeed I accept that is a step relevant to

compliance with cl 2.2.2.2. However, cl 2.2.2.2, as I have explained, embodies an outcome or objective to be achieved in the forest, on the ground: that is, "careful evaluation" is to result in the *adoption* of management options which are designed to "wherever practical avoid serious damage to the environment": here, to the Greater Glider. That is an objective in the real world of the habitat of the Greater Glider, not an objective simply in a policy document.

989 There are two principal limbs to my findings about VicForests' proposed changes to its silvicultural system, which was a principal plank of its defence to the proceeding, at least since around February 2019. Those two limbs are as follows:

(a) Does the evidence establish, on the balance of probabilities, that VicForests will in fact implement the new silvicultural methods in the Scheduled Coupes?

(b) If the evidence does establish VicForests will do so, does the adoption in fact of those new silvicultural methods demonstrate that VicForests has (1) carefully evaluated its management options to wherever practical avoid further serious damage to the Greater Glider from its forestry operations and (2) applied this precautionary approach to the conservation of the Greater Glider in CH RFA region?

990 I approach these two limbs on the basis of my findings about VicForests' non-compliance with cl 2.2.2.2 in the Logged Glider Coupes. As the applicant contended, VicForests' main answer in relation to the Logged Coupes (including the Logged Glider Coupes) was a legal one (about the unavailability of EPBC Act relief and the non-application of the precautionary principle, as VicForests defined it, to any of the impugned coupes), rather than a factual one. However, given my findings, if on the balance of probabilities the evidence reveals no substantive difference between VicForests' approach to the planning and conduct of its forestry operations in the Scheduled Coupes and the approach taken in the Logged Glider Coupes, then, subject to consideration of VicForests' "uncertainty" contentions, the applicant will have proven non-compliance with cl 2.2.2.2 in relation to the Scheduled Coupes.

991 Before explaining my findings in relation to those two limbs, it is important also to state that I do not find there to be any satisfactory explanation given by Mr Paul (as the only witness in a position to do so) as to why this apparently central policy change was not disclosed by VicForests earlier in this proceeding. It is apparent that there have been at least two failed FSC applications by VicForests, and on each occasion it has sought to address the failures identified in order to attempt again to secure the commercial benefits which come with having FSC accreditation. The evidence reveals that many of the policy documents have been in

development for several years, although the lack of progress by VicForests in changing its approach to its forestry operations is consistent with the findings I have made about its lack of attention to implementation on the ground of practices that will assist the protection and conservation of threatened species, unless it is legally compelled to implement such practices.

The first limb: Is VicForests likely to implement the new approach?

992 On the balance of probabilities, I am not persuaded VicForests will implement any new or different silvicultural methods in the Scheduled Coupes. In reaching this conclusion, I have relied on the following matters:

(a) the evidence of the conduct of VicForests' forestry operations in the non-impugned coupes (also described as the tendency evidence): see [1077]-[1117] below;

(b) the evidence about the Logged Glider Coupes;

(c) the failure of VicForests to alter any of the silvicultural methods on the Timber Release Plan when it was re-issued in April 2019;

(d) some structural and organisational features of VicForests, and of its conduct in this proceeding, which do not suggest any long-term commitment to change;

(e) the Castella Quarry example: see [1132]-[1156] below;

(f) other examples of practice departing from policy (eg continuing to use high-intensity burns); and

(g) the obvious overreaching in Mr Paul's evidence about the target of 75% of the total harvested area by VicForests being taken in accordance with less intensive methods by 2020.

993 I have made some findings above about the non-compliance with cl 2.2.2.2 in the Logged Glider Coupes. A further feature of the evidence, as the applicant put to Mr Paul in cross-examination, is that of the 18 additional coupes logged since August 2018 in which the Greater Glider or Leadbeater's Possum had been detected, all of them were logged by one of the existing intensive methods of harvesting. As Mr Paul accepted, in his fourth affidavit (at [88]) he deposed that August 2018 was approximately when VicForests commenced work on the High Conservation Values Management Systems policy documents as part of VicForests' attempt to obtain FSC certification. There were Greater Glider detections in 2017 and early 2018 in these coupes: in other words, VicForests had these reported detections. Then from mid-2018, it decided to revise its silvicultural systems, having this information, but nevertheless

continued to pursue high-intensity harvesting methods in the coupes where there had been detections. There is nothing at all precautionary about such an approach, and it shows little if any regard for whether its forestry operations on the ground were likely to cause further damage to the Greater Glider. It did not, for example, avoid the coupes where there had been detections until it had settled on less intensive harvesting methods which it had been able to test and verify in terms of their impact. It had plenty of coupes available to it under the Timber Release Plan.

994 The conduct of VicForests in not altering the silvicultural methods in the Timber Release Plan when it was re-assessed and re-issued in 2019 is also significant. Whether or not VicForests is obliged (by s 38 of the SFT Act) to specify a method in the Timber Release Plan is not the point. The fact is that in 2017 it did specify a method for the impugned coupes. Almost without exception, it specified clear-fell as the silvicultural method. The publication of the Timber Release Plan serves a public purpose – informing all of the Victorian community, and the spectrum of stakeholders with interests in what occurs in Victoria's native forests, about VicForests' plans for harvesting the timber which has been allocated to it. VicForests is dealing with a resource which is the property of the Crown in right of the State of Victoria, and in that sense a community resource. The Timber Release Plan is VicForests' public statement of intent (see s 41 of the SFT Act), and is an important public function performed by VicForests, as a statutory agency. There is public consultation about the Timber Release Plan. While VicForests may well be correct as a matter of law in its submission that it is not bound to use the silvicultural method specified in the Timber Release Plan, s 44 of the SFT Act does require VicForests to act "in accordance with" the Timber Release Plan. It would seem highly inappropriate for any aspect of the document to be misleading or inaccurate. If VicForests publishes the Timber Release Plan and thereby announces it will harvest coupes by a particular method, it would seem (at least) counterproductive and inappropriate if it does so in fact intending to use different methods.

995 VicForests advanced no rationale through Mr Paul (or otherwise) for how and why it decides to specify a particular silvicultural method in the Timber Release Plan. Nor did it advance any reason why, in April 2019, it continued to specify the most intensive method, the one it well knows is capable of causing the most damage to biodiversity values in a coupe.

996 By April 2019, this proceeding was well underway. The Separate Question reasons had been published a year earlier, in March 2018. The applicant had, on 29 March 2018, then amended its statement of claim to challenge the forestry operations in the impugned coupes by reference

to cl 2.2.2.2. On 10 May 2018, an interlocutory injunction had been granted preventing VicForests from carrying out forestry operations in a number of the impugned coupes. That injunction was granted on the basis of evidence about Greater Glider detections in many of the impugned coupes, which of course are in the 2017 Timber Release Plan. The matter was listed for a trial commencing on 25 February 2019. It was in this context that, on 11 February 2019, VicForests filed an affidavit from Mr Paul which described VicForests' proposed changes to its silvicultural methods, and sought to amend its defence. It was this conduct which caused an adjournment application by the applicant, which was granted. Despite taking that position in this proceeding, VicForests did not alter the silvicultural methods in most of the Scheduled Coupes in the April 2019 Timber Release Plan.

997 At [66] of this affidavit, Mr Paul deposes that, in 2017, VicForests had prepared a document called "VicForests Management for High Conservation Values", being an update of a 2014 document. At p 40 of the 2017 document, this was stated by VicForests:

> Conservation measures such as the creation of Leadbeater's possum reserves (the 12.5 ha circular reserves established at confirmed detection sites) have further compromised road network efficiency and resulted in significant additional kilometres per unit timber yield. Declaration of the Leadbeater's possum reserves places the 12.5 ha in SPZ. Roads are excluded, and regeneration burning or planting is prohibited. This results in unstocked forest areas, reducing future habitat for Leadbeater's possum and other arboreal animals. The reflexive creation of these reserves without landscape-scale analysis of best-quality habitat or optimal reserve configuration limits potential benefit to the taxon while increasing the social, economic, and environmental costs in the timber industry.

998 This is a statement about a critically endangered species which is threatened with extinction in the wild in the immediate future essentially to the effect that protective measures are interfering with VicForests' forestry operations and its commercial interests. If this is the attitude of VicForests to a threatened species found to be at immediate risk of extinction, then it is indicative of the lack of motivation to "carefully evaluate" any management options for a species at less risk, such as the Greater Glider. The second part of the statement also suggests that there was little or no scientific basis for the SPZs measure in the first place, which is also probative of VicForests' lack of attention to considering measures which will "wherever practical avoid" further damage. It would be no answer to respond that such matters are the concern of DELWP and not VicForests: the Code is very clear about VicForests' conservation responsibilities as a statutory agency. It is up to VicForests to determine how to meet its responsibilities; and once again that is the point of imposing an obligation with adaptive rather than fixed content such as the one contained in cl 2.2.2.2.

999 The 2017 document also stated (at p 41):

> Regrowth Retention Harvesting (*Regrowth Retention Harvesting Instruction Version 2.0 February 2016*), under which mature forest elements are retained within harvested areas, is now being applied on more than half of all coupes in ash forest types. The threat of fragmentation is reduced when retained patches are linked to reserves and special management areas. Regrowth Retention Harvesting appears to be resulting in enhanced debris inputs along the margins of harvested areas and in reduced decomposition rates of retained debris within harvested coupes. Research is still in early stages.

1000 Whatever research there was, even if in the "early stages", about the contribution of regrowth retention harvesting to the protection and conservation of hollow-dependent species (including the Greater Glider and the Leadbeater's Possum), it was not produced by VicForests in evidence. Nevertheless, VicForests' own document suggests it considered regrowth retention harvesting a preferable silvicultural method from a conservation perspective. That was in 2017.

1001 Mr Paul deposed in his fourth affidavit (at [78]) that the Controlled Wood Report was received by VicForests on 23 May 2018: shortly after the injunction was granted. He deposed (at [81]) that "around this time" (that is, May 2018) a FSC Steering Committee was formed within VicForests. Mr McBride was a member of that committee and Mr Paul attended meetings "as required". Mr Paul deposed (at [88]) that, at a meeting in August 2018, it was reported that "work was to commence on planning and revising documents", including the High Conservation Values Management Systems documents, and that "a strategy plan was being developed". All this time, in the forest, some of the impugned coupes were being logged by clear-fell, or close to clear-fell methods. Mr McBride was responsible for leading the "workstream" of the FSC Steering Committee that was revising VicForests' harvesting and silvicultural practices, and a workshop was held in October 2018. Meanwhile, nothing about this had been disclosed to the applicant or to the Court. By January 2019, Mr Paul deposed, the Steering Committee received a report about an outcome of the project plan, to the effect that there would be updates to:

> VicForests' documents and practices to provide for adaptive silvicultural systems that avoid adverse impacts on high conservation values.

1002 Mr Paul also deposed that Mr McBride, in conjunction with others, would develop an "overall adaptive silvicultural system", a first draft of which was prepared by Mr McBride on 17 January 2019. Further drafts were produced, with the latest one in evidence being May 2019, as I have described earlier.

1003 In May 2019, shortly before the trial, Mr Paul made a fifth affidavit. It was on the basis of this affidavit that VicForests sought leave to amend its defence. One of the subjects covered in this affidavit was an "update" about the new silvicultural policies. He deposed (at [13]-[18]):

> In relation to the 2019 HCV Document, VicForests has determined to undertake a reassessment of high conservation values and their elements. For example, in annexure A to the 2019 HCV Document, under FSC Category HCV-4 (forest areas that provide basic services of nature in critical situations e.g. watershed protection, erosion control), VicForests has identified a specific HCV element being HCV 4.1; forests critical to water catchments. VicForests will review information about that particular HCV element to provide a more stringent evidential basis for identifying the values in the forest that correspond to that element. Based on my knowledge and experience, I consider it likely that as a result of this process the number and scope of identified high conservation values and their elements will increase.
>
> This review process of the high conservation values and their elements has not yet commenced. VicForests is developing a project scope for this work as it is likely to involve both internal and external resources. VicForests is working towards completing the review by mid July 2019. This will likely result in at least a further version of the 2019 HCV Document.
>
> VicForests intends on finalising the next drafts of the 2019 HCV Document and the Systems Document by 4 June 2019, with a view to releasing both documents for a further round of public consultation as soon as possible after that date. These drafts will not incorporate the work that is being undertaken as described in the preceding paragraph.
>
> At this stage, it is not known when Annexure A to the 2019 HCV Document will be in a finalised form, but its progress is being worked on as a matter of priority within the business.
>
> In addition, VicForests will update its Forest Stewardship Plan to reflect the development of the Systems Document and 2019 HCV Document (and associated stakeholder consultation documentation). VicForests is aiming to complete this work by September 2019.
>
> Subject to the above, VicForests will finalise the Systems Document and the 2019 HCV Document in mid July 2019. Once finalised, the Systems Document will represent VicForests' silvicultural policy. That silvicultural policy will apply to VicForests' timber harvesting operations, including regeneration, for the Eastern Forest Management Unit (which includes the CH RFA Area). In the meantime, VicForests' practice is to identify coupes in which the adaptive silvicultural systems described in the document can apply.

1004 He then stated that the Scheduled Coupes "will be re-planned in accordance with the new silvicultural policy".

1005 That was in May 2019. What Mr Paul did not depose to, but what the applicant adduced through the Government gazette, was that, in April 2019, the Board of VicForests had authorised a new Timber Release Plan for the CH RFA region covering the impugned coupes. Despite all the evidence already adduced in this proceeding (especially Dr Smith's reports), despite all the

reported detections, despite the injunction, and despite its own apparently considerable efforts to adopt a more conservation-focused silvicultural system, VicForests – through its Board – reissued the Timber Release Plan with clear-fell as the predominant silvicultural method on the Scheduled Coupes: 32 out of 41 Scheduled Coupes. Not a single Scheduled Coupe had its silvicultural method altered. So far as its public presentation of its formal plans were concerned, VicForests had not altered the proposed course of its forestry operations at all.

1006 I find that approach not reflective of any appropriate understanding of the obligations comprehended by cl 2.2.2.2. It demonstrates no "on the ground" commitment to change at all. Indeed, it demonstrates resistance, and window dressing by way of documents and policies, but a resistance to public notification of changes to timber harvesting methods.

1007 These are structural and organisational features of VicForests, and of its conduct in this proceeding, which do not suggest any long-term commitment to changes in timber harvesting methods that would better advance the protection and conservation of threatened species which depend on the native forest it is currently permitted to log. More specifically these structural or organisational features do not suggest the implementation in the medium or foreseeable term of less intensive forms of timber harvesting which will be compliant with cl 2.2.2.2 in respect of the Greater Glider.

1008 A clear example is the way VicForests does not appear to involve those with some expertise in biodiversity conservation in its forest management planning. The evidence discloses that VicForests has a Field Ecologist, Dr Cardoso, who works out of the Orbost office. I have referred to her earlier, in relation to the Interim Greater Glider Strategy. She was the person who made comments about VicForests needing, in its Interim Greater Glider Strategy document, to state clear actions that would be undertaken, rather than simply saying it would "endeavour" to do something. She was not called. The chart discloses VicForests has two "Biodiversity Research Officers" located at VicForests' Woori Yallock office. They were not called, and there did not appear to be any affidavit evidence from Mr Paul whether they had any systemic role in coupe planning or in the conduct of forestry operations (for example after reported detections). It is true Mr McBride, who has the title of "Manager, Biodiversity Conservation and Research" on this chart, was called. In his affidavit, he describes himself as a "wildlife biologist and researcher". It is clear from the evidence he has a policy role in relation to some aspects of VicForests' operations which affect biodiversity values. However, it was not apparent what roles individuals with that kind of expertise play within VicForests – how,

for example, if at all, they are involved in responding to detections of threatened species, or the development of prescriptions, or the monitoring of the implementation of prescriptions. There is no evidence any of these people, including Mr McBride, have any role in the preparation of the Timber Release Plan, in the selection of silvicultural systems to be used in coupes, in the development of coupe plans. There is some evidence Mr McBride is contacted on an ad hoc basis about detection reports, but there is no evidence (as I have found earlier) about whether his advice and recommendations are implemented. Nor is there any evidence he has some systemic role in coupe planning or the conduct of forestry operations. It is not clear whether his role in this respect is activated only where there is the threat, or actuality of some litigation about VicForests' practices.

1009 There are other structural and organisational features or aspects on which I have relied. Mr Paul's truly last-minute evidence, in the witness box, about the development of pre-harvest surveys by DELWP is difficult to understand. Putting to one side any explanation based on deliberate concealment (which was not put to Mr Paul), if it was in fact a component of VicForests' policies and objectives moving forward to adopt approaches to its timber harvesting which involve wherever practical avoiding serious damages to hollow-dependent species (and the Greater Glider in particular), then I would have expected it to highlight the development by DELWP of these pre-harvest surveys. It might, for example, have adduced evidence about how it was involving its own ecologists and biodiversity officers in that program. It might have set out all the steps it was proposing to take to ensure DELWP had adequate notice of its timber harvesting activities so that it could properly plan and resource the surveys. It might have adduced evidence about how it was seeking to involve its foresters and contractors in education programs so that they could work effectively with DELWP on such surveys. It might have adduced evidence about the monitoring and research it expected to come out of this so that it could comply with what cl 2.2.2.2 says about the applications of the precautionary principle being consistent with relevant monitoring and research about the effects of forest management on ecology and conservation values. It did not one of those things. Instead, Mr Paul in substance mentioned the DELWP surveys in passing. I find that approach is consistent with the view I have formed about the attitude within VicForests to conservation of threatened species, including the Greater Glider: that it is an inconvenience, an interruption to its timber harvesting programs, not a topic it wishes to be proactive about and something about which it has a defensive and negative approach. None of that is consistent with cl 2.2.2.2.

In the way Mr Paul's evidence was presented about the relatively new DELWP program, I saw no basis to find this attitude was likely to change in the foreseeable future.

1010 A second organisational or structural feature is the development of the Interim Greater Glider Strategy, which I have found to be flawed in design and barely implemented in practice. I also found that those within VicForests responsible for decision-making about the Interim Greater Glider Strategy (who were never actually identified) did not take the advice of their ecologists and biodiversity officers about the need for the Interim Greater Glider Strategy to set clear obligations. The impression I had from Mr McBride's evidence was that he also felt compromised over the content of the Interim Greater Glider Strategy and its implementation, or lack thereof. That is hardly surprising given the attitude of VicForests evinced by correspondence such as that I have extracted at [886] above. The development of the Interim Greater Glider Strategy shows the same characteristics and attitude as those I have set out in respect of VicForests' attitude to the DELWP program.

1011 Next, there was VicForests' failure to agree obvious facts, a point the applicant makes at [333] of its closing submissions. I say "obvious" because, as I have found, these matters are the very basis for the listing of the Greater Glider under the EPBC Act, and under the FFG Act, and are the subject of statements by DELWP. They are also, as another example, clearly accepted and relied on by the independent panel which reviewed VicForests' operations in 2018, which found at p 24:

> In addition: "timber harvesting in Greater Glider habitat has been proven to cause declines and/or local extinctions of Greater Glider populations." The Committee observed that: "conservation of the species is utterly dependent on sympathetic forest management which retains buffer strips of old forest between coupes and preserves old habitat trees."

1012 If VicForests, as a statutory agency charged with the conservation of biodiversity values based on relevant monitoring and research, cannot accept the very factual basis for the listing of the species, then this Court can have no confidence that VicForests is likely in the foreseeable future to modify its forestry operations in the CH RFA region in a way which is intended to be more protective of hollow-dependent species such as the Greater Glider (and the Leadbeater's Possum for that matter) from the adverse impacts of its forestry operations. To demonstrate just how resistant Mr Paul was to these obvious propositions, the relevant part of his cross-examination should be extracted:

> Mr Paul, it has been correctly pointed out to me that I was mistaken and misrepresented my question to you about the document, so I want to be fair to you, so I just want to

go back. So I was asking you about 54. So the document that came from the solicitors for the applicant said:

> *The causes of Greater Glider population in decline in the Central Highlands include forestry operations.*

So that was what was not agreed to; is that right?---Yes.

And then the document was amended to say, by the solicitors acting for VicForests:

> *The causes of Greater Glider population decline in the Central Highlands may include –*

and, for example, 54.3, ongoing natural decay and collapse of trees. Do you see that?---Yes.

And so that reflected VicForests' position that it has the view that causes of Greater Glider population decline in Central Highlands may include ongoing natural decay and collapse of dead trees with hollows and so on; correct?---Yes.

But what was not done was to say the causes of Greater Glider population decline in the Central Highlands may include forestry operations, was it?---No, it doesn't say that.

No, and that's because VicForests didn't accept and doesn't accept that the causes of Greater Glider population decline in the Central Highlands may include forestry operations, does it?---It was certainly an area of contest, yes.

I beg your pardon?---Well, I gather that's the contest that this is about.

Well, it's not just that. What I'm putting to you, just to be clear about it, is you were asked does VicForests agree or disagree with this fact, and what happened is on the instructions of you and the other people at VicForests, this document went back with the word "may include", and 54.3, taking it as an example, was something that VicForests was happy to accept may be included as a cause of Greater Glider population decline in the Central Highlands; correct?---Yes.

But VicForests was not prepared to agree even that it may be a cause of Greater Glider population decline, that forestry operations may be a cause of Greater Glider population decline in the Central Highlands, was it?---No, we've accepted that.

And that reflects that VicForests, in its approach to this case, and to the Greater Glider, does not accept the proposition that the Greater Glider population decline may be caused by forestry operations; correct?---Correct.

And if we could go then, please, to another part of this document. Could we go, please, to PDF page 16.

And you will see there that what VicForests was asked to admit and agree in paragraph 46 was that over the period 1997 to 2010 the Greater Glider population in the Central Highlands declined by an average of 8.8 per cent per year which extrapolates to a decline of 87 per cent over 22 years, and on your instructions and those of in-house counsel, that fact was not agreed, was it?---No.

And so I take it her Honour should proceed on the basis that VicForests does not accept that that is a fact?---Yes.

And similarly, in paragraph 47 the statement was asked to be agreed:

> *The overall rate of population decline –*

this is talking of the Greater Glider –

> *across the country over a 22 year period exceeds 30 per cent*

and again that was not agreed, was it?---No.

And so her Honour should proceed on the basis that VicForests does not accept that as a fact?---Correct.

…

And you will see that even with those words, 48.3 is crossed out. So 48.3 would otherwise read, even using that qualification:

> *As to Greater Glider distribution, using the best available data, in Victoria there is a concentration of records in the Central Highlands east of Melbourne in the Errinundra Plateau region of East Gippsland, a minor concentration in the Strathbogie Ranges north of Central Highlands, and scattered records elsewhere.*

So should her Honour take it that the refusal to agree that proposition means that, again, VicForests does not accept the validity of that proposition?---Yes.

And similarly 48.4, on the basis stated in the first line of that paragraph, that:

> *Populations of Greater Glider in the Central Highlands RFA area are located at or near the limits of the species distributional range.*

Again, that's not accepted by VicForests either?---No.

…

Now, I'm just going to ask you about a couple of other parts of this document. Could we go, please, to PDF page 18, and you will see, going back again to 54, that one of the causes of Greater Glider population decline in the Central Highlands, using the word "may" as inserted by VicForests solicitors, may include, in 54.2, ongoing clear-felling of old growth mixed species forest. Do you see that?---Yes.

Now, that's crossed out, and I take it her Honour should proceed on the basis it's crossed out because VicForests doesn't accept that a cause of the Greater Glider population decline in the Central Highlands may include ongoing clear-felling of old growth mixed species forest; correct?---That's correct.

And similarly, VicForests doesn't accept that another cause of the glider's decline in this area may include, in 54.4, extensive wildfires in ash forests and mixed species forests in 2009; correct?---Correct.

And the same applies for the other matters that are crossed out in that paragraph. Is that the case?---Yes.

1013 Now it is true that just after these passages, Mr Paul indicates that one difficulty is that although VicForests "would certainly consider clear falling as an issue we would need to consider", it does not typically use clear-felling in old growth Mixed Species forest. I infer Mr Paul was suggesting that was the reason VicForests did not agree the fact. However, it would seem VicForests did not proffer any alternative fact which involved a concession about the effects of clear-fell. The furthest Mr Paul would go was to say VicForests would need to "consider"

this. The evidence to which I have referred earlier in these reasons demonstrates there is no doubt whatsoever, as a general proposition, about the effects of forestry operations on the Greater Glider.

1014 One of the puzzling aspects is that the VicForests Board, in its 2018 annual report, recognised the kind of fact which VicForests in this proceeding refused to agree. At p 18 of that report VicForests stated, in the context of a part of that report particularly about the Greater Glider:

> In June 2017, the greater glider was listed as threatened under the *Flora and Fauna Guarantee Act 1988* (FFG). A workshop was conducted by DELWP in July 2017 to discuss current knowledge and threats to the species. **Timber harvesting was identified as one of the major threats impacting the species**, yet it was also highlighted that there are significant gaps in knowledge surrounding species population trends, distribution and habitat suitability. Strategies have since been proposed to help gain better knowledge of their ecological requirements and improve population viability and survival.
>
> (Emphasis added.)

1015 The attitude demonstrated by VicForests, through Mr Paul as its institutional witness, indicates a reluctance to accept basic and well-established general propositions about the role of forestry operations as a threat to hollow-dependent species such as the Greater Glider. This conduct confirms that any policy statements which have emerged indicating a voluntary change to its timber harvesting practices are driven by commercial motivations, rather than any acceptance of the repeated expert opinion (including in official documents issued under the EPBC Act) about the threats posed by timber harvesting. There is little evidence of sustained change on the ground. And VicForests' reluctance in this proceeding to accept the obvious illustrates its defensive attitude and its apparent desire to protect the existing range and nature of its timber harvesting activities as much as possible. The Court does not accept it is likely that, on the ground, VicForests will in fact change the way it carries out its forestry operations so that the Greater Glider secures improved protection from forestry operations and its population decline is not only arrested but begins to be reversed. As I have noted, the expert evidence of both Dr Smith and Professor Woinarski is clear that recovery to sustainable and non-threatened levels is part of the conservation of any species.

1016 It is apparent that I have given weight to evidence which establishes a considerable difference between the policies of VicForests and what occurs on the ground, in its forestry operations. This difference was identified even by its own internal review. It is also identified in the Controlled Wood Report, where the auditor states (at p 19):

> But, on the basis of stakeholder consultations during the field audit, review of written

> materials submitted by stakeholders as well as interviews with VF field personnel, the audit team has concluded that there remains a considerable gap between design/intent and implementation of VF's HCV strategy.

1017 As VicForests submits in its reply, it may well be that this audit was not an audit about VicForests' compliance with the Code; at least, not directly. However, the problem it identified is a systemic one and the subject matter of the "gap" is between the design and intent of the new silvicultural strategies (which have been developed in the context of the High Conservation Values Management Systems policy) and their implementation. The new silvicultural methods are the basis for VicForests' contention that the Court cannot be satisfied it is likely to fail to comply with cl 2.2.2.2 in the Scheduled Coupes. And yet, on the very topic of the implementation of the High Conservation Values Management Systems policy, the Controlled Wood Report found a gap between policy and implementation on the ground. In my opinion this is a repeating theme of the evidence in this proceeding. To take a single example, but one which illustrates that it is not only the applicant and its witnesses who identify such gaps, in a version of VicForests' Harvesting and Regeneration Systems policy on which Professor Baker commented, the following statement appeared:

> In the mixed species forests of East Gippsland, over the past five years VicForests has substantially increased the level of retention of hollow bearing trees and trees with other conservation values; and no longer uses high- intensity burns as a regeneration treatment in these areas of increased retention levels.

1018 Professor Baker had provided detailed and significant advice to VicForests on this policy. In the margins of the version which records all his comments and which had been discovered by VicForests and admitted into evidence, he made a number of comments. In relation to the statement above, he commented:

> We certainly saw sites where they had…

1019 When asked about this in cross-examination, Professor Baker's evidence was:

> That is a comment that I made. We were in East Gippsland – I don't know that the East Gippsland forests are the subject of this proceedings, but we had seen sites where there had been I think what they would call seed tree harvests and they had – they had certainly burnt them.

1020 In one sense, this is a comparatively small piece of evidence in the morass of material before the Court. However, it is revealing, because it comes from one of VicForests' expert witnesses, albeit not one entirely at arms' length from VicForests. Notwithstanding his role in assisting VicForests, Professor Baker was being robust in this comment on the draft document (and

others, from my perusal of his comments), indicating to VicForests that the reality on the ground departed from what was being asserted.

1021 To this could be added the whole appendix to Dr Smith's report, where on a coupe-by-coupe basis he reports on his observations of compliance – in a substantive sense, bearing in mind the objectives of the prescriptions – during and after forestry operations with the Code and the Management Standards and Procedures.

1022 I have also taken into account Mr Paul's evidence, given at two different points and by reference to different versions of the May 2019 Harvesting and Regeneration Systems document, about how much of the State's native forest harvested by VicForests would be harvested in compliance with the new silvicultural systems policy, and by when. This matter needs to be canvassed in moderate detail, because it is obviously important to any assessment of how much reliance the Court can place on VicForests' contentions that the silvicultural systems policy represents a fundamental shift in the conduct of its forestry operations such that the Court could not find any likely non-compliance with cl 2.2.2.2.

1023 The following statements on p 7 of the May 2019 version should be extracted:

> It should be noted these objectives do not preclude the use of clear-felling and seed tree harvesting systems or the use of controlled burns for regeneration in specific settings. Clear-felling has historically been the most commonly employed silvicultural system in ash eucalypt forests of Victoria because it is the most reliable method for achieving successful eucalypt regeneration of this light-dependant species. Furthermore, clear-felling is generally the safest and most efficient system for harvesting contractors as it minimises the risks to workers associated with retained trees and falling limbs.
>
> However, VicForests has committed to progressively reduce its reliance on the predominant use of clear-felling and regeneration burning. This shift is guided by a range of contemporary national and international studies on forest silviculture, i.e. harvesting and regeneration systems.
>
> (Footnote omitted.)

1024 I note some matters of relevance from this extract. Firstly, the document demonstrates a continued commitment to clear-fell as a harvesting method, and to high-intensity regeneration burns. Indeed, clear-fell is described as the "most reliable" system of harvesting to achieve forestry objectives (that is, uniform and healthy regrowth for the next harvesting rotation). Further, as far as the evidence is concerned, while there is reference in the material to safety risks posed by falling limbs, I did not understand VicForests to put forward a case that less intensive systems of harvesting could not be employed because of occupational health and safety issues. Second, this statement is highly equivocal – to say that VicForests will

"progressively reduce" its reliance on such methods gives no indication of likely timing or the amount of any reduction, and certainly not whether that reduction will occur in the CH RFA region. Indications are supplied, if at all, by the representations to which I now turn. The impetus identified in this statement has nothing to do with conservation obligations or objectives, but is rather about "forest silviculture" studies.

1025 In the second 31 May 2019 version (at p 9), this is the statement about timing and proportion:

> VicForests expects that by 2020, variable retention harvest systems will account for more than 75% (by area) of its annual program of harvesting operations across the State. The use of clear-felling and seed tree systems will be restricted to specific sites with relatively uniform stand features, and VicForests expects that it will account for no more than 25% of its annual program of harvesting operations.

1026 Whereas, in the first 31 May 2019 version, discovered to the applicant, this was the prediction being made:

> VicForests expects that within three years, i.e. by 2022, variable retention harvest systems will account for more than [70%] (by area) of its annual program of harvesting operations across the State. The use of clear-felling and seed tree systems will be restricted to specific sites with relatively uniform stand features, and VicForests expects that it will account for no more than [25%] of its annual program of harvesting operations.

1027 Mr Paul was not able to explain the discrepancy in cross-examination, nor explain how the 2020 objective was likely to be achieved. Mr McBride, who was closely involved in the development of the policy, was asked to do so, and in particular was asked about what informed "the decision to suddenly roll out the new system in six months". The reference to six months is, I infer, a reference to the time period between the time of trial and the start of 2020. Mr McBride, while disclaiming any involvement in this part of the document, gave evidence that:

> the first number [ie 2022] was merely a placeholder and this [ie 2020] is the number now that has been identified from those subject matter experts to be the goal that VicForest wants to aim for.

1028 Mr McBride identified Bruce McTavish, VicForests' then manager of resources, who is assisted by analysts and other VicForests employees in his group, as the person responsible for that estimate. Neither Mr McTavish nor anyone from his group was called. Mr McBride accepted that Castella Quarry (which he referred to as an "implementation site" for the new policy and which was harvested in May 2019), would not enable VicForests to determine whether the silvicultural systems employed at that site have been successful in preserving Greater Glider populations by November or December of 2019. Therefore, it would appear

Mr McBride was saying that VicForests would implement these new systems, up to 75% of its entire timber harvesting, without knowing whether the allegedly less intensive methods had been successful in preserving, or reducing the impacts of forestry operations, on populations of hollow-dependent species such as the Greater Glider.

1029 In its reply table, VicForests contends that the 2022 date is "an obvious" typographical error. It also contended that the 2020 date is the accurate date, submitting that VicForests intends to engage in an FSC audit by 2020. The evidence reference given for this proposition is an FSC "Roadmap" adduced in evidence. It is true that on p 4 of that document, there is a statement to the effect that VicForests intends "to resubmit for certification to FSC Controlled Wood standard by 2020". However, the remainder of this "roadmap" document is entirely policy and procedure based. It contains nothing about how these new systems are going to be implemented, starting six months out from the trial of this proceeding, and how 75% of VicForests' forestry operations will be conducted under these systems by (at the latest) the end of 2020. Nor was there any other evidence about this. In contrast, in its closing submissions, VicForests submitted (at [76]) that the FSC project is "ongoing and has not concluded".

1030 To the contrary, I infer from the "roadmap" document, and from Mr McBride's evidence, that what is likely to occur is that VicForests may well resubmit its application for FSC certification before the end of 2020, but what it will be relying on is its policy documentation, rather than any wholesale, 75% implementation of new silvicultural systems. Such a level of implementation would be a massive undertaking. On the evidence presented to this Court, there is nothing more than a handful of coupes which are either test sites or, as Mr McBride preferred to describe them, "implementation sites". They are identified by name on the May 2019 document and there is no evidence about how 75% of the coupes on the current Timber Release Plan are going to have their harvesting methods altered in conformity with this policy.

1031 I find the 75% figure is nothing more than an aspirational target, perhaps put in the policy documents to bolster the attempt at FSC certification, with no evidence to suggest it is remotely capable of being met by VicForests by the end of 2020.

1032 Another difficulty, which I have taken into account, is what was said by the independent panel reviewing in 2018 the regulation of timber harvesting in Victoria. It said (at p 34):

> Our consultations have led us to the view that, VicForests is in a practical sense acting as self-regulator. The day-to-day supervision of logging coupes is carried out by foresters employed by VicForests. We viewed their work at a live coupe in Healesville. It is the VicForests' employees who mark out the coupes and supervise the on-site

> compliance of logging contractors. We were informed that DELWP officers have little interaction with the day-to-day operation of live coupes.
>
> The community looks to external certification of VicForests for confidence in the sustainability of timber harvesting, namely Forest Stewardship Council certification. This includes companies that look to the Forest Stewardship Council to provide them with confidence to use the timber harvested by VicForests.

1033 Further, the independent panel found (at p 38) that:

> The existing regulatory framework is … not being fully implemented. DELWP has insufficiently acted to protect the Greater Glider by using an action statement under the FFG Act (see the Greater Glider case study on page 22).

1034 The reference to p 22 of the report is a reference to the page where the following conclusion is expressed by the independent panel:

> As a result, despite being listed as a threatened species since June 2017, the lack of prescriptions means that the Greater Glider has still not received any further protections in state forests.

1035 While these criticisms are also directed at DELWP, the relevant point for present purposes is that VicForests well knows this is what the panel has found, a year or more before the trial in this proceeding commenced, and yet it refused to agree obvious facts, and it refuses – fundamentally – to accept the Greater Glider is not receiving the protection required for it. Instead, its focus remains on pursuing FSC accreditation for commercial purposes. VicForests was at pains in its reply table to emphasise that the FSC audit was for FSC purposes, and not for purposes of assessing compliance with the Code, emphasising how it sees the FSC audit as distinct from its obligations under the Code – and, pertinently here, cl 2.2.2.2.

1036 These matters indicate, in my opinion, that, while there is obviously an intention within VicForests to develop new policies for the purposes of securing FSC certification, those policies are focused on forestry outcomes and what the FSC requires to grant certification. VicForests presently is reluctant to accept the need to modify, and to plan to modify, its forestry operations to avoid, wherever practical, further serious damage to hollow-dependent species, including, and in particular, the Greater Glider.

1037 For those reasons, I am not satisfied that, on the balance of probabilities, VicForests is likely to employ less intensive methods of harvesting in the Scheduled Coupes. In terms of the way its forestry operations are likely to be conducted on the ground, I am not persuaded that anything of substance will change from the intensive methods currently used by VicForests.

The second limb: Is this "new" approach likely to lead to compliance with cl 2.2.2.2?

1038 On the balance of probabilities, and even if, contrary to my findings above, VicForests were to conduct its forestry operations in the Scheduled Coupes using less intensive silvicultural methods, such as those foreshadowed in the 31 May 2019 Harvesting and Regeneration Systems document, I am not persuaded this will lead to any different or better compliance with cl 2.2.2.2, and I am satisfied that in any event VicForests is not likely to comply with cl 2.2.2.2 in the conduct of its forestry operations in the Scheduled Coupes, so as to conserve biodiversity values, specifically, the conservation of the Greater Glider. In reaching this conclusion, I have relied on the following matters:

(a) the applicant's submissions, which I accept, that most of the "new" methods are not relevantly materially different, in terms of their impact on the Greater Glider, from the three existing silvicultural methods used by VicForests in its forestry operations, including in the Logged Coupes, and therefore the findings I have made about compliance in the Logged Coupes are not rendered inapplicable to the proposed forestry operations in the Scheduled Coupes;

(b) Dr Smith's evidence;

(c) aspects of Dr Davey's evidence;

(d) the Castella Quarry example: see [1132]-[1156] below; and

(e) the matters to which I have referred above as "structural or organisational" features, which lead me to find that (1) VicForests is not carefully evaluating management options which avoid "wherever practical" serious damage to the Greater Glider and (2) VicForests is not applying the precautionary principle as defined in the Code to conserve the Greater Glider in the CH RFA region.

1039 As I noted above at [314]-[353] on the evidence adduced at trial, as part of its suite of silvicultural systems moving forward, VicForests proposes to use four kinds of silvicultural systems: clear-felling and seed tree operations; variable retention 1; variable retention 2; and the "selection harvest system."

1040 The applicant's closing written submissions described these methods, based on the evidence, and VicForests did not in its closing reply submissions contend that there was anything inaccurate about that description, or about the applicant's evidence references supporting that description. It made other contentions which I address elsewhere in these reasons, especially about the uncertainties attaching to assertions about how forestry operations will be conducted

(if at all) in the Scheduled Coupes. Accordingly, I am satisfied what is set out in the applicant's closing submissions at [69]-[85], read with descriptions of the systems in the May 2019 Harvesting and Regeneration Systems document, is accurate. My findings here combine what is in Annexure A to the May 2019 Harvesting and Regeneration Systems document, and what is in the applicant's submissions at [69]-[85].

1041 The May 2019 Harvesting and Regeneration Systems document describes clear-fell and seed tree retention as follows:

> Clearfelling/seed tree operations
>
> - Most suited to uniform stands of tall wet eucalypt forests, i.e. Ash regrowth forests, which require a receptive seedbed and substantial gap sizes for effective regeneration.
> - Increasing retention of seed trees and recruitment of future habitat trees within the coupe area; indicatively up to 10 trees per hectare across coupe area.
> - Primary focus for retention is surrounding forests and connectivity through existing or new corridors.

1042 The applicant submits the following, which I accept:

> The "clearfell" method is defined in the Code as a silvicultural method of harvesting a coupe whereby all merchantable trees, apart from those to be retained for wildlife habitat, are removed (CB 6.9 p11). Ordinarily about 25% of a coupe is retained, taken up by SPZ, stream buffers, and habitat retention, and that area contributes towards the general area retained (RRH instruction CB 3.4.33 p7; T316.13-27, 318.24-34; 318.41-47). Examples of clearfelled coupe is New Turkey Spur - Greendale coupe (CB 4.7.1, p17) and Golden Snitch (CB 3.4.36, p 8 (yellow outline)).
>
> The "seed tree retention" method is defined in the Code as an even-aged silvicultural system in which all live trees are felled apart from a number of uniformly distributed trees retained to provide seed for regeneration and habitat (CB 6.9 p17). An example of a coupe logged by the seed tree retention method is Mount Despair, Glenview coupe (CB 4.2.1 on p91, bottom photo).
>
> In the May 2019 Harvesting and Regeneration Systems document, the first proposed method is "clearfelling and seed tree operations" (CB 12.2, pdf p 21). The new systems document states that clearfell will remain "an important part of VicForests' operations" in uniform regrowth Ash forests (p 21). It provides for 30% of tree cover to be retained across the gross coupe area (on average). Thus "clearfelling and seed tree operations" provide for only 5% of tree cover to be retained (on average) beyond areas of forest that are not permitted to be felled (e.g. SPZ, stream buffers, and habitat retention). It is not stated anywhere why, if at all, retention of an additional 5% of tree cover will benefit the conservation of biodiversity.
>
> Smith said that both clearfelling and seed tree retention remove all but a small number of trees retained to provide hollows for wildlife or seeds for regeneration and results in the regeneration of a predominantly even-aged regrowth forest. Accordingly, Smith refers to both systems as "clearfelling" in his reports (Smith (2) CB 4.3 p7-8).
>
> Smith said the proposed new clearfelling and seed tree retention system cannot be

considered an "adaptive management system" because it has no beneficial effect and exacerbates rather than mitigates the threats to Greater Glider and Leadbeater's Possum (Smith (4) 4.12.1 p14).

This method was retained in the May 2019 Systems document despite VicForests' own expert, Professor Baker, providing advice to VicForests on the earlier March version of the document that clearfelling was problematic and should not remain an important part of VicForests operations (T655.14-30). The references to developing a "broader suite of harvest systems" is aspirational only (CB 12.2 pdf p 21). The new clearfell and seed tree systems are not precluded from use in conjunction with regeneration burns (T305.32-.48).

(Original emphasis.)

1043 The May 2019 Harvesting and Regeneration Systems document describes variable retention 1 as follows:

Variable retention 1 system

- Using retention harvesting to ensure older forest elements are retained and recruited in areas available for timber harvesting.
- May comprise aggregated retention (forest patches) or more dispersed retention to support multi-cohort stand development.
- Retention of existing habitat trees and recruitment tree; indicatively 15+ trees per hectare across coupe area.

1044 The applicant submits and I accept:

RRH is not defined in the instruments. It is explained in VicForests' Regrowth Retention Harvesting policy document (CB 3.4.33) and by Mr Paul as involving the retention of forest patches so that more than 50% of the harvested area is located within one tree length of retained forest. The relevant retained forest must be at least 50 years old and remains unharvested for one rotation. The rotation length in Ash forests is nominally 80 years (Paul (2) CB 3.4 p65, at [154], and RRH instruction CB 3.4.33, p7-8).

Examples of coupes logged by RRH are Rocketman and Golden Snitch (CB 3.4.36, pp 4 and 8).

Smith said that traditional RRH has negligible merit for amelioration of current high intensity clearfell logging and burning impacts on Greater Gliders (Smith (1) 4.2.1 p32). Further the coupes that Dr Smith inspected that were logged by RRH were intensively logged with very few, if any, remaining surviving habitat trees (Smith (1) 4.2.1 CB pp68, 71, 74-75, 83, 89).

Davey accepted that the area that is harvested within RRH coupes is clearfelled and "is certainly intensively harvested" (TS 513.18-33).

Woinarski said that his inspections of the Rubicon coupes logged by RRH indicated that survival of the retained habitat was patchy. He provided photographs of the destruction or damage to retained forest patches within or adjacent to harvested areas in these coupes (Rocketman/Houston) (Woinarski (1) CB 4.7.1 at [89] and Figure 2).

Proposed new Variable Retention System 1 is stated to be based on RRH and is similar because it provides for retention principally in patches (CB 12.2, pdf p 22). It refers to

> the retention of at least 20% of basal area within the net coupe area, but this does not translate to a prescription for application of this method (CB 12.2 p22). Neither of the evaluation sites specified (Skinny Jim 2016 and Puerile 2018) were inspected on the view.
>
> …
>
> Smith's evidence is that the proposed be Variable Retention System 1 provides no improvement over current practice. He said it is poorly defined and is unclear what will happen to retained patches in subsequent harvesting cycles. He said Variable Retention System 2 represents an incremental improvement on Variable Retention System 1 but suffers from the same limitations, for the same reasons he provided regarding Regrowth Retention Harvesting (Smith (4) 4.12.1 p19). More specifically he said that the variable retention systems are not suitable for Ash because they do not specifically protect existing tree hollows or allow for recruitment trees, and any increase in habitat retained is temporary and lost by clearfelling on subsequent rotation, which is too short for development of hollows. He said that the variable retention systems were not suitable for Mixed Species forests either because they use gap clearfelling and regeneration by burning which are not ecologically sustainable and have no natural equivalent in Mixed Species forests (Smith (4) 4.12.1 p19).
>
> (Original emphasis.)

1045 The May 2019 Harvesting and Regeneration Systems document describes variable retention 2 as follows:

> Variable retention 2 system
>
> - Well suited to a range of forest types, including mixed species (comprising low elevation and high elevation mixed species forests), where there are hollow bearing trees to be retained to provide for habitat or other values.
> - Higher levels of aggregated and dispersed retention across coupe; indicatively retaining 20+ trees per hectare across coupe area.
> - Encompasses thinning operations, in terms of harvesting operations in which up to 50% is harvested to release further growth of new cohorts.

1046 The applicant submits and I accept:

> Proposed new Variable Retention System 2 provides retention principally in patches and corridors but can also incorporate dispersed retention (i.e. trees dispersed across the coupe). It states that it is principally for areas with high levels of existing habitat trees. It does not have a specified retention percentage nor does it require dispersed retention. However an example is given at CB 12.2 pdf p 24, where approximately 40% of the pre-harvest assessed area was retained. In cross-examination, it was put to Mr Paul that the reference in the description of Variable Retention System 2 to retaining 40%+ of the pre-harvest assessed area includes things like stream buffers and areas otherwise required to be set aside, for example Leadbeater's Possum Zone 1A habitat, and what it does is add another 15% plus or minus to the 25% that is retained as area that is not permitted to be harvested. Mr Paul agreed that was the case (T316.13-27, 318.24-34; 318.41-47). Paul agreed it might be better explained as requiring the retention of 15% of area not otherwise required to be set aside (T319.1-6). If this is the case, then proposed Variable Retention System 2 in fact provides for less retention than proposed Variable Retention System 1, which provides for retention of 20% of the basal areas within the net coupe area. In these circumstances the Court can place

little confidence in VicForests' proposed new methods.

(Original emphasis.)

1047 The May 2019 Harvesting and Regeneration Systems document describes the selection harvest system as follows:

> Selection harvest system
>
> - Comprises group selection and single tree selection systems, recognising varying levels of selection from single trees to small patches.
> - System represents a low intensity method of harvesting where individual or small groups of trees are selected and removed; hence the focus is on selection for high quality sawlogs rather than retention of remaining trees.
> - Ideal system for co-existence of selective sawlog harvesting and the sustainable harvesting of apiary products from floral resources.

1048 The applicant submits and I accept:

> This method is described at item 1.4 of CB12.2. For this method to be applied, there must first be a density of greater than 13 habitat trees per hectare.
>
> On the view, Smith and Davey said that the habitat in Flute coupe was "as good as it gets" (VT53.41-54.5), having between 8 and 10 habitat trees per hectare. The requirement of 13 habitat trees per hectare as a hurdle which must be met before the method falls for consideration is an unrealistic requirement that will have the result that no or very few coupes will be identified as appropriate for this method. Mr Paul said that he was not aware of any coupe in this case which qualified for the application of this method (Paul, T316.1-.11). Accordingly, the apparent existence of this proposed method is irrelevant to issues in the proceeding both at a TRP level concerning the CHRFA and at a coupe level concerning the scheduled coupes.

1049 The applicant accepts the May 2019 Harvesting and Regeneration Systems document suggests that VicForests will conduct less intensive burns after its forestry operations. These are called in the document "cool to moderate regeneration burns" or "cooler burns". However, the applicant contends that the only likely advantage of that refinement is that a lower number of habitat trees may be damaged or killed. As I have explained earlier, Dr Smith's evidence (which I accept) is that many trees which are left in coupes after forestry operations as "habitat trees" are in fact damaged or killed in the regeneration burns which occur, this negating the purpose for their retention. As I have also explained, that opinion is consistent with what the Court observed on the view about the number of dead and dying habitat trees.

1050 Thus, the applicant contends that if cooler and less intense burns are used more often, the only likely effect of this is to make VicForests more compliant with the objectives to be served from the retention of habitat trees. I agree. Cooler burns may make VicForests more compliant with existing prescriptions, that is all. VicForests did not deal with this issue in its submissions.

1051 There are other aspects of the new systems which seem to perpetuate some of the problems with the existing systems which have been identified by the applicant, in particular by Dr Smith. One is the way that habitat tree prescriptions are applied by reference to the gross coupe area: that is, VicForests does not apply the habitat tree prescription only to the area it proposes to harvest. There is no indication on the evidence that the new systems approach proposes to change this method. It has a real impact on what, if anything, remains in the harvested area, as the applicant's submissions point out:

> A number of the prescriptions in the May 2019 Harvesting and Regeneration Systems document, either as to area to be retained or habitat trees to be retained, refer to prescriptions being applied in the *gross coupe area*. These prescriptions must be understood by reference to the method VicForests uses to draw coupe boundaries. VicForests specifies that gross coupe boundaries must be mapped to include exclusions, buffers and SPZs *within* the coupe (Paul CB 3.4 at [259]; Coupe Reconnaissance Instruction (3.4.37 pp10 at [9.1], p22-24). This practice necessarily inflates the gross coupe area and may portray that a larger proportion of each coupe is being retained, when in fact the boundaries were simply drawn around forest not permitted to be logged in any event. Likewise, counting of habitat trees retained in gross coupe areas may result in few or no retained habitat trees within the actual harvest unit (Paul, T307.12-17), as observed by Smith at multiple coupes subject of the proceeding (Smith (1) 4.2.1 pp 58 68, 71, 74-75, 83, 89). It is for this reason that Davey said he considered that Mont Blanc coupe had complied with habitat tree prescriptions despite accepting that it had only 2 trees per hectare within the harvest unit (Davey T517.27-44).
>
> The Acheron Kenya coupe is a good example of reliance on existing SPZ or Code prescriptions as the "retained proportion" of the coupe in order to engage in more intensive harvesting in the harvest unit. It was visited on the view. Mr Paul said the coupe was harvested by regrowth retention with 13.4ha net harvested of 28.8 gross, but that coupe boundary includes a substantial area of mapped SPZ in the north (Agreed Map 7.4C; Post Harvest Map 8.2A). Such SPZ together with a stream buffer is what comprised the 53% "of the coupe" that was not harvested (i.e. it would meet the 40% retention method for System 1.3). The effect on the ground was a more intensive operation within the harvest unit, because VicForests counted retained trees in existing SPZ rather than retaining them within the harvest unit. Smith found on Kenya that habitat trees were not scattered across the coupe, were fewer than prescription and were not protected during logging operations with 48% burnt, felled or pushed, and no habitat trees in clumps (Smith (1) 4.2.1 p68).
>
> (Original emphasis.)

1052 Further, as the applicant contends, the benefits of any such modifications to the way the Greater Glider might be able to use, recolonise or remain in the forest subject to harvesting is not apparent. The following part of Mr Paul's evidence in cross-examination illustrates the point, and makes several other points, to which I refer below.

> Can I suggest to you that at a broadbrush level, SPZ and stream buffers typically make up 25 per cent of a coupe?---They – they can do, yes.

So if that's the position, what this variable retention system does is it reduces what might otherwise have been clear-felled so that an extra 15 per cent in addition to the buffers and streams is not the subject of intensive forestry operations; is that right?---Sorry, can you repeat that?

So 25 per cent, typically, of a coupe will be taken up by SPZ or stream and floodway areas?---On average, yes.

On average?---Yes.

Just a broadbrush. So what this method does is it adds another 15 per cent plus or minus to that 25 per cent, doesn't it?---In that sense of it being an average, yes.

So what I suggest to you is in terms of an adaptive measure, it might be better explained as being rather than 40 plus per cent of pre-harvest assessed area, plus or minus 15 per cent of area not otherwise required to be set aside?---I guess that's one way of describing it. It's clearly a new method, though, that aims to spread our habitat much more evenly across the coupe area, and include extra area, whilst at the same time provide some timber as well.

And this method has a hurdle of 5 to 12 habitat trees per hectare, doesn't it, for both ash and mixed species?---Yes.

So if 8 to 10 habitat trees is excellent habitat or very good quality – very high quality habitat for Greater Gliders, how is – and that habitat is found, what is it that says that that habitat should be retained in the 15 per cent?---It does say that at least an additional 20 habitat trees retained. So we are about identifying habitat trees and protecting those habitat trees.

But that's across the gross coupe area, isn't it?---Where – wherever they exist.

You see, this method, and the whole of this document, is driven by habitat trees rather than habitat suitable for species, isn't it?---Well, the two are going to be very closely related.

Well, do you understand from what you've read in this case that the habitat requirements, for example, of the Greater Glider are not the same as the habitat requirements for the Leadbeater's possum?---Yes, that's correct.

And how is it that this method is tailored to or takes into consideration the need for the Greater Glider to glide between tall trees and then have a landing tree with a 40 centimetre trunk?---Well, the level – that level of detail is not in here. As we discussed before, this is a somewhat sort of a higher level document. There will be more detailed prescriptions built into it, but Castella as a – Castella coupe as an example left those coupes – those trees approximately 30 to 40 metres apart, I believe, and were all of a reasonable size for that species to move between.

But there's nothing in this document that says, in terms of spacing one should factor in what you've just given in evidence, is there?---No, this document doesn't seem to say that specifically.

And this method, if we can just scroll to the next page, please, this isn't a new method. This – according to the evaluation sites, this has been around since 2013, hasn't it?---What - - -

Turkey Neck and Dogs Back, 2013 and 2017 in reverse order; correct?---Yes. So they're coupes where we have retained for various reasons additional habitat on those coupes.

> So this system, if indeed those two sites are evaluation sites, has been around since 2013. There's been one other evaluation site, Turkey Neck in 2017, but it's never been used otherwise, has it?---I don't know that it hasn't been used otherwise. They're the examples.

1053 Another point which this part of Mr Paul's evidence illustrates is that some of these "new" systems are in fact not that "new". Rather, they have been used in forestry operations since at least 2013, but only in an experimental way. That is, there has been no widespread implementation by VicForests of such methods, and despite at least one of these "experimental" coupes (Dogs Back) having been harvested in 2013, six years before the trial of this proceeding, there was no evidence adduced about what could be observed, six years later, in terms of how the forest in that coupe provided any current or potential habitat for the Greater Glider. In other words, once again, the "on the ground" reality, and any "on the ground" benefit to the Greater Glider, was not apparent in the evidence.

1054 Another aspect of this part of Mr Paul's evidence should be highlighted. His response to senior counsel for the applicant that habitat trees and suitable habitat are "very closely related" illustrates in my respectful opinion another of the difficulties of the attitude VicForests brought to these issues. That evidence showed no awareness at all about the complex habitat requirements of the Greater Glider (or any other hollow-dependent species), and involves a denial of the effects of forestry operations. Simply because a tree is called a habitat tree does not make it one. Observations of logged or regenerating coupes, and what are identified as habitat trees, and comparisons with an unlogged forest, indicate it is not rational or reasonable to describe the two situations as "very closely related". That is one of the points being made overall by the evidence of Professor Woinarski and Dr Smith: in some circumstances, there is no substitute for simply retaining the forest without logging it.

1055 The disparity between what can appear in a document such as the May 2019 Harvesting and Regeneration Systems document and what occurs during a forestry operation is further illustrated by what the Court observed in the Greendale coupe on the view. Greendale coupe was a coupe with predominantly tall Ash, and is identified by VicForests as an evaluation site for the first system (clear-fell and seed tree retention) in the May 2019 Harvesting and Regeneration Systems document: in other words, not a "new" method, but said to be a "new" approach to an old method.

1056 In the May 2019 Harvesting and Regeneration Systems document, noting that the clear-fell method will "remain an important part of VicForests operations, predominantly in tall Ash forests", VicForests states (at p 16):

> However, as a key part of its focus on developing a broader suite of harvest systems, VicForests is working to:
>
> - restrict use of clear-felling to the uniform regrowth Ash forests
> - reduce the use of high intensity regeneration burns
> - protect and enhance uneven-aged forest elements.

1057 To that end, one of the prescriptions proposed in this document for Ash forest and for Mixed Species forest is as follows:

> Where 2 or less habitat trees per hectare are present, retain at least ≥10 habitat trees (category 2 -3) per hectare.

1058 And another is:

> Utilise the 2 – 1 habitat tree retention method to maintain and enhance habitat elements within the harvest areas

1059 The "2 to 1" practice, as Mr Paul conformed in cross-examination, is a practice whereby foresters retain two retention trees, such as (in this region) two 1939 regrowth trees, so that there is, in the future, the possibility of habitat trees forming.

1060 In cross-examination, and also by reference to the post-harvest map for Greendale, Mr Paul accepted that the coupe was entirely harvested by clear-fell method, and no seed trees remained. He also accepted that, in the area that was actually harvested, it was "possible" no habitat trees were retained either. His evidence, looking at the post-harvest map and recalling what was seen on the view, was that at some points in the "buffer" areas – that is, around stream reserves and other features where VicForests is otherwise required to retain the forest – there were parts where the buffer had been "thickened up" beyond the minimum required. In substance, Mr Paul accepted that no trees at all had been left in the harvested area.

1061 This led to another difficulty between the theory of the prescriptions and the practice of their implementation, which was revealed in cross-examination:

> The amount of clear-fell area here is 18.4 hectares, isn't it?---Yes.
>
> And if we go – if we look on the other side of the page on the screen, what is said at the foot of what's page 16 of the 31 May 2019 document is that clear-fell and seed tree gaps will not exceed 10 hectares in size. Well, that's certainly been exceeded here in this evaluation coupe, hasn't it?---Yes, it has in this coupe, but certainly moving

> forward that 10 hectares will be applied.
>
> But, Mr Paul, this is an evaluation coupe for this method, isn't it?---Yes, it is, but it's – it's after the fact. So some elements haven't clearly aligned exactly.
>
> Well, what I suggest to you is what's happening on the ground here is just not matching the document, is it?---Not in this case for that particular area requirement, no.
>
> No. And yet this is – to any reader such as the applicants or any member of the public, if they want to understand what an evaluation site is for this method, the first one mentions Greendale, isn't it?---Yes.
>
> And when we look at Greendale against the criteria we find that it doesn't match up because it has got more than 10 hectares in size that are clear-felled; correct?---Correct.
>
> And it also doesn't have any recruitment trees or any habitat trees, does it?---I'm not sure about habitat trees in the harvested area, but there's potentially some close and contained within the buffers and expanded buffers.
>
> And this method that we're looking at is also a method that is used in this proposed document of 31 May for mixed species as well, isn't it?---Yes, it is.

1062 Thus, in the very coupe said in VicForests' own policy document to be an evaluation site for the "new" approach to clear-fell and seed tree retention, even the existing prescriptions let alone any refinements were not implemented. The coupe was completely clear-felled. Nothing was left standing over the entire 18.4 ha, and this was plain on the Court's view. Whatever aspirations for VicForests' forestry operations on the ground Mr Paul might have "moving forward", this coupe – said in fact to form part of VicForests' new approach to its forestry operations "moving forward" failed to even adhere to existing requirements.

1063 A further point can be made from the Greendale post-harvest map, in terms of how habitat prescriptions "on the ground" are implemented, or in this case not implemented. This concerns the Leadbeater's Possum SPZ prescription. To the south-west and south-east of Greendale, there are a number of 200 m SPZs. It will be recalled that Professor Woinarski's opinion is that these SPZs are, in any event, not especially effective, but they are a cornerstone of VicForests' response in this proceeding to allegations about significant impact from forestry operations on the Leadbeater's Possum. What is apparent is that a proportion of one of the SPZs has been clear-felled. There is a note on the post-harvest map which states: "area harvested before SPZ created". Dr Davey also makes this point in the table in his first report (at p 121), and estimates it is one-eighth of the coupe. There was no reliable evidence about the proportion. The evidence from the May 2019 Harvesting and Regeneration Systems document suggests Greendale was harvested in 2019. It was certainly very recent when the Court observed it on the view. The point is that according to the post-harvest map (and Dr Davey's report), the Leadbeater's Possum SPZ was created *after* harvesting, so also very recently and sometime in 2019, before

the trial in this proceeding. Yet, it was created over land which had already been clear-felled. So, in reality, the SPZ did not contain the 200 m radius of forest for the Leadbeater's Possum habitat that it was supposed to. In reality, the colony around which it was created did not secure the benefit of the (inadequate) amount of forest supposed to be reserved. These sorts of disconformities are the kinds of matters which give the Court little confidence that even basic prescriptions (which the experts see, and I accept, as hardly adequate and of little effectiveness) are in fact implemented on the ground.

1064 A further issue about the effectiveness of any "new" silvicultural methods, and whether they are likely in fact to deliver better and improved protection to the Greater Glider, is the question of whether any additional forest retained under the proposed policies is likely to be preserved long enough for species such as the Greater Glider to derive habitat benefit from it, or simply for one logging rotation.

1065 The applicant contends that the Court should find retained patches (such as those Mr Paul indicated were retained additionally in Greendale as part of the "buffer" area) are permitted to be harvested under the new systems. It advances three reasons for this.

1066 First, in the Castella Quarry coupe, the applicant submits the "retained area" in that coupe was in fact designated for logging in that rotation (that is, within the next 80 years). This submission was made by reference to the coupe plan for the Castella Quarry coupe, which I discuss in more detail below. Essentially, as I understand it, the applicant contends that what it shows is a more than 7 ha hatched area which according to the legend is to be excluded from harvesting, but which has a silvicultural method from the May 2019 Harvesting and Regeneration Systems document attached to it ("Silv V"), signalling it will be harvested. The applicant contends this means that VicForests considers it permissible to harvest the retained areas under its new systems. Mr Paul did appear to confirm in his cross-examination that this area was likely to be harvested in the future:

> Yes. What I'm putting to you is that the area that was marked set aside on this plan as habitat retention – sorry, 95 per cent, so the area not essentially to be in any way intensively forested, is poor timber – poor quality timber?---From my view of the site it's probably young timber. It's probably – it's – certainly being small it doesn't make useful timber at this stage. It may grow on one day and become timber into – decades into the future, but we don't just harvest timber because it's in front of us. If it's young and can be set aside to grow on, we will leave that to grow on.
>
> Yes, and it's because of the nature, I suggest to you, of the timber that you've just described that it was determined that that section would not be the subject of any more intensive silviculture method than perhaps method 5, wasn't it?---That's certainly part

> of the decision, yes.
>
> And I suggest to you that's what drove that decision rather than either the presence of habitat trees within that area or the recorded sightings of Greater Gliders within that area; that's correct, isn't it?---That – that would drive that decision, yes.

1067 Second, the applicant contends that none of the four iterations of the Harvesting and Regeneration Systems document before the Court included any specification of the period that retained areas must be protected, in contrast to VicForests' previous regrowth retention harvesting document which specified that retained areas must be protected for one rotation (nominally 80 years in Ash).

1068 In the table attached to its reply submissions, VicForests disputed these contentions. It submitted it was not apparent how the Castella Quarry coupe demonstrated what the applicant contends it does. I have explained what I find the document shows on its face, and this appears confirmed by Mr Paul's evidence.

1069 The third reason relied on Professor Baker's evidence in cross-examination, arising from comments he had made on some of the versions of VicForests' Harvesting and Regeneration Systems document. As I have noted earlier, Professor Baker was invited to, and did, annotate versions of this document with his opinions and suggestions. In cross-examination he was asked about an annotation that essentially put questions back to VicForests about the consequences for the timing of forestry operations from shifting to "multi cohort stands"; that is, stands of different aged trees. He had asked VicForests in his comment:

> Are you planning to do multiple entries to make up for this? Are you planning on harvesting over larger areas to make up for this?

1070 In cross-examination he was asked to explain what he meant, and this was his evidence:

> So the current silviculture, I think everyone here is well aware, is largely clearfell harvesting. So that is to say, you cut everything down within the context of the Code of Forest Practices, and you get an even-aged cohort. All the trees are roughly the same age. Okay. When you move to uneven-aged or multi-cohort forest silviculture as I refer to in here, you're leaving some trees. Now, there are – you know, the sort of extremes of this are you harvest all of the trees, and that's the clearfelling, or you harvest one tree in your forest, and that would be the ultimate sort of single tree selection system. In reality, we would be thinking about somewhere in the middle. Necessarily, if you harvest, say, 40 hectares in a coupe at one time, then you have – all of that wood is harvested then, and so the volume that's associated with that comes in. If you do something that is intermediate and you instead harvest, say, five one hectare patches, then you only have five hectares of wood, as it were, and so you can then -typically the way we would do multi-aged uneven-aged silviculture is that you would come back every 10, 15, 20 years. So that's what I referred to as multiple entries. Right. You wouldn't necessarily – or you certainly wouldn't if the hectare you harvested today, that would be left until, you know, 60, 70, 80 years. But the idea is that you come in

> with less intensive operations but you are doing them more frequently. That was the one question. And then the issue about harvesting of larger areas. If, instead of harvesting the whole 40 hectares at once, you're harvesting five hectares at once, then in terms of revenue, then I think it's a reasonable question given that they're a State-owned enterprise, to make sure that they understand that by shifting to that, then there will be a change in the revenues and then ask the question well, does that come from doing lighter silviculture over broader parts of the landscape. And again that might not be a bad thing in terms of, for example, Leadbeater's Possum habitat; the shelter woods, you know, look like they produce very nice big trees. But it has an impact, as it were, in terms of how much would you get from one place. Now, the reason, we sort of – as I said before, clearfelling is – the ecological basis for clearfelling is based on catastrophic fires or wind storms in other parts of the world. But the reality of is it's very efficient, right, so it's efficient to clearfell, and so when you do uneven-age silviculture in terms of revenue per unit area, you will harvest less and so you will have to come in more, so the costs tend to be higher.

1071 There was no evidence to which VicForests pointed in its submissions explaining how VicForests determines what is to occur, subsequently, with areas that are "retained" during a particular forestry operation. As the applicant submits, there is no definition of "retained" in the Code, the Management Standards and Procedures or the May 2019 Harvesting and Regeneration Systems document. There is a definition in the Code of "retained trees":

> trees retained on a coupe during a timber harvesting operation because they are unmerchantable, are to serve as seed trees or wildlife habitat trees, or have been selected to grow on after thinning.

1072 The Code defines "thinning" as:

> removal of part of a forest stand or crop, with the aims of increasing the growth rate and/or health of retained trees and, in commercial thinning, obtaining timber from trees that would otherwise eventually die before final harvest. Thinning is a type of tending.

1073 And "tending" in turn is defined as:

> the treating of a forest stand to protect, maintain, or improve its stand health and/or timber production potential. Thinning and selective harvesting are types of tending.

1074 These definitions make it clear that areas with "retained trees" may well be subject to future harvesting. How "wildlife habitat trees" continue to be identified if contractors go back into an area – for example 5 or 10 years later – to harvest again, is not explained in the evidence so far as I can see. What permanent protection from forestry operations, if any, attaches to retained habitat trees is unclear (assuming they have otherwise survived forestry operations in a state so as to be useful to, and used by, the target species).

1075 Dr Smith's fourth report contains his assessment of VicForests' proposed silviculture systems and modified harvesting practices. At pp 5-6. his opinion is as follows:

> I concluded from my review that the draft proposed changes in their present form are

not sufficiently robust to be certain of bringing about any substantive improvement in the assessment and mitigation of timber harvesting impacts on the Greater Glider. I base this conclusion on many limitations of the proposed new adaptive management system including the following:

a) the proposed changes rely on the same pre-logging assessment procedures which have been shown to be unreliable and to miss 97% of Greater Glider habitat and populations;

b) proposed new silvicultural methods are so ill defined that they can be implemented in essentially the same manner (with the same adverse impacts) as current practice in Ash forests and are too ill-defined to be certain of preventing impacts in Mixed Species forests;

c) there are no proposed pre-and post-harvesting survey and monitoring requirements for the Greater Glider essential to provide baseline information for adaptive management;

d) there are no targets or thresholds to trigger changes to silvicultural methods in the event that Greater Glider numbers decline or fail to recover after harvesting;

e) proposed silvicultural methods are not sufficiently precautionary to ensure that local or regional extinctions do not occur before harvesting methods can be changed given the long time periods (40+ years) required to confirm Greater Glider recovery after initial post logging declines.

The proposed (HRS and HCV) policies on habitat tree retention represent little or no improvements over current inadequate practice. The HRS states that an FSC Controlled Wood evaluation audit "*directed VicForests to increased focus on retaining and protecting hollow bearing trees, particularly where they exist outside the extent of designated old growth forest, i.e. small patches (less than three hectares) or scattered trees within coupes*." VicForests approach to implementation of this directive is to state (HRS section 3.2) that they will "*increase the retention and protection of hollow bearing trees, while also acknowledging the desirability of being able to factor broader landscape considerations, e.g. the extent to which hollow bearing trees are represented in the surrounding forest areas (across public land tenures).*" VicForests states in its draft HCV Management Systems proposal that it will increase retention of habitat trees but this promise is highly conditional as any increase in habitat tree retention will take into account "*the extent to which hollow bearing trees are represented in the surrounding forest areas, including other public land tenures comprising national parks, conservation reserves and informal reserves within State forests. In this way VicForests is seeking to achieve a balance between forestry and biodiversity across the forest areas in which it operates.*" This means that VicForests plans to do little or nothing to increase retention of hollow bearing trees within logged coupes and to rely largely on habitat tree retention in adjoining unlogged areas. This approach represents at best a continuation of current practice and at worst and acceleration of habitat tree loss in timber production forests.

1076 The doubts expressed by Dr Smith echoes some of the doubts I have formed on the evidence, in particular as between theory and practice in VicForests' forestry operations, and as between the imperative to secure sufficient timber from each coupe and VicForests' consequent reliance on there being adequate habitat in the reserve system. I also accept Dr Smith's opinion that the proposed methods, as set out in the policies, are not sufficiently well defined as to substantially

differentiate them from the existing policies and methods. Finally, as Dr Smith observes, and Mr Paul confirmed, nothing in these policies – which are pitched at a general level – establishes any new methods specifically aimed to benefit the Greater Glider. While it might well be said that that is to be expected in a broad-based policy document aimed at VicForests' forestry operations across Victoria, the salient point is that the issue in this proceeding is how – if at all – VicForests' proposed new methods will render its planning and conduct of forestry operations compliant with cl 2.2.2.2 in relation to the Greater Glider. I see no basis to make a positive finding that they will.

Forestry operations in the additional coupes

1077 During the trial the Court ruled the applicant could adduce evidence of the conduct by VicForests of forestry operations in 18 coupes, outside the Logged Coupes and the Scheduled Coupes. I have described these as the "additional coupes". The purpose of adducing that evidence was, on the applicant's argument, to prove that the pattern of VicForests' forestry operations in the CH RFA region, and to provide an evidentiary basis for its submissions that VicForests' forestry operations in the Scheduled Coupes, will not be undertaken in a way which complies with cl 2.2.2.2 of the Code.

1078 At the outset, I should make it clear that even without this evidence, I would have reached the same conclusions that I have: namely, that VicForests is not likely to conduct its forestry operations in the Scheduled Coupes in a manner which complies with cl 2.2.2.2 of the Code. The evidence about the additional coupes confirms my conclusions, but is not necessary to them.

1079 The additional coupes are as follows:

(a) Lure (483-504-0001);

(b) Puerile (484-501-0043);

(c) Simpsons Road (461-501-0002);

(d) Squeezee (461-501-0004);

(e) Firescan (484-504-0003);

(f) Pieces of Eight (344-520-0003);

(g) Below Learmonth (347-515-0002);

(h) Dejavu (312-011-0015);

(i) Teamwork (462-506-0017);

(j) Jumping Jack Flash (347-520-0008);

(k) Pamir (457-508-0005);

(l) Twisting (298-502-0002);

(m) Tropical (462-506-0003);

(n) Floater (300-501-0003);

(o) Flow Zone (307-503-0003);

(p) Impala (288-518-0006);

(q) Ivanhoe (288-519-0002); and

(r) Bayern Munich (312-509-0007).

1080 The applicant attached to its closing written submissions, in the form of a table, a series of factual contentions about the forestry operations conducted in these coupes. This was based on some of the affidavit evidence adduced in the proceeding from the applicant's witnesses (Mr McKenzie, Ms Forster and Mr Lincoln) who directly observed the conduct or aftermath of the forestry operations and coupe plans discovered by VicForests. As I have noted earlier in these reasons, the evidence of Mr McKenzie, Ms Forster and Mr Lincoln was not challenged, and none of them were required for cross-examination.

1081 The applicant's ultimate contention was that this evidence proved, on the balance of probabilities, in the CH RFA region, VicForests has a tendency to:

(a) use traditional high-intensity silvicultural methods where threatened species have been reported as detected;

(b) use traditional high-intensity silvicultural methods forests where VicForests has been notified of those detections; and

(c) damage threatened flora such as Tree Geebung, which are a flora species expressly in issue in this proceeding.

1082 The applicant contends this evidence proves that despite VicForests' case in this proceeding, and Mr Paul's evidence about the way it intends to change its forestry operations, "on the ground" it does not in any real sense comply with cl 2.2.2.2 That is because, the applicant contends, despite the 2017 and 2019 High Conservation Values Management Systems documents and policies, VicForests:

> has been continuing to use traditional clearfell, seed tree and regrowth retention harvesting on the ground in the 18 ancillary coupes, in which Greater Glider and/or Leadbeater's Possum were detected and/or reported to the Respondent.

1083 VicForests' response to these arguments was put at two levels. First, a legal argument was made about when it is appropriate for a Court to draw inferences based on circumstantial evidence. Relying on *Australian Competition and Consumer Commission v Metcash Trading Ltd* [2011] FCAFC 151; 198 FCR 297 at [30], VicForests submitted that where prediction about the future is involved, the process of predicting future facts involves drawing an inference from otherwise demonstrated circumstances.

1084 VicForests submitted:

> To the extent that this Court uses evidence as to the method and manner of timber harvesting in the Logged Coupes, and 19 coupes harvested since 31 August 2018 which are not the subject of this proceeding, to draw inferences as to the method and manner by which the Scheduled Coupes would be planned, surveyed and harvested using the "existing systems", that would impermissibly involve speculation in circumstances where the applicant cannot establish that is the more probable inference to be drawn.
>
> (Footnotes omitted.)

1085 One of the authorities to which VicForests refers is *Seltsam Pty Ltd v McGuiness* [2000] NSWCA 29; 49 NSWLR 262, and the judgment of Spigelman CJ. There are several passages in Spigelman CJ's reasons which, with respect, are apposite and should be extracted here. That was a case dealing with proof of causation of injury; but in that case, as here, the plaintiff's case relied on the court drawing inferences from circumstantial evidence.

1086 At [90]-[91], in *Seltsam*, Spigelman CJ emphasised that a party may discharge its burden of proof by reliance on circumstantial evidence:

> Proof on the balance of probabilities, indeed on the beyond reasonable doubt standard, may be established on the basis of circumstantial evidence. As Lord Cairns said in *Belhaven and Stenton Peerage* (1875) 1 App Cas 278 at 279:
>
> > "My Lords, in dealing with circumstantial evidence, we have to consider the weight which is to be given to the united force of all the circumstances put together. You may have a ray of light so feeble that by itself it will do little to elucidate a dark corner. But on the other hand, you may have a number of rays, each of them insufficient, but all converging and brought to bear upon the same point, and, when united, producing a body of illumination which will clear away the darkness which you are endeavouring to dispel."
>
> Causation, like any other fact can be established by a process of inference which combines primary facts like "strands in a cable" rather than "links in a chain", to use Wigmore's simile: Wigmore on Evidence, 3rd ed (1981) vol 9 at 412-444 [2497] referred to in *Shepherd v The Queen* (1990) 170 CLR 573 at 579.

1087 Spigelman CJ also explained (at [84] and [87]-[88]) the difference between a reasoning process which can properly only be described as "speculation" or "conjecture" and the drawing of inferences from other evidence:

> It is often difficult to distinguish between permissible inference and conjecture. Characterisation of a reasoning process as one or the other occurs on a continuum in which there is no bright line division. Nevertheless, the distinction exists.
>
> …
>
> As Lord Wright put it in a frequently cited passage in *Caswell v Powell Duffryn Associated Collieries Ltd* [1940] AC 152 at 169-170:
>
> > "Inference must be carefully distinguished from conjecture or speculation. There can be no inference unless there are objective facts from which to infer the other facts which it is sought to establish. In some case the other facts can be inferred with as much practical certainty as if they had been actually observed. In other cases the inference does not go beyond reasonable probability. But if there are no positive proved facts from which the inference can be made, the method of inference fails and what is left is mere speculation or conjecture."
>
> The test is whether, on the basis of the primary facts, it is reasonable to draw the inference: see, eg, *Luxton v Vines* (1952) 85 CLR 352 at 358.

1088 I do not accept VicForests' submission that there is nothing more than impermissible speculation involved in any finding by the Court about how VicForests will conduct its forestry operations in the Scheduled Coupes, and in particular whether any forestry operations it carries out will comply with cl 2.2.2.2. The methods of harvesting used in the additional coupes, the dates on which the coupes were harvested, and the existence of detections of the Leadbeater's Possum and Greater Glider in and around the coupes are all objective facts. Inferences can be drawn from these objective facts; and an inference as to the possibility of how forestry operations might be carried out may, as I explain, taken with other matters, sustain a finding it is more probable than not that forestry operations will be carried out in a particular way. The question then becomes whether that particular way is likely to be compliant with cl 2.2.2.2.

1089 In the same way that Spigelman CJ explained in *Seltsam* that the Court *may* be able to reason from a possibility, or several possibilities, to a conclusion on the balance of probabilities (see [89]-[98]), the findings the Court is asked to make about what is likely to occur, on the balance of probabilities, in the planning and conduct of VicForests' forestry operations in the Scheduled Coupes involve the drawing together of a number of factual matters. However, just as VicForests' past conduct in the Logged Coupes is capable of tending to prove its likely conduct in the Scheduled Coupes, so VicForests' conduct in logging other coupes is capable of doing so. Whether or not it does, or should be found to, will depend on the level of similarity between

the circumstances, and the factors which each of the parties point to, tending one way or the other. However it is not, in itself, impermissible reasoning for the Court to have regard to the evidence about how VicForests conducted its forestry operations in the additional coupes. They are all in the CH RFA region; they all involve the same kind of forest type – either Ash or Mixed Species or both; they were all harvested reasonably recently; they all have Leadbeater's Possum and Greater Glider detections in or around them; they are all the subject of the same kind of evidence as the Logged Coupes – coupe plans and (in at least many cases) post-harvest maps.

1090 There is no doubt that in the present proceeding not only the applicant but also VicForests invited the Court to draw inferences based on circumstantial evidence. VicForests invites the Court to draw inferences based on the circumstantial evidence about its revised silvicultural policies. From the circumstance that it has been engaged in the preparation and promulgation of such policies, VicForests invites the Court to draw inferences about how, in fact, it will conduct its forestry operations in the Scheduled Coupes in the future. VicForests' reliance on what has occurred at Castella Quarry is a specific example. Castella Quarry is not one of the impugned coupes but rather an "implementation site" for its modified silvicultural systems. I do not consider any reasoning process related to the evidence about the additional coupes is qualitatively different.

1091 The second point VicForests makes is that, even if the Court can consider what occurred in the additional coupes, that exercise does not give rise to the inferences the applicant sought to have the Court draw. From [257]-[275] of its closing submissions, VicForests works through each of the additional coupes and makes submissions to support the general submission I have set out.

1092 Without going through each coupe, recurring points emerge from this part of VicForests' submissions, including:

(a) the nett area harvested is generally significantly less than the gross coupe area: often close to half of the gross area, sometimes less than half;

(b) the post-harvest maps show that this is because there were areas set aside for Leadbeater's Possum THEZs of 200 m radius as the prescription requires, or for hydrological buffers and for Zone 1A habitat; and

(c) on at least one occasion (Puerile), forest was set aside as Greater Glider habitat.

1093 The applicant did not challenge the factual propositions put forward by VicForests in these paragraphs about the additional coupes. Indeed, both parties have taken documents such as the post-harvest maps as a reliable indicator of what occurred during forestry operations. Subject to the circumstances where, as I have already noted, there is direct evidence from Dr Smith or Professor Woinarski, based on their own observations and expertise, about what occurred in a particular coupe during a particular forestry operations, and what the aftermath of the forestry operations was (in which case, I prefer their evidence), I am prepared to adopt the same approach. I note also that Annexure C to the applicant's closing submissions is an agreed summary, tendered pursuant to s 50 of the Evidence Act.

1094 I accept the following submissions made by the applicant in reply about the additional coupes and what the evidence about them demonstrates.

1095 In the majority of cases (11 out of 18), each additional coupe was subject to forestry operations over an amount of land that either closely aligned with, or was larger than, the amount specified in the Timber Release Plan as the proposed nett area of harvest. In some of the 11, the nett area was larger than the Timber Release Plan. The 11 coupes are Fire Scan, Below Learmonth, Tropical, Floater, Ivanhoe, Pamir, Twisting, Puerile, Simpson's Road, Squeezee and Dejavu.

1096 The Timber Release Plan was prepared in 2017. In my opinion, what this shows is that in 2018 and 2019, when the additional coupes were harvested, VicForests made no adjustments in these coupes, in terms of reserving additional forest from harvesting, despite the detections of Greater Glider in or close to the coupes. Annexure C reveals that there were Greater Glider detections in or near Pamir, Twisting, Fire Scan, Puerile, Tropical, Ivanhoe, Simpsons Road and Squeezee. In four of these coupes (Pamir, Twisting, Simpson's Road and Squeezee) there were Greater Glider detections yet larger areas of the coupe were harvested than the areas shown on the Timber Release Plan.

1097 The applicant appears to accept, and I agree, that in the additional coupes THEZs for the Leadbeater's Possum were identified if there was a Leadbeater's Possum detection, but that is what the existing prescriptions require so it would have been a breach of the existing provisions of Code (outside cl 2.2.2.2) for VicForests to do otherwise.

1098 In six of the additional coupes (Pieces of Eight, Teamwork, Flow Zone, Impala, Bayern Munich and Lure), a smaller area was harvested than the area scheduled on the Timber Release Plan. Bayern Munich is an example. The Timber Release Plan shows that coupe as scheduled for

clear-fell harvesting, with a gross area of 29.5 ha and a nett area of 18 ha. There is no post-harvest map for this coupe, but the coupe plan (in March 2019, and I infer prepared before harvesting) shows the coupe will be harvested using the regrowth retention harvesting method, and that 5.9 ha will be harvested. This appears to be explained by what is in the species detections column, which notes there was a Leadbeater's Possum colony detected within 500 m of the coupe, and so a 200 m THEZ was put in place. This would appear to be an example of the effects of the THEZ to which VicForests adverted in the 2017 High Conservation Values Management Systems document, indicating the material effects that species protection prescriptions have on the available harvest area.

1099 As the applicant submits, this explanation appears to apply to five of the six coupes: that is, that a THEZ needed to be created because of a Leadbeater's Possum colony detection. That also means, as the applicant submits, that these coupes contain predominantly Ash forest and are not likely to be suitable habitat for the Greater Glider, as both Dr Smith and Dr Davey agreed.

1100 While it is the case that in some of the coupes a different method of harvesting to clear-fell (being the method on the Timber Release Plan) was used, for reasons I have set out earlier, the expert evidence of Dr Smith and Professor Woinarski persuades me that VicForests' use of seed tree retention or regrowth retention harvesting is of little or no practical benefit to either the Greater Glider or the Leadbeater's Possum.

1101 As to the one coupe where there was some area identified on the post-harvest plan as reserved for the Greater Glider (Puerile), the following findings should be made. There is no evidence about precisely when this coupe was harvested. Findings about when it was harvested must be inferred from other evidence.

1102 Puerile is listed on the Timber Release Plan (both the 2017 and 2019 Timber Release Plan versions) with a gross area of 47.2 ha, and a proposed nett area of 29 ha. It was scheduled on the Timber Release Plan for harvesting by seed tree retention; and the post-harvest map and the coupe plan also indicate that was the method which was in fact used. The post-harvest map establishes that in fact 37.04 ha was harvested, rather than the scheduled 29 ha. No harvesting period is apparent on the evidence. I infer that harvesting must have concluded by 22 November 2018, which is the date on the post-harvest map.

1103 Mr McKenzie's unchallenged evidence is that he conducted a spotlight search for Greater Glider on 22 and 23 June 2018 in Puerile coupe. He recorded and detected three Greater Gliders in that coupe, as well as other fauna. He reported those detections to DELWP on 27 June 2018. His correspondence stated:

> VicForests is scheduled to clearfelling log high quality Greater Glider and Yellow-bellied Glider habitat in coupe 484-501 -0043 off Young Track, Tanjil State Forest.
>
> Please attend to the attachments including a formal detection report, video evidence and associated spatial data from WOTCH surveys which documented a number of threatened Greater Gliders and a Yellow-bellied Glider.
>
> In light of the results of this survey and the presence of high quality threatened species habitat in coupe 484-501-0043, we request that the DELWP refrains VicForests from undertaking any clearfelling in coupe 484-501-0002 and protects the biodiversity values of this area from the further destruction of their habitat.
>
> Please inform us of any actions the DELWP takes from here onwards,

1104 As appeared to be the usual practice, Mr McKenzie received a reply from DELWP thanking him for the notification, informing him it had been forwarded to VicForests and that he would be advised of the outcome of DELWP's assessment of his report, which he never was.

1105 Mr McKenzie deposes to returning to the coupe on 23 August 2018 and retrieving a remote sensing camera he had set up in mid-June. The camera recoded a Koala in the coupe, which he also reported to DELWP in early September 2018, for which he was again thanked but again received no further response. In that second communication Mr McKenzie spoke of the need for logging operations to be halted, from which it might be inferred that by September 2018 (when he sent this email about the Koala detection) forestry operations were in progress in Puerile coupe. That would not be inconsistent with the 31 August date on the coupe plan, and with the date on the post-harvest map.

1106 The coupe plan for Puerile which is in evidence bears a "harvesting commencement declaration" of 3 September 2018, and the date of "final completion" is 20 November 2018. Therefore, the coupe was harvested after 31 August 2018. The coupe plan records (on p 5) that approximately 6.06 ha of "potential Greater Glider Habitat" has been excluded from the area marked for harvesting and that hollow-bearing trees have been retained outside the harvest area by VicForests for Greater Glider habitat. There is no direct evidence about how that habitat came to be identified.

1107 The post-harvest map has the entry "Fauna_GGLI_HBT" in two places (on the north west and the south east edges of the coupe area). This would appear to be the two areas to which the

coupe plan refers. Some of the markings on coupe plans and post-harvest maps can be understood by reference to a legend which is in evidence in VicForests' Coupe Reconnaissance Instruction (Version 3.0, 6 July 2016). Section 12 of that document contains a list of definitions and abbreviations, and Appendix 7 contains codes for reserves, special management and exclusion areas.

1108 Relevantly to the post-harvest map for the Puerile coupe, the Coupe Reconnaissance Instruction indicates that "HYDRO" means "Hydrology Buffer", and that the area is not accessible, and not available for harvesting, "now or in the future". There are areas in the Puerile post-harvest map marked as excluded with "HYDRO" next to them, which are contiguous with the areas marked "Fauna_GGLI_HBT". That acronym is not explained in the evidence so far as I have been able to ascertain. However, it may well refer to VicForests' Greater Glider Class 1 Habitat layer, to which I have referred earlier in these reasons.

1109 The detection map sent by Mr McKenzie to DELWP, which was in evidence, shows three Greater Glider detections as occurring in the middle of the coupe: namely, in the area which was harvested. The chronology reveals those detections were made, and reported, well before harvesting commenced.

1110 I have spent some time on Puerile because it is a good example, once again, of the departure between theory or planning and reality on the ground. I accept that it appears that in the planning for forestry operations in this coupe, and by reference to the modelling which I have explained earlier in these reasons, some Greater Glider habitat was identified and was set aside from harvesting. However, what VicForests knew, or ought to have known given the timing of the first detection reports by Mr McKenzie, was that there were, in fact, Greater Glider present in the middle of the coupe. That was the habitat they were in fact using and occupying. That area was logged. The area reserved was around other areas which needed to be excluded in any event, because they contained streams (the HYDRO reference). Thus, the planning and actual conduct of the forestry operations did not seek to avoid wherever practical any further damage to the Greater Glider. Rather the forestry operations consciously logged areas where Greater Glider (and Koala) had been detected and reserved areas where they had not been detected.

1111 Overall, the evidence about what has occurred during the forestry operations conducted in the additional coupes is consistent with the views I have formed about, first, the departure between VicForests' planning and policies and what occurs "on the ground" during forestry operations, and second, about the existing planning and forestry operation methods providing no protection

for the Greater Glider from the serious threats posed to it by forestry operations in the CH RFA region.

1112 The additional coupes appear to have been harvested during or after 2018: I infer this from the coupe plans (which are all dated 2018 or 2019) and also from Mr McKenzie's evidence about detections and his observations of logging in some of the coupes. The relevance of those dates is, first, that it is well after VicForests was advised by the FSC auditors, in 2014, as follows:

> Prior to a full evaluation, VF should continue to explore alternative harvest prescriptions and related stand/site treatments so as to more effectively demonstrate that its silvicultural and other management practices are appropriate for forest ecosystem function, structure, diversity and succession. (Possible Minor or Major Non-Conformity)
>
> …
>
> VF's treatment of old growth (both un-harvested stands and stands with residual old trees) will need to be demonstrably in conformance with this Indicator and, generally, the precautionary approach. (Possible Major Non-Conformity)

1113 Yet, by 2018 and 2019, VicForests' silvicultural methods do not appear to have materially changed.

1114 Second, by 2018, VicForests had produced new policy documents about how its forestry operations were going to do more to protect high conservation values in Victorian native forests. As noted above, in 2017, VicForests produced the 2017 High Conservation Values Management Systems document, which set out a number of conservation measures, including measures said to be responsive to reports of detections. Certainly no supplementary action was taken in the additional coupes in response to reported detections. It is not possible to infer whether what occurred in Puerile was responsive to reported detections or to something else. As I have noted, in any event, if reserving additional Greater Glider modelled habitat was intended to be responsive to the detections, it was not, because the detections were in the middle of the coupe and that area was logged.

1115 Then, in May 2018 VicForests received the Controlled Wood Report: see [322]. This was the document which stated:

> the audit team has concluded that there remains a considerable gap between design/intent and implementation of VF's HCV strategy.

1116 That is also what the analysis of the additional coupes, and the non-action responding to detections, establishes. The Controlled Wood Report had been completed in December 2017 and Mr Paul had been told then that VicForests did not meet the required standard. Yet so far

as the evidence reveals, no active steps were taken by VicForests, on the ground in the additional coupes, to modify its harvesting practices, or to be more responsive to detections of threatened species. It was, instead, "business as usual".

1117 For these reasons, I find that the evidence about the additional coupes confirms the views I have formed on the remainder of the evidence about VicForests' past non-compliance with cl 2.2.2.2 and the view that VicForests is unlikely to comply with cl 2.2.2.2 in the foreseeable future. It has been told since 2014 that it needs to take a more precautionary approach: it not only has not done so; it actively resists doing so and contests the application of the precautionary principle in its forestry operations where taking a precautionary approach requires different conduct on the ground.

The lack of sufficient certainty about proposed timber harvesting operations

1118 VicForests raises this matter not only on the significant impact question but also on the s 38 issue. Relying on the approach taken by Osborn JA in *MyEnvironment*, it contends that its proposals about future harvesting are insufficiently developed for the Court to determine whether the precautionary principle is engaged in those coupes, let alone whether it is likely to be contravened. An example of the evidence relied on by VicForests as supporting this submission is the evidence of Mr Paul in his second affidavit at [444]:

> Given the passing of time since the commencement of this proceeding, VicForests would need to undertake further planning of all Scheduled Coupes to identify impacts and the effect of any new detections or updates to the zoning scheme undertaken by the Department. In other words, to the extent planning had been undertaken for any of the Scheduled Coupes, that planning is now stale and therefore desktop planning would need to be undertaken afresh prior to harvesting which, in turn, could lead to future field inspections. In the result, there are no sufficiently advanced plans that I could say accurately represent how VicForests intends to harvest any of the Scheduled Coupes.

1119 VicForests also submits that the State and Commonwealth Governments are in the process of developing updates to the Victorian RFA framework and these updates could "further affect" how first operations are to be carried out. These were not scheduled to be agreed until 31 March 2020 – after the date of the trial.

1120 Further, in his fifth affidavit, Mr Paul deposed that new "adaptive silvicultural systems" described in the Harvesting and Regeneration Systems Document and the 2019 High Conservation Values Management Systems document would be applied by VicForests from mid-July 2019 (after the trial).

1121 VicForests' contention is summarised at [342] of its closing written submissions:

> VicForests planning and harvesting methods are in the process of changing from the traditional or "existing systems", towards a more adaptive suite of silvicultural practices. That change is occurring within the broader context of VicForests' move to obtain FSC certification. Those silvicultural systems, are under development and are therefore changeable. As a result of an undertaking that was given by VicForests at the request of the applicant, planning in the Scheduled Coupes is paused pending resolution of this proceeding. Planning in the Scheduled Coupes is not complete. Assuming some level of harvesting ever occurs within the Scheduled Coupes, those coupes will need to be replanned in accordance with the new adaptive silvicultural systems policies that are in place. Therefore, this Court could not draw any inference, or make any finding, with the requisite evidentiary foundation, as to which silvicultural system would be used, or would be likely to be used, in any of the Scheduled Coupes, and therefore this Court should not make any finding as to the existence of a serious or irreversible threat based on an unknowable state of affairs.

1122 I have considered the points made by VicForests in its submissions, oral and written, on the topics at [242]-[249] of its closing submissions. I do not consider they preclude the Court making findings in relation to s 38(1) (or s 18) on the basis of insufficient certainty. I accept some of the coupes have been on the Timber Release Plan for a long time – one (Diving Spur) since 2004. However this kind of evidence takes the matter nowhere without explanations about why the coupe has not been harvested. If there was some conservation-based reason, the rational and reasonable course would be to remove it from the Timber Release Plan. That has not occurred: the Court can infer VicForests still wishes it to be available for harvesting, at a time and in a way of its choosing. As I have already found, the evidence is that VicForests gives little notice to third parties (even DELWP) about its proposals to commence harvesting. The evidence reveals that the only way conservation-interested third parties discover which coupes are being harvested is by direct observation. Mr McKenzie's evidence makes that very clear.

1123 VicForests revised the Timber Release Plan in April 2019, shortly before the adjourned hearing in this matter commenced. It did not remove any of the Scheduled Coupes, although it could have removed them all. Again, if it truly intended not to harvest them, that would have been the rational and reasonable course to take. If it planned to harvest them by a much less intense silvicultural method, it could have altered the entries on the Timber Release Plan accordingly. That would have been the reasonable and rational course to take. It did neither of those things. In those circumstances, and taking into account the other evidence to which I have now referred several times about the gap between its policies and what occurs on the ground, I consider there is ample probative basis for the Court to find that forestry operations in the Scheduled Coupes are likely to occur in the foreseeable future, and, further, are likely to be carried out in a way

which will not be compatible with VicForests' obligations under cl 2.2.2.2, in relation to the Greater Glider.

1124 Subject to submissions raising any new or different circumstances, that is likely to be a sufficient basis for injunctive relief. These are not "hypothetical" matters. Once a coupe is listed on the Timber Release Plan, it is available for harvesting. The spread of silvicultural methods is outlined in the evidence. The Court has preferred the evidence of the applicant's experts, and has concluded that VicForests' "new" methods (even if they are to be applied as it contends to 75% of the coupes it harvests) are not in fact that different and still pose a serious threat to the Greater Glider. The Court has concluded there is no basis for it to be satisfied VicForests will change its approach "on the ground" and comply with cl 2.2.2.2 in forestry operations in any of the Scheduled Coupes, in relation to the Greater Glider. None of these conclusions involve hypothetical issues and are based on the evidence before the Court.

1125 Although Mr Paul gave evidence to the effect that VicForests would need to "fully replan [the harvesting of the Scheduled Coupes and other coupes] according to [its] new FSC principles", I do not accept, first, that the changes are as wholesale or fundamental as VicForests suggests, and second, that in any event that VicForests will, on the ground, fundamentally alter its forestry operations, and certainly not in any way which better complies with the precautionary principle in its forestry operations insofar as those forestry operations affect the Greater Glider, or indeed other hollow-dependent species. As I have noted, VicForests internally has made the point that the Leadbeater's Possum THEZs have a considerable impact on its forestry operations. The evidence is those THEZs are not particularly effective in assisting the conservation or recovery of the Leadbeater's Possum but they are obviously better than nothing. If similar kinds of SPZs, or other reserves, were to be required for the Greater Glider, the harvestable area in coupes such as the Scheduled Coupes might diminish to very little at all. While VicForests may need to maintain a commercial operation dependent on the harvesting of mature native forest, the challenge of balancing this with what is required of it by cl 2.2.2.2 is such that, in my opinion, based on what the evidence has shown about its past forestry operations, VicForests will prefer silvicultural practices which enable it to maintain its forestry operations in as intense a way as possible. That will, I am satisfied on the balance of probabilities, continue to present a threat of serious damage to the Greater Glider as a species, especially in the context of the other threats the species is facing. I am also satisfied on the balance of probabilities that VicForests will not engage in a careful evaluation of management options, nor assess the risk-weighted consequences of various options, so as to wherever

practical avoid that serious damage. It will tend to prefer fulfilment of its commercial forestry objectives.

1126 Finally, as to VicForests' reliance on the conclusions reached by the Supreme Court in *MyEnvironment*, the applicant contends in reply:

> The case is entirely different to *MyEnvironment*, c.f VCS [234]. The allegations of fact in *MyEnvironment* turned on the method of silviculture (the evidence was that clearfelling posed the relevant threat, but not that retention harvesting would (*MyEnvironment* [280-281], [287], [304] and [307])) and the application of prescriptions for the species in a coupe plan affecting the configuration of logging (protection of Zone 1A (*MyEnvironment* at [258]-[259])). Here, the evidence is that all proposed methods will cause the relevant damage/impact and there are no effective prescriptions that will be applied to configure logging to ameliorate the impact of those methods on the Greater Glider. There are key factual differences, here, the Greater Glider is proved to be present in substantial numbers in each coupe, in *MyEnvironment*, Osborn J placed weight in finding no threat on there being no direct observation of Leadbeater's Possum or its nest trees in Gun Barrell, combined with application of prescriptions and reserves developed for the species (*MyEnvironment* at [278 (d)], [283], [288]-[290]).
>
> (Original emphasis.)

1127 I accept that submission. This Court makes its decision on the evidence and argument before it in this proceeding.

Harvesting rotations and the effect on the Greater Glider

1128 A further factor which has persuaded me that VicForests' forestry operations in the Scheduled Coupes are not likely to comply with the precautionary principle is the evidence given by Dr Smith about the effect of logging rotations. I did not see in VicForests' policy material, or in its evidence, any consciousness about the longer-term effects of forestry operations on the Greater Glider.

1129 Mr Paul's evidence was that rotation length in Ash forests is nominally 80 years. On any view this is too short for the proper development of hollows in the regrowth. Dr Smith's evidence, which I accept, was that to achieve maximum Greater Glider densities, the forest would need to regrow for around 180 years. There is no rotation specification for Mixed Species forest: this means that kind of forest is exposed to further forestry operations only on the basis of its readiness for harvest, not on the basis of any conservation considerations. Dr Smith's evidence was that in irregular aged Mixed Species forests which had *not* been exposed to clear-felling, it would take about 90 years to achieve maximum Greater Glider densities. His opinion was as follows:

> I've also concluded that, under current rotation times, these forests are not likely to become structurally advanced enough to be recolonised by gliders even if an area was - a corridor did exist near to them. And I've also concluded that the habitat trees that were retained have been so damaged by fire and logging activity that few, if any of them, are likely to remain in 75 years time. I've concluded therefore that all the gliders that were on these coupes have been lost, will remain lost and will contribute to an ongoing decline in greater glider population in the central highlands. I've also concluded that the situation is not recoverable because of the insufficient numbers of habitat trees.

1130 Another example of the impact of logging rotations and reserves with a specific purpose is the evidence Dr Smith gave about some of the additional coupes. He was asked about Pieces of Eight, one of the additional coupes. This was the question and his answer:

> But you will see that, although the growth area harvested – to be harvested was 33.71 hectares, the actual harvested area was 14.03 hectares. That does demonstrate, doesn't it, that a significantly smaller amount of area might be harvested despite what appears in the TRP?---Yes, I agree in the short term, but I don't know how long these areas will remain protected before – as SPZs. They may be logged in the future, particularly if they're Leadbeater's possum reserves because in 20 years time, they're likely to be unsuitable for Leadbeater's possum and anyone resurveying these sites would conclude they're not there and – and say they're available for logging.

1131 Dr Smith makes an important point. That is why looking at maps with multiple SPZs does not tell the full story about the impact of forestry operations on species such as the Greater Glider. What is currently reserved from logging may not stay that way.

The Castella Quarry coupe as an example

1132 The Castella Quarry coupe is neither a Logged Coupe nor a Scheduled Coupe. Rather, it was suggested by VicForests as a coupe which the Court could inspect on the view as an example of a coupe in which VicForests' new silvicultural methods were being implemented. Both parties accepted that the forestry operations in that coupe formed part of the evidence in the proceeding, because of the view, because witnesses were asked about the forestry operations in that coupe and also because several of the planning-related documents relevant to the forestry operations in that coupe were adduced in evidence. The parties spent some time in final submissions on what could be made of the forestry operations in that coupe, as observed and as the evidence revealed them to be. I accept that what has occurred in Castella Quarry is probative of the manner in which VicForests, in fact and on the ground, carries out its forestry operations, including in the implementation of its "new" silvicultural policies. Curiously, VicForests made no submissions at all about Castella Quarry in its principal closing submissions.

1133 As the applicant submitted, what the Castella Quarry example demonstrates is how activities which are ancillary but necessary to forestry operations (such as roading) also have an impact on measures designed to protect the Greater Glider, such as retention of hollow-bearing trees.

1134 Mr Paul's evidence was that Castella Quarry was the first coupe to trial the "new" silvicultural systems that VicForests is proposing to use for FSC-certified coupes. Mr McBride was heavily involved in coupe planning.

1135 Castella Quarry is, according to the coupe plan, a coupe comprising mostly of 1939 regrowth. The entries on the coupe plan relating to the Greater Glider are set out in Table 11 below.

Table 11: Extract from Castella Quarry coupe plan

Biodiversity	Value	Identified by spatial overlay as	Identified during field check as	How the value will be managed	Comments
Threatened fauna site in coupe	Petauroides volans: Greater Glider	Not Present	Present	No detection based requirements exist for Greater Gliders within the Central Highlands FMA. Apply VicForests Interim Greater Glider Conservation Strategy prescriptions. Prioritise the largest, live, hollowbearing trees for habitat retention.	Numerous Greater Glider species observation records within coupe boundary.
Threatened fauna site within 500m of coupe	Petauroides volans: Greater Glider	Not Present	Present	No detection based requirements exist for Greater Gliders within the Central Highlands FMA. Apply VicForests Interim Greater Glider Conservation Strategy prescriptions. Prioritise the largest, live, hollowbearing trees for habitat retention.	Greater Glider sighting from general observation in 2007 located 170m from coupe boundary. Two Greater Glider species observation records from 2018 located 20m from coupe boundary.

1136 As this extract shows, by the words "not present", the coupe plan notes there is no Class 1 Habitat within 100 m. Yet, as I set out below, this coupe had a large number of Greater Glider detections. This is another concrete and probative example of the flaws in the Greater Glider habitat modelling on which VicForests relies.

1137 Mr Paul accepted that roading operations began prior to December 2018, and once the roading was completed, the logging commenced. That was about three months before the trial. Logging was still in progress when the Court attended the coupe on the view.

1138 In email correspondence in evidence, Mr Wilson of VicForests confirmed that roading operations commenced in Castella Quarry on 1 December 2018. He also stated that habitat trees were identified along the road line, and VicForests' logging contractor was instructed to retain them. There had been Greater Glider detections along this area.

1139 From the Court's observations on the view, the retention of habitat trees along the road line did not appear to have occurred all along the road line. VicForests adduced no evidence about how this instruction was conveyed to the contractors, nor whether VicForests checked to see if the trees had been retained. Certainly in cross-examination, Mr Paul had no idea. This is a specific example of VicForests not calling the very people who would have been able to give the Court this kind of information, such as Mr Logue, who helpfully guided the Court around Castella Quarry and who was a VicForests employee with obviously detailed knowledge about the forestry operations in that coupe.

1140 I find the evidence about Greater Glider detections, and surveys for the Greater Glider supports the following findings. The forest in this coupe was clearly highly suitable for the Greater Glider: there were more than 10 Greater Gliders per kilometre detected by Mr McKenzie and Ms Forster in the coupe between 4 and 8 December 2018. This is a high density. This coupe and the neighbouring Castella Hills coupe had a large number of Greater Glider detections. In Castella Quarry, most were found by Mr McKenzie and Ms Forster. The detections were reported to DELWP and VicForests.

1141 Despite the reports, DELWP did not conduct a survey for Greater Glider in Castella Quarry. Why it did not, in circumstances where Castella Quarry was supposed to be the implementation of VicForests' new silvicultural systems, and would therefore have given DELWP a good indication or benchmark of the impact of VicForests' "new" style of forestry operations on the Greater Glider (and indeed on other threatened species), is not apparent on the evidence. It

certainly suggests little or no coordination between VicForests and DELWP about these matters.

1142 Again, this is a revealing and probative example of where the theory or planning does not meet the practice. Mr Paul had been cross-examined about the surveying practices for Greater Glider in the impugned coupes. The cross-examination went like this (including the first reference by Mr Paul to the 80% figure, which was shown to be wrong):

> And then if there's identified suitable habitat, then there will be a targeted species survey?---So we will do that in those cases where there's a high likelihood we will find those species. The department also has a survey program that aims to cover 80 per cent of all coupes that we plan to harvest as well for biodiversity values.
>
> That might be the aim. The department hasn't found a glider yet, has it, in any of the coupes in issue in this case?---They haven't looked in this case because they're no longer on our schedule for harvesting.
>
> Well, they're on the TRP?---That's right, but we have a schedule for the next 18 months and the department's surveys look at that schedule. Because of this court case we've pulled these coupes off, but when they go back on, if they go back on, they would then be lined up for the department's survey program.

1143 This evidence is impossible to reconcile with the evidence of what actually happened in Castella Quarry, where there were no departmental surveys. That is despite it being originally scheduled for logging in December 2018, then moved up to January 2019. Yet DELWP did not survey it. These are not minor details: they illustrate how unreliable the generalisations made by Mr Paul in his evidence actually were.

1144 In cross-examination, Mr Paul seemed only to know that someone had carried out a survey at some stage. Generally I found Mr Paul had little reliable knowledge about matters such as who carried out surveys and when. His answers often involved him saying he was not sure, he did not know, or he could not be sure. Again, it is not that there were no VicForests employees who had that knowledge: it is just that they were not called, and the Court was therefore left with vague and unreliable evidence from Mr Paul. That appears to have been a forensic decision made by VicForests. It is not a criticism of Mr Paul personally, for reasons I have explained earlier.

1145 Despite what was on the coupe plan, and despite the detections reported to it by Mr McKenzie and Ms Forster, VicForests itself carried out no survey for the detection of Greater Gliders prior to the commencement of logging. Nor did it carry out any survey prior to the commencement of roading operations, despite being aware there were detections along the roadline. Instead, it

carried out a partial survey on 8 May 2019, months after logging commenced and shortly before this trial began.

1146 Mr Paul, when asked directly in cross-examination, what prompted the 8 May survey, said he did not know. This is a good illustration of a consequence of the forensic choice to only offer a single operational witness from VicForests, who would obviously not be familiar with all the detail of coupe-level forestry operations, even in a coupe said to illustrate VicForests' "new" approach.

1147 The limited nature of the survey is apparent from Mr Ryan's email about it. Mr Ryan is one of VicForests' forest scientists:

> We have assessed from the landing to the start of the coupe access road and the survey length was 1.5km.
>
> We did not assess the low road down to the creek. I would like to do that in a subsequent survey as there's good habitat and the department surveys indicate there are healthy populations.

1148 It is unclear what departmental surveys this refers to: the ones in the neighbouring Castella Hills coupe and shown on the map attached to Mr Ryan's email were carried out in January 2019, and there are numerous detections in the south of that coupe. It is possible that is what Mr Ryan is referring to, but it is hard to tell. Castella Hills is also on the April 2019 Timber Release Plan, which states it is scheduled to be harvested by clear-fell, despite these survey results being available before April 2019.

1149 Although there are some discrepancies between the email correspondence and the maps, VicForests' survey appears to have resulted in five detections. A comparison of the maps in evidence shows most of VicForests' detections, and a majority of the McKenzie and Forster detections, are in areas which were scheduled to be harvested, and were in fact harvested. Mr Paul agreed that VicForests did not carry out any subsequent surveys, even if some were at some stage mooted. I accept, as the applicant submits, that it was clear on the view that the area near the southern landing of coupe was clear-felled, despite the detections.

1150 The applicant submits that the limited survey by VicForests:

> appears to have been motivated by notice given to the Applicants' solicitors on 15 April 2019 that VicForests proposed to ask the Court to inspect this coupe.

1151 I accept the timing, and the circumstance that only a very limited survey occurred, suggest that VicForests considered it was in its interests in the proceeding to have conducted some kind of survey before the view.

1152 There was a debate about what, if any, monitoring of the Castella Quarry coupe had occurred, in relation to the effects of forestry operations on the Greater Glider. The applicant submitted (at [278]):

> The failure to survey and monitor, including even as recommended internally in respect of Castella Quarry (CB 11.74, Paul, T298.5-.24) is despite the fact that their own Manager of Biodiversity and Conservation and Research, Mr McBride, said in cross-examination that in any successful conservation plan it was important to design and conduct in-field surveys, to synthesise survey results, to monitor the implementation of a conservation plan, and to monitor compliance with any regulatory framework (T355.40-356 l).

1153 In reply, VicForests contended there was some post-harvest follow up, referring to an email exchange involving Mr McBride. It contended:

> The applicant asserts there has been a failure to monitor at Castella Quarry coupe. A post-harvest survey was carried out in Castella Quarry coupe to ascertain the presence of Greater Gliders following the implementation of adaptive harvesting techniques.
>
> (Footnote omitted.)

1154 The reference is to the email I have extracted at [1147]. As I have found, the inference is this survey was related to this proceeding. That short and limited survey does not equate to what Mr McBride was describing in cross-examination.

1155 A further finding should be made at this point. Although on the various coupe maps of Castella Quarry it is true that there are more dots representing retained habitat trees than there are stars representing detections of Greater Gliders (a point Mr Paul made in his evidence), on the ground, when the Court observed the coupe itself, a different picture emerged. The picture that emerged was the same as that presented by Dr Smith in his report when he inspected coupes after logging. The "habitat trees" were isolated trunks in an otherwise barren landscape. The majority appeared dead or dying. It was not possible to conceive of any of them providing any use in the foreseeable future, even as the understory regrows, for the Greater Glider. Perhaps such a landscape could be of use to other hollow-dwelling species, but that is sheer speculation. What is not speculative is the conclusion that a landscape like that is unlikely to be suitable habitat in the foreseeable future for the Greater Glider. That is why, as Dr Smith says, what does matter from a conservation perspective is retention of mature "old growth" forest and

maintenance and development of suitably sized corridors, with suitable habitat for the Greater Glider, linking patches of old growth forest.

1156 As to some of the retained areas in Castella Quarry, it is common ground that there were several areas where the forest was retained, adjacent to one of the boundaries of the coupe. However, this retention did not have a conservation purpose; it had a forestry purpose. In the extract at [1066] above, Mr Paul admitted in cross-examination that the poor quality of the timber (because it was too young to harvest) was the factor which drove the decision about the intensity of silvicultural method selected in Castella Quarry. I reject VicForests' reply submissions which sought to diminish Mr Paul's evidence as if this was a minor factor or one of many. In my opinion his evidence was clear enough that it was the nature of the timber which was primarily responsible for the decision to retain the forest, not for any reasons related to threatened species conservation, and certainly not for any reasons related to the conservation of the Greater Glider.

My general findings about VicForests' proposed changes to its silvicultural systems

1157 The evidence suggests, and I find, that the purpose and intention of VicForests undertaking this new policy and these new methods is to secure FSC accreditation so that it derives a commercial benefit – such as getting its products into places like Bunnings. The modifications are not being undertaken for conservation purposes: those purposes are incidental to acquiring FSC certification.

1158 I accept, and find, that, at the time of trial, it was VicForests' generally announced intention to apply the proposed policy changes to its silvicultural systems to the Scheduled Coupes and (it would seem) to all its forestry operations in all native forest in Victoria. Having made it clear that the Scheduled Coupes had been taken off VicForests' immediate schedule because of this proceeding, Mr Paul's evidence was as follows:

> And is it VicForests' desire to go ahead and carry out forestry operations in each of those coupes? ---It would be subject to us rerunning our planning on those, and we will replan them in light of FSC as well, given that we expect that to be in place by mid-July, we will rerun all our planning over those coupes with that new process and principles.
>
> …
>
> And that means that they're scheduled to be the subject of forestry operations between 2019 and 2022?---That's there, yes, but I guess, as I said, we are not planning to harvest any at this stage until after the case has run its course.

1159 As far as I understand the evidence, VicForests has a relatively free discretion about which coupes it conducts forestry operations in, and when, so long as those coupes are on the Timber Release Plan. It may change its plans for forestry operations depending on weather, fires, contactor availability, market conditions and roading and construction delays inhibiting access to a coupe, no doubt as well as other factors. Subject to any orders to the contrary there does not appear to be any impediment to VicForests putting one or more of the Scheduled Coupes back on its imminent forestry operations scheduled after this proceeding is concluded. Mr Paul's evidence was, I accept, accurate at the time it was given, but that evidence is not probative of what the circumstances might be about likely forestry operations in the Scheduled Coupes after the proceeding concludes.

1160 That is why, in my opinion, the correct approach is for the Court to rely on what is included in the Timber Release Plan (which includes the Scheduled Coupes), especially since the Timber Release Plan was revised and reissued in April 2019, shortly before trial, and these coupes were kept on the Timber Release Plan, and kept on it with clear-fell as the predominant silvicultural method. I also take into account that, as Mr Paul confirmed in cross-examination, a large proportion of VicForests' total timber resources is sourced from the CH RFA region:

> And it's also the case, isn't it, that in 2016/2017, 77 per cent of VicForests total supply came from the Central Highlands?---That would be about right.

1161 The Court proceeds on the basis that all the Scheduled Coupes are exposed to the risk of forestry operations being conducted in them, at a time of VicForests' choosing.

1162 It is clear from Mr Paul's evidence, and the evidence about the timing of forestry operations in the additional coupes, and in Castella Quarry, that in 2019, even as these policies were being announced, at best VicForests applied the current, technical requirements of the Code: for example, create a THEZ if there is a Leadbeater's Possum detection, although even then the evidence shows parts of the THEZ were harvested, or a THEZ was created over harvested land. And as I have found, there is no prescription for the Greater Glider in the CH RFA region, and VicForests was astute to note this on its coupe plans and use it as a justification for not applying further prescriptions designed to protect the Greater Glider. It did not see cl 2.2.2.2 as requiring it to do any more. Coupe plans such as that for Castella Quarry establish that no additional measures were to be taken, save for the mention of retaining more habitat trees. It would appear the contractor did not even fully adhere to that, and the habitat trees that were retained mostly died. Nothing in addition was done: nothing adaptive, nothing precautionary. There is no reference at all to cl 2.2.2.2 in any of the coupe plans.

1163 It will be recalled VicForests submits that it is only the allegation of the breach of the precautionary principle in the Scheduled Coupes which can result in the loss of the exemption in s 38.

1164 As to those coupes, VicForests submits that the nett area available for harvesting in the Scheduled Coupes represents 0.01% of the total forested area of the public land estate, and 0.14% of the CH RFA. This proposition is repeated at several points in its opening submissions, and I have dealt with it above: in my opinion it is no answer to the allegations about non-compliance with cl 2.2.2.2, which is a mandatory obligation imposed on VicForests in respect of each and every forestry operation.

1165 In other words, I reject VicForests' contentions about its proposed changes to its silvicultural methods providing a complete answer to the applicant's case on injunctive relief in relation to the Scheduled Coupes. VicForests has contended these changes are a complete answer in substance for two reasons: first, because of the alleged uncertainty they introduce about which silvicultural methods will be employed in any given coupe and that uncertainty removing any proper foundation for injunctive relief; second, because the silvicultural methods themselves demonstrate compliance by VicForests with cl 2.2.2.2 so that the s 38 exemption remains in place or even if it is lost then the changed silvicultural methods mean the Court cannot be satisfied of any likely significant impact on the Greater Glider and the Leadbeater's Possum. I have rejected both limbs of VicForests' arguments. However even if I had been satisfied on the evidence that the proposed new silvicultural methods were – in their design – capable of demonstrating compliance with cl 2.2.2.2, and capable of diminishing the impact of forestry operations in the Scheduled Coupes on the Leadbeater's Possum and Greater Glider to the point where the impact could not be described as significant, I would nevertheless have remained satisfied that the evidence that the implementation on the ground, in the forest, by VicForests, was not likely to match the objectives set out in its policy documents, and that on the ground and in the forest the actual conduct by VicForests of its forestry operations would fail to comply with cl 2.2.2.2 and would continue to be likely to have a significant impact on the Leadbeater's Possum and the Greater Glider. I am not persuaded that in terms of what occurs in the forest, VicForests is likely to change its practices to any meaningful degree.

1166 I accept there is some evidence that DELWP is developing a pre-harvest survey program. As I have found, it was not at the comprehensive stage which some of Mr Paul's evidence suggested. For the reasons I set out, the existence and policy content of the program are not

sufficient to affect the view I have reached about VicForests' non-compliance with cl 2.2.2.2 in the Scheduled Coupes. Two further points should be made.

1167 First, the applicant submits that the DELWP program is prescription based: that is, the surveys are carried out for species for which there is a management prescription. There is no management prescription for the Greater Glider in the CH RFA region. The applicant submits (at [269] of its closing written submissions):

> Further, DELWP surveys are only for species the subject of a prescription (CB 12.3 and Paul, T272.25-.45), and there is no prescription for the Greater Glider in the Central Highlands. An example of the failure to survey for Greater Glider is the Castella Quarry Coupe, the VicForests "showcase coupe" that DELWP conducted surveys in on 5 July 2018 and on 14 August 2018 but for other species and not for Greater Gliders or for Greater Glider habitat (CB 11.32, 12.3 and Paul, T279.32-280.35). That is so in circumstances where Greater Gliders were found to be present in the coupe in abundance (CB 2.12 pp15-17; CB 2.13 pp6-7).

1168 VicForests challenges this submission as inaccurate. It contends, in its reply table, that "the surveys are not only for species the subject of a prescription. The document make clear that the Greater Glider is a priority species for surveys". I accept this submission.

1169 The references given are to the DELWP Forest Protection Survey Program, and to [286] of its closing submissions. Paragraph [286] refers to p 27 of the DELWP document and extracts a table which includes the following "Suggested survey techniques and approach" for the Greater Glider:

> Spotlighting using mark-recapture distance-sampling method where appropriate or standard spotlight transects. Sample throughout range rather than just in East Gippsland where prescription applies, as VF may modify harvesting approach with knowledge of the species on the coupe.

1170 Therefore, I accept it may in fact be the case, in relation to the Scheduled Coupes, that one or more of them may be surveyed by DELWP for the Greater Glider, amongst other species, prior to harvesting. This was Mr Paul's evidence in cross-examination:

> That might be the aim. The department hasn't found a glider yet, has it, in any of the coupes in issue in this case?---They haven't looked in this case because they're no longer on our schedule for harvesting.
>
> Well, they're on the TRP?---That's right, but we have a schedule for the next 18 months and the department's surveys look at that schedule. Because of this court case we've pulled these coupes off, but when they go back on, if they go back on, they would then be lined up for the department's survey program.

1171 Whether or not DELWP is able to carry out a survey, even if it is "lined up", to use Mr Paul's phrase, may well depend on a range of matters, including – critically – matters such as the

amount of notice given to DELWP by VicForests of its forestry operations. This was a matter about which Mr Paul was cross-examined, by reference to the independent panel's report on the role of DELWP, to which I have referred earlier:

> Can we go within the same document, please, to page 35, so two pages earlier. Thanks. And within that document, in the second-last paragraph – if we could just blow that up a little bit – you will see what was reported in the second-last paragraph is:
>
> > *There's an expectation that the regulator plays a role in describing what's happening in the forests, but the current investing in staff knowledge and contemporary information about the forest is perceived to be inadequate.*
>
> And this is the part I want to ask you about:
>
> > *Further, VicForests is not as open with information regarding coupe logging schedules as it could be. VicForests is required to consult on timber release plans, and the department comments on these plans, but neither the department nor the community is aware of when logging will take place. The coupe logging schedules are not publicised.*
>
> So I just wanted to ask you – it's the case, isn't it, that coupe logging schedules are not publicised?---That's correct. They're not publicised.
>
> Yes. And I take it, it remains the case that there's no process in place – no formal process or guidelines by which the department is notified in advance of when logging will take place or of logging schedules?---We notify the department of logging schedules on a weekly basis.
>
> Has that changed since October of last year, has it?---Since they began their survey program, yes.
>
> And when was that?---I think it's probably before October last year.
>
> So far as this reported in October that the department was not being told in advance of when logging was taking place, you say that that was no longer an accurate statement as at October, do you?---Probably. Yes, that's correct.

1172 This appears to be a somewhat begrudging change on the part of VicForests – namely, that it has to tell anyone outside the organisation when it plans to log specific coupes. Even then, it gives DELWP only a week's notice. These circumstances do not support any inference that VicForests in fact *wants* anyone, including DELWP, to detect and locate threatened species in the coupes it is about to log.

1173 DELWP's own approach is that VicForests remains responsible for conducting its own surveys:

> And if you go down to the next middle paragraph, the short paragraph, the department expressly says:
>
> > *The Forest Protection Survey Program does not replace the need for VicForests to undertake its own assessment of biodiversity values on coupes before harvesting.*

> That's the attitude of the department, isn't it?---Yes.

1174 Without any evidence from any witness on behalf of DELWP, it is difficult for the Court to know what to make of this, other than that it a clear statement of DELWP's position that the responsibilities which VicForests has under the Code and the Management Standards and Procedures must be fulfilled by VicForests. That is the finding I make on the available evidence. Therefore, how any surveys undertaken by DELWP would be factored into VicForests' forestry operations is unknown on the evidence, and VicForests chose not to clarify that matter by adducing any evidence-in-chief capable of doing so.

Conclusion on the Scheduled Coupes and s 38

1175 I find that in the Scheduled Coupes, there are not likely to be any management options evaluated and used by VicForests in its timber harvesting operations (and planning for them), which are likely to be intended wherever practical to avoid serious damage to the Greater Glider.

1176 I find that in the Scheduled Coupes, there are not likely to be any assessments of the risk-weighted consequences of various options to protect and conserve the Greater Glider which are likely to be undertaken by VicForests in its timber harvesting operations (and in planning for them).

1177 I find that in the planning and conduct of VicForests' forestry operations in the Scheduled Coupes, it is not likely any such processes will be applied to conserve the Greater Glider.

1178 I therefore find, on the balance of probabilities, that VicForests is not likely to comply with cl 2.2.2.2 of the Code in its forestry operations in the Scheduled Coupes.

1179 Finally, there are two further submissions of VicForests which should be rejected.

1180 First, at [357]-[358] of its closing submissions, VicForests contends that one aspect of Dr Smith's evidence renders cl 2.2.2.2 inapplicable in the Logged Glider Coupes because:

> The threat of serious or irreversible environmental damage would be found to be relatively certain because (accepting Dr Smith's evidence) it is possible to establish a causal link between an action or event and environmental damage.

1181 Therefore, VicForests reasons, cl 2.2.2.2 is not engaged because any measures would be "preventative" and not "precautionary". This submission, otherwise entirely against the tenor and content of VicForests' submissions about cl 2.2.2.2, ignores the majority of Dr Smith's evidence (to which I have referred earlier) about the level of scientific uncertainty surrounding

many aspects of how best to protect and conserve the Greater Gilder and its habitat, in particular from the effects of forestry operations. The submission is also premised on a reading of cl 2.2.2.2 which I have rejected.

1182 Secondly, I reject VicForests submissions at [231]. There, VicForests contends:

> Accordingly the Court should resist the applicant's invitation to construe the precautionary principle in a way that provides it with a de facto legislative or political content by construing it in a manner that creates substantive obligations of the kind particularised in subparagraph (f) under paragraph 113A of the third further amended statement of claim or the particulars under paragraph 2.6.1 of the reply.

1183 It is difficult to know exactly what is meant by "de facto legislative or political content". If it is a variation of what is elsewhere in the submissions, to the effect that the Court should permit a statutory agency to engage in conduct without scrutiny through legal proceedings of regulatory standards which are in some way qualitative, then I reject it. And in any event, as I have noted, VicForests' response to the miscellaneous breaches indicates that allegations about less qualitative, "technical" breaches are productive of great debate and argument from VicForests.

1184 The applicant made some submissions (for example at around [100] of its closing submissions) to the effect that there were alternative methods of forestry operations which would be compliant with cl 2.2.2.2. It based these submissions largely on the opinion expressed by Dr Smith. Dr Smith did give some expert evidence about what silvicultural methods might be carried out while contributing to arresting the decline of the Greater Glider. But while, as the applicant notes, on this scenario at least some of the Scheduled Coupes should not be harvested at all, these are not matters on which the Court needs to make findings in this proceeding. This proceeding is not about the ways in which VicForests might positively comply with cl 2.2.2.2 in the future but rather whether it has, and whether it is likely to. It is a matter for VicForests to bring itself into compliance with cl 2.2.2.2 in the conduct of its forestry operations in coupes which provide habitat for the Greater Glider.

THE MISCELLANEOUS BREACHES: SPECIFIC (ALTERNATIVE) ALLEGED BREACHES OF THE CODE IN THE LOGGED COUPES

1185 This collection of allegations is in addition, or in the alternative, to the alleged failure of VicForests to comply with cl 2.2.2.2 of the Code. The Code breaches involved in these allegations relate to the Logged Coupes only. Annexure 1 to the applicant's outline of opening submissions sets out the Code breaches alleged for each coupe.

1186 I note that VicForests rejects each of the alleged miscellaneous breaches. I consider the parties' respective arguments under each alleged breach. There is no real debate about the applicable regulatory requirements, although for some of these allegations VicForests does dispute the meaning to be given to the regulatory requirements. This is a good example of why I am not persuaded that there is any merit to its argument that there is something in the qualitative nature of the precautionary principle which marks it out as unenforceable, in comparison to other mandatory actions under the Code. Disputes about meaning and application arise just as much on VicForests' arguments about the miscellaneous breaches.

1187 A number of the alleged breaches involve the terms of cl 2.2.2.4 of the Code, in conjunction with parts of the Management Standards and Procedures. Clause 2.2.2.4 of the Code provides:

> During planning identify biodiversity values listed in the Management Standards and Procedures prior to roading, harvesting, tending and regeneration. Address risks to these values through management actions consistent with the Management Standards and Procedures such as appropriate location of coupe infrastructure, buffers, exclusion areas, modified harvest timing, modified silvicultural techniques or retention of specific structural attributes.

Failure to protect mature Tree Geebungs

1188 Clause 4.3.1.1 of the Management Standards and Procedures requires VicForests to:

> [a]pply management actions for rare and threatened flora identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 14 (Rare or threatened flora prescriptions).

1189 For the Tree Geebung (*Persoonia arborea*), Table 14 provides that in the Central Highland region, VicForests is required to:

> protect mature individuals from disturbance where possible.

1190 The coupe in which the breach is alleged to have occurred is Skerry's Reach (462-504-0004).

1191 The applicant contends VicForests:

> first failed to identify and protect Tree Geebungs in the harvest unit prior to commencing harvesting in Skerry's Reach, second failed to plan the coupe applying management actions that protected mature Tree Geebungs, and third damaged/disturbed mature Tree Geebungs during harvesting.

1192 This, the applicant contends, means the forestry operation in Skerry's Reach was not undertaken in accordance with the CH RFA and the s 38 exemption was lost in relation to that coupe. It appears the applicant contends the s 38 exemption was lost at the time of the alleged failures.

1193 It is common ground that the coupe plan for Skerry's Reach coupe does not record any mature Tree Geebung within the coupe, and it therefore records no management action to be taken in relation to mature Tree Geebung. It does refer to a record from "1994 present within 200m of south western corner of coupe". The coupe plan has a notation to the effect that "if Tree Geebung is found within coupe protect mature individuals where possible".

1194 The alleged breach depends first on the evidence of Mr McKenzie, who conducted surveys in the coupe in early February and March 2018, during and shortly after the conduct of forestry operations by VicForests in that coupe. On both occasions his evidence is that he detected and identified Tree Geebung in the coupe, observed they were damaged, and took photos and GPS waypoints. On the first occasion (but apparently not on the second), he reported what he had observed to DELWP and to VicForests. Second, Mr Mueck, an expert botanist, examined the material collected by Mr McKenzie and expressed some opinions in his report about each of the Tree Geebung specimens – whether in fact they were Tree Geebungs, how mature they were, and whether they were damaged, and what is likely to have caused the damage.

1195 Mr McBride's evidence is that VicForests took steps to protect some of the Tree Geebung from timber harvesting, flagging them with pink tape. The audit report prepared by Mr McBride and other VicForests employees, recording a visit to the coupe after forestry operations had finished to see what had happened to the Tree Geebung, states that seven out of the nine Tree Geebung which were detected were protected from harvesting by flagging with the pink tape.

1196 It is clear, and I find, that VicForests failed to detect any Tree Geebungs, including Tree Geebung which could be described as "mature", in its preparations for the harvesting of Skerry's Reach. Instead, what happened was that a member of the public found them and reported them to DELWP and VicForests. That occurred once forestry operations in the coupe were already underway. This is an illustration of the inadequacy of VicForests' surveys of coupes for all sorts of biodiversity values. This kind of evidence supports the conclusions I have reached on VicForests' non-compliance with cl 2.2.2.2.

1197 However, I do not accept the applicant's contention that there has been non-compliance with cl 2.2.2.4. Unlike cl 2.2.2.2, cl 2.2.2.4 is a requirement directed primarily at the planning and preparation for forestry operations. Matters such as noting on the coupe plan that Tree Geebung may be present and may need protection are the kinds of matters cl 2.2.2.4 contemplates should be done. That is what VicForests did. The non-compliance – again, as I have found previously – occurs on the ground after the documents have been completed.

1198 Therefore, the question is whether VicForests complied with cl 4.3.1.1 and Table 14 of the Management Standards and Procedures, which requires the management actions to be "applied" during forestry operations. Were all mature Tree Geebung in the Skerry's Reach coupe protected from disturbance "where possible"?

1199 It is important to commence with a description of this species, provided by Mr Mueck and about which there was no dispute. This assists in understanding why the species is protected, especially why mature specimens are protected. I also set out Mr Mueck's overall opinion on the material he was provided with:

> The focus of the photos and videos provided (unless stated as uncertain) is Tree Geebung *Persoonia arborea*. This species of *Persoonia* is endemic to the Central Highlands of Victoria and has distinctive foliage, flowers and fruit that readily identify it. This species grows as a tall understorey shrub to small tree in Wet Forest and on the margins of Cool Temperate Rainforest. It is also listed as vulnerable in Victoria by the Department of Environment Land Water and Planning (DELWP) advisory list of rare or threatened plants in Victoria (DEPI 2014).
>
> Past observations and aging of Tree Geebung (Mueck, Ough and Banks 1996) indicate that prolific flowering and fruiting in this species is restricted to mature individuals estimated to be in excess of 100 years old. Larger specimens such as the individual depicted in photos DSC06014 and DSC06035 and video 00452 are likely to be over of 400 years old.
>
> The photos and videos provided include a number of plants that have been physically damaged. Where plants are damaged, the damage appears indicative of physical damage caused in association with timber harvesting. Some of the images and video footage are clearly in areas where tree felling has occurred.

1200 It is also necessary to set out some of VicForests' email correspondence to DELWP, upon which Mr Paul was cross-examined, about the approach taken by VicForests to Code requirements such as the present one in issue:

> VicForests have recently received a number of third party reports regarding the presence of Tree Geebung within planned or active coupes. We would like DELWP policy advice on our current understanding of requirements set out in Appendix 3 Table 14 of the Management Standards and Procedures.
>
> The current requirement is to "Protect mature individuals from disturbance where possible".
>
> Our current approach is based on our understanding that Tree Geebung, while considered rare on a statewide basis, is locally abundant throughout its range in the Central Highlands. The extensive formal and informal reserve system provides the first level of protection.
>
> At a coupe level our current approach is to protect mature individual trees and populations where possible by incorporating them into areas that will be excluded from harvesting and thus protected from disturbance (Both mechanical and fire). This can be through including trees in extended stream buffers or grouping areas into clusters

> that protect multiple values (Such as regrowth patches or retained habitat).
>
> Where mature individuals are detected within the harvestable area (marked coupe boundary) and it is not practical to include them in exclusion areas, avoiding any disturbance is in many cases not possible. While mechanical disturbance is avoided where possible, these individuals will almost certainly be disturbed by fire during regeneration burning.

1201 The email chain in evidence makes it clear that what is set out here is VicForests' interpretation of its obligations. Mr Paul also confirmed that in cross-examination. He then gave the following evidence:

> And it refers then to an audit of VicForests management of tree geebung on the following coupes, Guitar Solo, Learmonths and Skerrys Reach. So it's the case, isn't it, that VicForests took the view that if there were mature tree geebungs in those coupes, and in particular the Noojee coupe, that it was in an area that otherwise would be suitable for forestry operations using clear-fell or similar, that it would just go?---No, where we identified them – as per that interpretation, where we identify them and can incorporate them into other buffers and boundaries, we would – we would seek to do so.
>
> Yes, but as the author says, where they're detected within the harvestable area and it's not practical to include them, avoiding any disturbance is in many cases not possible. What I put to you is that's exactly what happened at Noojee coupe, Skerrys Reach, isn't it?---I would need to see the details. I'm not sure.

1202 This extract demonstrates that at first Mr Paul did not directly answer the question he was asked. When pressed, he prevaricated, in my opinion. The email is very clear, and Mr Paul accepted that it expressed VicForests' policy. It was plain that two Tree Geebungs had been destroyed to make some of the snig tracks.

1203 This was Mr McKenzie's evidence:

> At night on 26 to 27 March 2018 I undertook a second survey at Skerry's Reach to record Tree Geebungs, with Blake. A substantially larger area of the coupe ·had been logged compared to the last time I had surveyed the coupe on 7 February 2018. For this reason, I believe that logging continued after the report I made on 7 February 2018. We only surveyed in the logged part of the coupe this time.
>
> I saw 5 damaged Tree Geebungs during this survey. We saw Tree Geebung specimens with browning and brittle leaves that appeared to be dying. I saw 2 Tree Geebungs lying on the ground that had been completely knocked over, with logging debris covering or partly covering them. I saw 3 Tree Geebungs that had broken and snapped off limbs and looked like they were dying.

1204 As to the applicant's allegations of breach of cl 2.2.2.4, VicForests' first response is that in relation to:

> all specimens with the exception of TTT03PA, Mr Mueck is unable to, or fails to, express an opinion as to the maturity of the specimen.

(Footnote omitted.)

1205 That submission is inaccurate on the face of Mr Mueck's report. In the report, Mr Mueck identifies five photographs as being of mature specimens. It is correct that in relation to the majority of the other photographs of specimens, his opinion is that the maturity level is "uncertain".

1206 Mr McBride visited the coupe on 13 March 2018. Timber harvesting concluded on 19 March 2018. He accepted, after his inspection of the coupe, that two Tree Geebung specimens were removed during landing and construction of the snig track for the coupe. The audit report he prepared concluded:

> 7 of the 9 Tree Geebungs reported by WOTCH have largely been protected from harvesting damage with only one of seven sustaining more significant damage. Most have had the slash immediately surrounding them reduced or removed. 1 of the 7 was just outside the harvest boundary and five others were within 20m of the harvest boundary. Those closest to the edge in lower slope coupe positions have a reasonable prospect of surviving the regeneration burn. The other 2 reported occurrences were removed during landing and snig track construction.

1207 Mr McKenzie's observations post-dated those of Mr McBride. Mr McKenzie was not required for cross-examination. It is entirely possible that the condition of the tree had deteriorated by the time Mr McKenzie observed them, when consideration is given to what the Court observed, and what Dr Smith deposed to, occurs to "habitat trees" which are left standing in coupes that have been logged.

1208 The whole purpose of Mr McKenzie going into Skerry's Reach was to observe the condition of the Tree Geebungs: I am satisfied his observations are reliable.

1209 I have looked at the photos and videos which are contained in JRM-75, Mr McKenzie's videos and photos taken on his second visit. They are taken at night, and it was raining quite heavily, so those factors make it somewhat difficult to see the extent of the damages, but even with those conditions the damage is very apparent. Some of the smaller Tree Geebungs have lost half of their limbs, or have significant damage to their trunks. I have watched the video of the Tree Geebung which is TT03PA. That is the one Mr Mueck states is a mature specimen, which means it likely to be in excess of 100 years old. It has a substantial limb snapped off, close to the trunk. Parts of it still look reasonably healthy, but the loss of a large limb is obvious. The video and photos of the Tree Geebungs which were knocked over or crushed by eucalypts that have been knocked over (eg TT04PA) show those specimens are quite large, although this is

one of the trees that Mr Mueck's report states as having an "uncertain" maturity. Nevertheless, it is not as small as some of the ones in the other photographs.

1210 It is obvious that at the time of the observations of Mr McBride and then, a couple of weeks later, Mr McKenzie, no regeneration burn had occurred. One might infer from the amount of the rain in the videos that the weather was not suitable. Therefore, any damage to the trees from the regeneration burn is unknown, but it is not difficult to infer from the nature of the burns and what the evidence (including on the view) shows about damage to much larger trees that these specimens would have been at high risk of being badly damaged at the time of the burn, or subject to dieback thereafter. There was no evidence from VicForests about any particular precautions scheduled to be taken to avoid damage to the Tree Geebungs.

1211 Although VicForests hinted in its closing submissions that there might be other causes for the damage to the trees that was visible in the photographic and video evidence, and to which Mr McKenzie deposed, I do not accept there is any probative basis at all for any cause other than forestry operations to be identified. Forestry operations use large scale machinery and these trees are relatively small; indeed, some of them are described as bushes. They are extremely slow growing. It is not difficult to find, as I do, on the balance of probabilities, that all the damage was due to VicForests' forestry operations. It is also, in the photos and videos, obviously recent – the wood was plainly newly damaged, and VicForests' forestry operations were also recent.

1212 I accept, as VicForests submits at [385] of its closing submissions, that the obligation in Table 14 is conditioned so that it applies "where possible". I accept, as VicForests submits, that this "affords a degree of latitude, no doubt recognising there will be operational constraints on retention in some circumstances". The problem for the application of that latitude here is that VicForests gave no evidence of any "operational constraints". It gave no evidence of why the snig tracks, operationally, needed to destroy two Tree Geebung. It gave no evidence of what "operational constraints" led to the significant damage demonstrated in the videos and photographs. It gave no evidence about how those constraints were so unavoidable that damage to trees of this threatened flora species that take 100 years to reach maturity, and live for more than 400 years, was reasonably or practically unavoidable. Instead, the evidence shows VicForests did no surveys, was only alerted to the presence of the Tree Geebung because of Mr McKenzie's work, and then, in my opinion, made half-hearted efforts to "protect" the detected tees, and failed in those efforts.

1213 I find VicForests did not comply with its obligations under cl 4.3 and Table 14 in respect of the Tree Geebung in Skerry's Reach coupe. I reject VicForests' brief argument about substantial compliance, on the basis that even if that is what is meant by the submissions I have referred to above, what occurred in Skerry's Reach was not substantial compliance.

Failure to protect Zone 1A habitat

1214 This allegation concerns forestry operations in Blue Vein coupe. The allegation is that VicForests should have identified Zone 1A Leadbeater's Possum habitat in this coupe prior to conducting forestry operations but failed to, and in doing so also failed to comply with cl 2.2.2.4 of the Code. It is apparent from the evidence that the importance of the forest in and around Blue Vein coupe for the Leadbeater's Possum has been the subject of a great deal of investigation, and argument, between VicForests and DELWP, and also the subject of third-party reports to DELWP.

1215 In a similar fashion to the provisions about the Tree Geebung, the Management Standards and Procedures at cl 4.2.1.1 provide, for rare and threatened fauna, that VicForests must:

> Apply management actions for rare and threatened fauna identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 13 (Rare or threatened fauna prescriptions).

1216 There are two applicable prescriptions in Table 13 concerning Leadbeater's Possum, extracted at [147] above. I note that cl 2.1.1.3 of the Management Standards and Procedures applies where "evidence" of Zone 1A habitat is "found in the field". That clause provides:

> Where evidence of a value that requires protection via the establishment or amendment of an SPZ or SMZ is found in the field application must be made to the Secretary or delegate prior to commencement of the timber harvesting operation to create or amend an SPZ or SMZ in accordance with Appendix 5 the Planning Standards. SMZ applications must be accompanied by an SMZ plan and must be complied with during timber harvesting operations.

1217 In turn, Table 4 of the Planning Standards, is entitled "Detection based FMZ rules for fauna". The relevant parts are extracted in Table 12 below.

Table 12: Extract from Planning Standards Table 4

FMA	Common Name	Scientific name	Zoning management actions	Management actions	Review
Central Highlands MAs	Leadbeater's Possum habitat	*Gymnobelideus leadbeateri*	Establish a SPZ over areas of Zone 1A habitat where there are more than 10 hollow bearing trees per 3 ha in patches greater than 3 ha.	Ensure Zone 1A habitat is not salvage logged.	Review retained habitat as ash forest areas change in relation to Zone 1A habitat criteria.
Central Highlands MAs	Leadbeater's Possum colony	*Gymnobelideus leadbeateri*	Establish a SPZ of 200 m radius centred on each verified Leadbeater's Possum colony.		The effectiveness of this action in supporting the recovery of the Leadbeater's Possum will be reviewed after two years of surveying (commencing July 2014) or once 200 new colonies are located whose exclusion zones impact the GMZ or SMZ, whichever comes first.

1218 What appears in the first entry under the heading "Zoning management actions" appears to be different in content from the definition of Zone 1A habitat in the Leadbeater's Possum Action Statement. The latter provides:

> > 12 living mature or senescing hollow-bearing trees (comprising Mountain Ash, Alpine Ash or Shining Gum) per 3 ha in patches greater than 3 ha

1219 Thus, what is in the Planning Standards provides a lower threshold of greater than 10 trees. It is the prescription in the Planning Standards which comprises part of the mandatory action for the purposes of the Code, since the Action Statement is no longer directly enforceable.

1220 Critical to classifying native forest as Zone 1A habitat is the identification of which trees fall within the description of "hollow-bearing trees". In the context of Zone 1A habitat, that term is defined in the Management Standards and Procedures as "living mature or senescent trees of Ash eucalypt species containing hollows". In turn, the words "mature" and "senescent" are also defined in the Management Standards and Procedures. Some of the terms used in the definitions of "mature" and "senescent" are themselves defined in the Glossary. The word "hollow" is also defined.

1221 It can be inferred that the reason there are so many definitions, and such complications introduced into determining whether a part of native forest is properly classified as Zone 1A habitat, is that this is otherwise forest of considerable value as a timber resource. If it must instead be set aside as a reserve and not harvested, that has economic consequences for VicForests. Therefore, a complex sequence of definitions on definitions has been created so that the extent of such reserves is tightly controlled and does not impinge on timber harvesting operations any more than is necessary. The complicated basis for the litigation in *MyEnvironment* highlights this very point.

1222 It is common ground that as part of its preparations for forestry operations in each coupe, and as part of the preparation of a coupe plan, a VicForests employee (usually a person such as a "tactical planning officer") may inspect a coupe to see if forest such as Zone 1A habitat is present in the coupe. The applicant's allegations on this particular breach arise in the context of a series of maps produced as a result of these field inspections combined with some third-party observations by Mr Lincoln about hollow-bearing trees in that coupe, and one tree in particular.

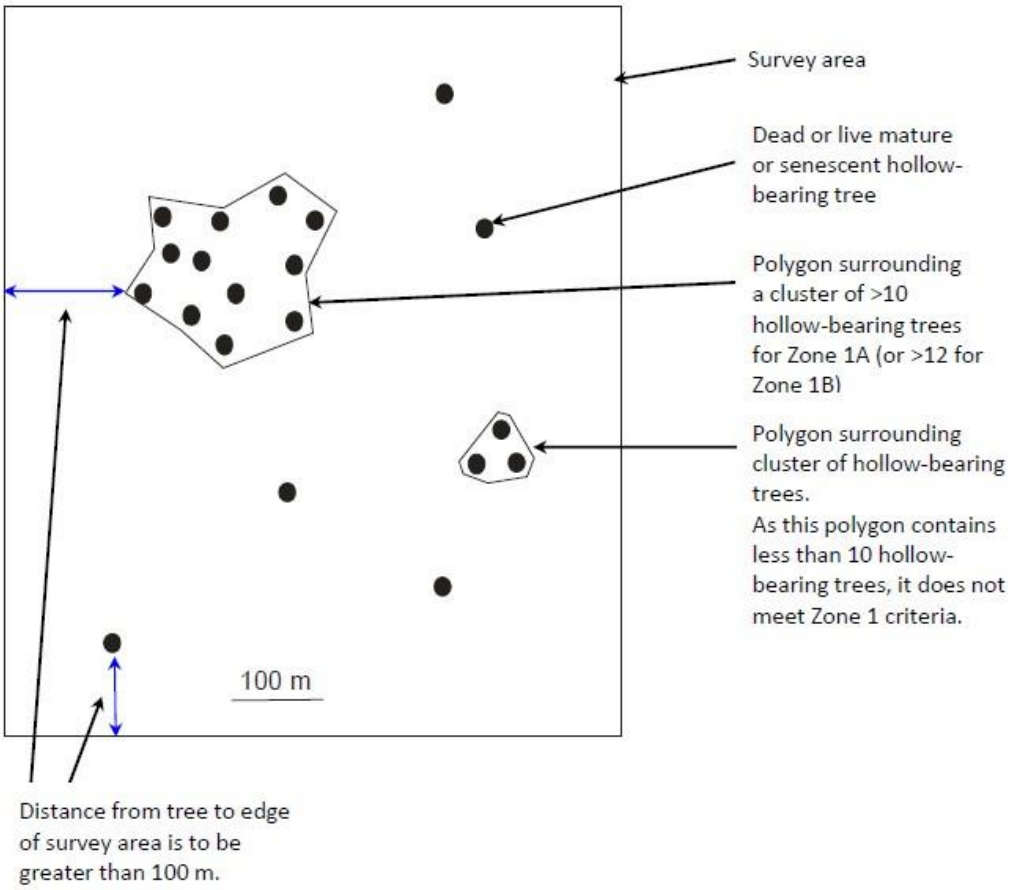
1223 Before explaining why I have accepted the applicant's allegations, it is also necessary to refer to one other document about Zone 1A habitat. This is a policy document entitled "Threatened Species Survey Standard: Leadbeater's Possum" produced by DELWP in April 2015. The purpose of the policy document is stated to be "to outline requirements for the surveying of threatened species subject to protective prescriptions under the *Code of Practice for Timber Production 2014* and the associated timber harvesting regulatory framework". The document covers what are seen by DELWP to be "acceptable" survey methods and "acceptable" levels of survey effort to identify presence or absence of the Leadbeater's Possum or its habitat. At p 15 of the policy is a section entitled "Requirements for identifying high quality Leadbeater's Possum habitat", and within this section is a sub-section dealing with state forest within the CH FMA, which equates to the CH RFA region.

1224 Under the heading "Office Procedures (spatial analysis)", a three-step instruction is given for the identification of Zone 1A Leadbeater's Possum habitat:

> i. Create a "tree map" using the GPS coordinates for all hollow-bearing live mature or senescing Mountain Ash, Alpine Ash or Shining Gum trees.
>
> ii. Create a closed polygon(s) around the tree locations where the vertices of the polygon coincide with the tree locations. Ensure that no side of the polygon is greater than 100 m and its perimeter is as short as possible. If a tree is more than 100 m from another tree, then create a new polygon. Buffer each polygon by ten metres. Each polygon now represents a separate patch of hollow-bearing trees (Appendix 8 provides an example). Measure the size of each polygon.
>
> iii. Assign polygons to Leadbeater's Possum Zone A1 habitat if the area of the polygon is > 3 ha and the number of trees inside the polygon is > (3.3333 x polygon area in ha). For example, if the polygon area = 4 ha and the number of hollow-bearing trees inside the polygon is 24, the polygon is Leadbeater's Possum Zone 1A habitat, as 24 > 13.3 (3.3333 x 4).

1225 Also in the DELWP policy is an example of how to map such habitat, which is worthwhile reproducing as it explains the process the policy intends be adopted:

Appendix 8. An example of the area to be searched for live mature or senescent or dead, hollow-bearing Mountain Ash, Alpine Ash or Shining Gum trees and how polygons are to be drawn around these trees



A8a) The survey area is the full extent of the area searched which is established initially based on the area of interest, and then finalised once all live mature or senescent or dead trees are located, with no tree closer than 100 m to perimeter of the survey area. A polygon is then created around a cluster of trees, where the distance between perimeter trees is no more than 100 m in length.

1226 VicForests' overall answer to this allegation lies, as I understand it, in the outcome of an investigation undertaken by DELWP specifically to ascertain if there had been any breaches of the Code by VicForests in its approach to the identification and preservation of Zone 1A habitat for the Leadbeater's Possum in Blue Vein coupe. It contends the evidence is that DELWP concluded there had been no breach of the Code, and therefore this Court should reach the same conclusion. VicForests further contends:

> [I]f VicForests had indeed applied to the Secretary to the Department to create a special protection zone to include the alleged Zone 1A habitat prior to commencing logging

> in the Blue Vein coupe (as the applicant alleges VicForests ought to have done), the Department would have refused such a request because it had formed the view that no such patch existed. This emphasises the point that the applicant's real dispute is with the Department.

1227 It is clear, and I accept, that, on 25 January 2019, DELWP informed VicForests that, relevantly, it had found no breach of the Code in Blue Vein coupe, on the basis that DELWP had determined there was no Zone 1A Leadbeater's Possum habitat in that coupe, as that concept is defined in the Management Standards and Procedures and DELWP's policy documents, and therefore the failure to establish a SPZ was not a breach of the Code. Thus, as VicForests contends, the applicant does invite the Court to reach a different conclusion to that reached by DELWP.

1228 The key to the applicant's arguments about what occurred in the Blue Vein coupe centres, first, on which trees were correctly identified as hollow-bearing trees, second, on how they were mapped as occurring within the coupe, and third, on how VicForests interpreted what needed to occur under the Management Standards and Procedures, read with the DELWP policy. The status and effect of the DELWP policy is in issue between the parties, with the applicant contending it is not the strict and absolute requirement that VicForests suggests. The applicant contends that there are no mandatory methods or limitations within the Code, the Management Standards and Procedures or the Planning Standards which prescribe how the configuration of hollow-bearing trees must occur for patches of forest to be classified as Zone 1A habitat.

1229 The first issue became more straightforward by the time of final submissions. There was one tree about which the parties had different views. It was identified as FE010. The question was whether it should be counted in the calculation of whether there were 10 or more hollow-bearing trees in patches greater than 3 ha. Ultimately VicForests agreed that FE010 has the characteristics that meet the description of a hollow-bearing tree in the context of Zone 1A habitat.

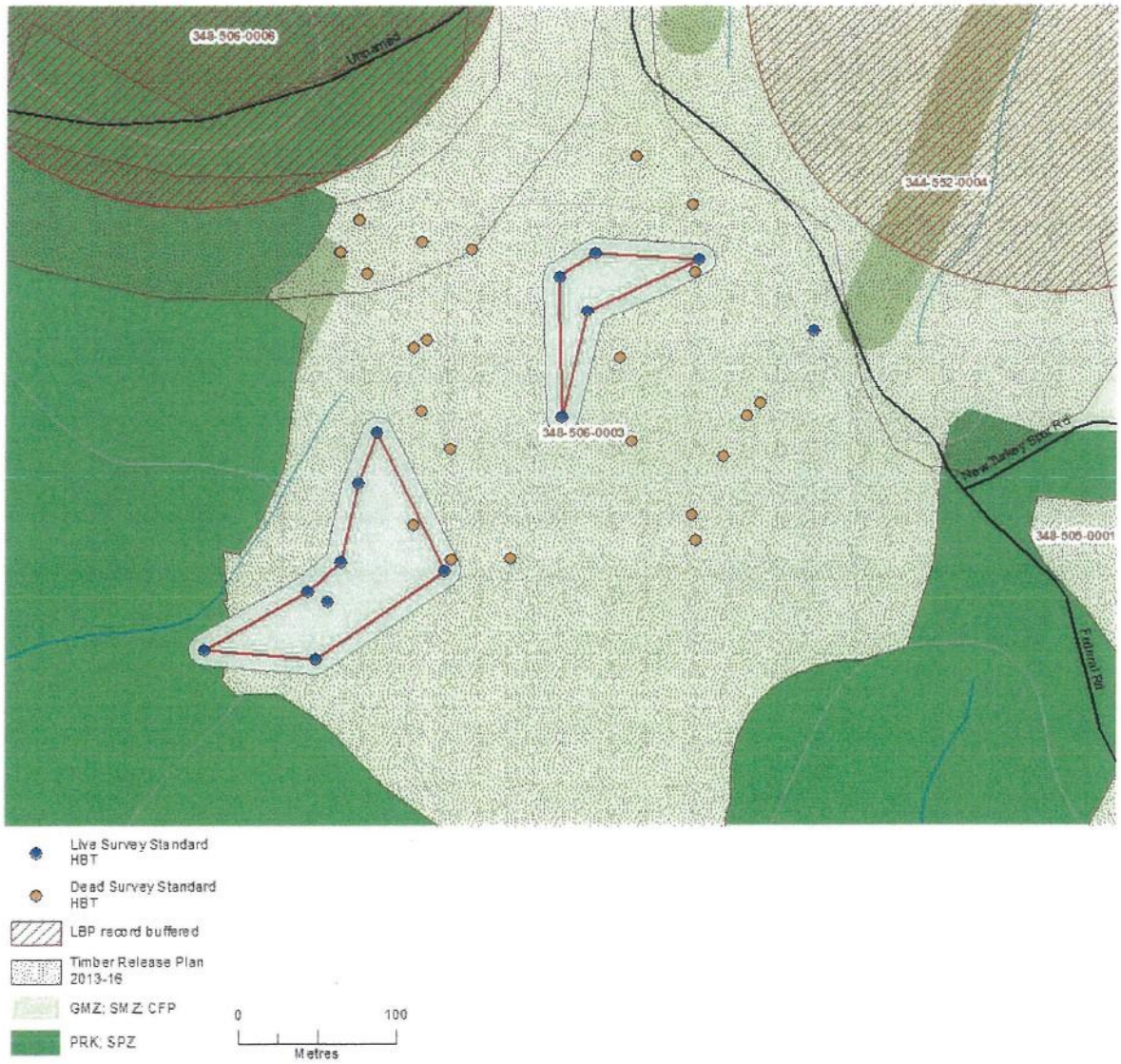
1230 It should also be noted that it was common ground that there was some recognised Zone 1A Leadbeater's Possum habitat in the north of the Blue Vein coupe. This can be seen on the post-harvest map of Blue Vein, where there are multiple Leadbeater's Possum THEZs established around Leadbeater's Possum colonies which had been detected. It is also the case that a considerable area in the south of the coupe was harvested before a THEZ was established following a Leadbeater's Possum colony detection on the south-western edge of the coupe. This meant, in effect, that about half of the THEZ intruded into the south of the coupe, although

it had already been logged. The applicant's challenge involves hollow-bearing trees and forest on the western side and towards the northern centre of nett harvestable area of Blue Vein coupe.

1231 Before turning to the second issue – how the trees were mapped – it is worthwhile providing a little more background to how questions were raised about possible Zone 1A habitat in this coupe. The evidence suggests questions were first raised by scientists from the ARI who were conducting targeted surveys for Leadbeater's Possum in the region of Blue Vein in January 2016. Amongst the scientists was Dr Lumsden, whose work has been referred to earlier in these reasons and was relied on by both Dr Smith and Professor Woinarski. On 29 January 2016 Dr Lumsden sent an email to Krystina Kny, an employee of VicForests whose job title was "Manager Forest Performance". Relevantly, Dr Lumsden said:

> Hi Krystina
>
> while undertaking fieldwork for the Leadbeater's Possum Targeted surveys, Louise Durkin and the rest of the survey team came across a location with a stand-out density of large old hollow-bearing trees which meet the survey standard definitions for Zone 1A. As we don't come across many sites with this density of large old trees, that is also on the TRP and we thought it was worth flagging with you.
>
> The coupe is on Federal Rd in the Ada forest area of the Yarra State Forest near Powelltown, number 348-506-0003.
>
> Survey Standard hollow-bearing trees at the location have been mapped by Louise and the field team as an exercise to assess the site as potential Leadbeater's Zone 1A habitat. As you can see from the attached screenshot, there are 13 large live hollow-bearing trees but when the polygons around them are plotted it ends up being two polygons (0.6 ha and 1.2 ha in size) as they are separated by just over 100m, thus not quite meeting the criteria for Zone 1A for 3 ha (although had the gap between them been slightly less the total area would have been >3 ha). The team didn't investigate the SPZ to the west of the southern polygon on the ground, but from the air photos it looks like there might be more large old trees there which may meet the definition and would be worth checking out, to see if this extended the area for this polygon, and hence may meet Zone 1A. There are also high densities of dead stags on the site but the wattle density is probably not enough to meet Zone 1B.
>
> We surveyed this site in November - December 2015 without detecting Leadbeater's, however we believe it may well deserve further investigation. We're wondering if you have assessed it at ground-level for Zone 1 A habitat, or if you have plans to include it in VF's pre-harvest surveys given there are lots of other LBP records nearby?
>
> Happy to discuss further re collaborative survey efforts etc. Our staff have expressed an interest in joining VF staff during assessments of coupes for Zone 1 A or 1 B habitat to learn how the criteria are being applied across the Central Highlands. If you know of any opportunities to do so, please let us know.
>
> bye
>
> Lindy

1232 Dr Lumsden attached a map showing the polygons as her team had plotted them:



1233 To this, Ms Kny sent an email to relevant VicForests staff:

> Hello all,
>
> Please see the email below from Lindy at ARI in regards to possible Zone 1 A in the coupe Blue Vein
>
> Craig - can you please let me know when this coupe is scheduled on the ROP?
>
> Andrew - I checked our LBP pre-harvest survey matrix and it is flagged for a survey. I just wanted to double check this is still the case? Can you please add an alert to Cengea with the below statement: Possible Zone 1A flagged by ARI within coupe. Please be vigilant for lone 1A during coupe marking and ensure Identification of Leadbeater's possum Habitat checklist is completed prior to harvest.
>
> Kim - Worth noting that there is interest in this coupe. Please print the below email and add to the coupe folder. Also worth flagging with the responsible Forester
>
> Thanks and please let me know if you have any questions.
>
> Regards,

1234 Craig Rutherford, the then Operations Planning Forester for VicForests for West Gippsland replied to Ms Kny, stating that Blue Vein was "not scheduled on the ROP [for] this season or future" seasons. I mention Mr Rutherford's response to demonstrate how quickly or substantially VicForests' plans for forestry operations can change. Here was VicForests' planning officer in January 2016 saying Blue Vein was not scheduled for harvesting that season, or future seasons. Yet, harvesting commenced in February 2017 and the coupe would have been entirely harvested if it were not for the events that have led to the current dispute, including directions from DELWP to VicForests to cease harvesting pending an investigation about possible Zone 1A habitat in the coupe. This sort of evidence reinforces my opinion that the surest guide to likely forestry operations is the Timber Release Plan.

1235 The applicant relied on the expert evidence of Mr Shepherd, a GIS expert and environmental scientist. He was not required for cross-examination. In its final submissions VicForests sought to challenge his evidence, in part by reference to some answers given in cross-examination by Professor Baker. Since none of the propositions on which VicForests sought to rely in its closing submissions were put to Mr Shepherd, I place little weight on that aspect of VicForests' submissions. It is fixed with the consequence of its election not to cross-examine Mr Shepherd, especially since he was providing an expert opinion.

1236 Mr Shepherd was provided with VicForests' map showing what were admitted by VicForests for the purposes of the proceeding to be hollow-bearing trees for the purposes of the concept of Zone 1A habitat. He was also provided with the waypoint location for the tree known as FE010. He conducted a spatial analysis of the tree points using three different methods and identified multiple configurations of "patches" of forest which would result in part of the forest in the nett harvest area of Blue Vein being classified as Zone 1A habitat, including the cohort of trees in the north of the coupe which VicForests (and ultimately DELWP) had excluded from such a classification. In summary, some of the "patches" were linear, and some were rounder. In a summary of Mr Shepherd's conclusions, the applicant submitted (at [519] of its closing written submissions):

> Mr Shepherd said a ratio of 3.333 trees per hectare is equivalent to 10 trees per 3 ha. The patch using Method 1 had 15m buffers on perimeter trees, contained 11 trees, was 3.187ha with 3.452 trees per ha. Method 2 had no buffers on perimeter trees, contained 25 trees, was 7.199ha with 3.473 trees per hectare. Method 3 was a 15m wide linear shape including 25 trees, was 6.205 ha with 4.029 trees per hectare.

1237 The applicant's submissions then explain in detail the other results produced by Mr Shepherd, depending on variables such as the buffer size and reliance or non-reliance on tree FE010. The

applicant's point, as I understand it, is that all of these methods were permissible because what regulated VicForests' conduct of forestry operations was the content of the Code and the Management Standards and Procedures, without what I understood the applicant to contend was a "gloss" put on those obligations by DELWP's policy document about survey methods.

1238 Instead of taking any approaches similar to those taken by Mr Shepherd, the applicant contended that VicForests had defined areas that could be protected as Zone 1A habitat by excluding areas where the hollow-bearing trees were more than 100 m apart. That is the substance of the debate between the parties, as well as the meaning to be attributed to the word "patches" in the Management Standards and Procedures.

1239 Mr Paul was cross-examined about VicForests' approach:

> Well, the 100 metre rule that is – what has led to the depiction here on the coupe plan is not part of the standards, is it?---It's part of the survey standards that DELWP published.
>
> Well, it's the fact, isn't it, that the DELWP survey standard for the Leadbeater's possum refers to a 100 metre description, but that is a policy document only and cannot change the definition of Zone 1A in the management standards, can it?---Well, you actually can't apply the management standards on the ground without some form of interpretation. It's not possible.
>
> Well, if we can go back to the definition, please, at 6.11, PDF page 39, I want to ask you to tell her Honour what's not possible on the ground about establishing whether there are more than 10 hollow-bearing trees per three hectare in a patch greater than three hectares. What's the problem?---Well, the – the per three hectare – 10 per three hectares is something that needs to have some area boundary around it, some – some reference.
>
> But that's not what was done here. It wasn't done by reference to a three hectare issue, it was said there's more than 100 metres, or there might be more than 100 metres between these so we won't join them up. That was what was done, wasn't it?---Well, we followed the published survey standard that DELWP put out and they used for this assessment.

1240 The issue about the 100 m "rule", and the correct meaning of the term "patch" as used in the Management Standards and Procedures should be considered together. As I understood it, in his cross-examination, Mr Paul contended some kind of boundary needed to be stipulated in order to identify a "patch".

1241 Both parties referred the Court to a passage in the reasons of Osborn JA in *MyEnvironment* at [253], where his Honour was considering the concept of Zone 1A habitat as set out in the Management Standards and Procedures and the Leadbeater's Possum Action Statement. His Honour said:

> There is also a dispute between the parties as to the word 'patches'. I do not accept that patches are simply a synonym for areas. A patch must be a patch of forest. I do accept, however, that it need not be regular in configuration. It is an ordinary English word and its applicability is a question of fact.

1242 What Osborn JA said at [251] should also be extracted:

> It follows that I do not accept that MyEnvironment can establish a requirement under the FMP to create an SPZ in the Toolangi coupes (or any of them) unless it can prove **the presence of more than 12 mature and senescing montane ash HBT in patches greater than 3 hectares**.
>
> (Footnote omitted; emphasis added.)

1243 In other words, the presence of the requisite number of trees which could be classified as "hollow-bearing" in a "patch" of forest was all that was required. I note the reference to 12 rather 10 appears to be because the obligation at the time of *MyEnvironment* derived from the Action Statement. The difficulty in *MyEnvironment* for the plaintiff was that it could not prove the presence of the requisite number of trees that could be classified as "hollow-bearing". That was the point Osborn JA made at [254]:

> In the present case, however, no matter how hypothetical patches are configured, the evidence does not establish the required density of mature or senescing trees in Gun Barrel. MyEnvironment's evidence identified polygons which would meet the **prescription if it were to apply to all living trees of the requisite species containing hollows**, but that evidence **does not demonstrate that the relevant criteria relating to "mature and senescing" trees are met.** The polygon proposed on the eastern side of the coupe contains only 10 mature or senescing trees. The polygon on the western side contains only seven mature or senescing trees.
>
> (Emphasis added.)

1244 The applicant contended (at [541]-[542] of its closing written submissions):

> Blue Vein coupe is the perfect vehicle coupe to resolve this issue and exemplifies the absurdity of its strict application. The facts were that the 100m measurement was marginal and may have been caused by GPS margin of error. VicForests in fact first mapped the Zone 1A as including the northern hollow-bearing trees. Yet, VicForests then strictly applied the policy to nevertheless exclude the northern cohort of hollow-bearing trees which otherwise met the relevant requirements from the Zone 1A and place them within the planned net harvest area.
>
> The Respondent's strict application of the 100m rule is contrary to Justice Osborn's finding that the patches "need not be regular in configuration". The 100m policy is precisely an effort to "regularise" the configuration of the patches, with no basis articulated.

1245 I respectfully agree with the approach taken by Osborn JA, and also respectfully agree that the word "patch" as used in the relevant part of the Management Standards and Procedures is used in its "ordinary" sense and the determination of a "patch" is a question of fact. The subject

matter of the exercise is not some Lego construction or an artificial plantation, laid out in a mathematical way. It is a native forest. The purpose of identifying "patches" is to identify habitat for a native animal, which also does not approach the use of its habitat on any mathematical basis. The Leadbeater's Possum operates, as Professor Woinarski explained, on contiguous and connected forest which supports both sufficient numbers of hollow-bearing trees and a wattle understorey. There is no evidence that the Leadbeater's Possum does not use linear areas: indeed, the whole premise of connecting unlogged forest through "corridors" which are left in logged forest assumes that hollow-dependent species, including the Leadbeater's Possum, can move and use such corridors.

1246 While Dr Smith gave evidence about the appropriate width for such corridors between forested areas, VicForests did not point the Court to anything in the expert evidence or the sources on which the experts relied to suggest that Leadbeater's Possum would not use, as part of their habitat, "patches" of forest which were more linear than square or round. Indeed, on the evidence, I find that what is more important is the quality of the forest both in terms of the presence of hollow-bearing trees and wattle understory. That is the whole point of the content of the concept of Zone 1A habitat. While linear patches may be more inconvenient for forestry operations, as a matter of fact there would not seem to be any insurmountable difficulty in ascertaining a boundary for patches that have such a shape: any buffer between the habitat and the area to be harvested will need to be identified on an ecological and not a forestry basis, otherwise the purpose of establishing Zone 1A SPZs would be defeated.

1247 Accordingly, I accept the applicant's argument. If it is relevant, which I do not consider it is, the decision by DELWP was obviously driven by a strict and technical application of the terms of its own policy, in what had on the evidence become a hotly contested dispute between it and VicForests. Why DELWP decided, in the end, and despite what was initially said by Dr Lumsden, to take such a technical approach is not revealed by the evidence and in any event not relevant to the resolution of the applicant's allegations. The present context is different. For the purposes of s 38, what regulates the conduct of forestry operations in the CH RFA region is the Code and the Management Standards and Procedures, which includes the Planning Standards. The Management Standards and Procedures have a clear prescription about Zone 1A habitat. They say nothing about the need for less than a 100 m gap between hollow-bearing trees. The "boundary" which the Management Standards and Procedures, by reference to Table 4 of the Planning Standards, impose is a "patch" greater than 3 ha. It is within this "patch" that the requisite density of hollow-bearing trees per 3 ha (10) must be present.

1248 In reaching my conclusions, I have not found it necessary to set out the narrative of what then happened, as between VicForests and DELWP, about the debate of whether there was Zone 1A habitat in the Blue Vein coupe. It spanned several years and, on Mr Paul's evidence, only reached its conclusion in January 2019 when DELWP decided that there was no breach of the Code. Along the way DELWP gave a direction to VicForests to cease timber harvesting while its investigation was conducted. I note VicForests never offered to cease timber harvesting, which might well have been a precautionary approach if VicForests took seriously both Dr Lumsden's opinion reproduced above as a species expert and the fact that the gap may have exceeded 100 m only because of GPS errors, a matter to which VicForests' biodiversity field inspection forms noted. Despite a report of what was obviously high quality habitat for the Leadbeater's Possum (whether or not it fell within the technical description of Zone 1A habitat), and how unusually high quality habitat Dr Lumsden noted that the area was, forestry operations in that coupe only halted because VicForests was directed to cease them, pursuant to s 70(1) of the SFT Act. This is in relation to a species which is critically endangered and assessed at high risk of extinction in the immediate future. This example is further confirmation of my view that on the balance of probabilities there is no realistic prospect VicForests will, of its own volition, adopt an approach to its forestry operations which complies with cl 2.2.2.2 of the Code. The Blue Vein coupe example illustrates the lengths to which VicForests will go to ensure it can harvest native forest with large trees that have high economic value to it, despite their conservation and biodiversity values.

1249 The forestry operations in Blue Vein were not conducted in accordance with the CH RFA, and I find the s 38 exemption did not apply to those forestry operations.

Failure to identify Leadbeater's Possum colony

1250 This allegation concerns the Hairy Hyde coupe in the Starlings Gap coupe group. The applicant contends there was a failure by VicForests to identify a Leadbeater's Possum colony prior to commencing harvesting operations, contrary to cl 2.2.2.4 of the Code, read with Table 13 of the Management Standards and Procedures, cl 2.1.1.3 of the Management Standards and Procedures and Table 4 of the Planning Standards. It should be recalled that the obligation imposed by cl 2.1.1.3 to create a SPZ or SMZ requires an application to the Secretary of DELWP (or delegate) prior to the commencement of timber harvesting. It should also be recalled that, pursuant to Table 4 of the Planning Standards, an SPZ must have a "200 m radius centred on each verified Leadbeater's Possum colony".

1251 Mr Paul's evidence is that timber harvesting commenced in Hairy Hyde on 31 May 2016. On 2 August 2016, a Leadbeater's Possum colony detection was reported to DELWP and VicForests by Mr Nisbet. Mr Nisbet's unchallenged evidence was as follows:

> At night on 2 August 2016, I conducted a survey for Leadbeater's Possum in the Hairy Hyde coupe, off Blacksands Road near Starlings Gap.
>
> When I arrived, I saw that part of the Hairy Hyde coupe had been cleared and I saw a log landing and clear-felled area in the coupe with a logging track heading in a northerly direction further into the coupe.
>
> While walking down this narrow cleared logging track in the central part of the coupe I conducted a search for Leadbeater's Possums.
>
> I recorded a Leadbeater's Possum along this cleared logging track approximately 150-200m from the edge of the larger clearfelled area, within the coupe.
>
> The next day on 3 August 2016, I prepared a report including a map of my findings and emailed it to DELWP at 10.52pm attaching the video recording.

1252 Mr Nisbet's evidence about the reaction to his report follows precisely the same pattern as that to which Mr McKenzie and others deposed, and which I have recounted earlier in these reasons: that is, an acknowledgement and a statement that the report had been forwarded to VicForests. However, on 9 August 2016 Mr Nisbet was then also informed by DELWP as follows:

> LBP report number 2016-0054 has now been verified. As a result, a new Leadbeater's possum colony was formed and a 200m buffer exclusion zone was established surrounding the sighting.

1253 VicForests had been notified by DELWP of the verification of the detection on 5 August 2016. Mr Paul's evidence was that VicForests prepared a "context map" for this coupe on 5 August 2016: that is, after the Leadbeater's Possum detection was reported. That context map, which is in evidence, shows a Leadbeater's Possum SPZ having been identified around the detection reported by Mr Nisbet. It also reveals that the SPZ extends, in the southern part, over part of an area of forest which had been already logged. There is no doubt the logging shown on this map must have occurred prior to 5 August 2016; indeed Mr Paul's evidence is that harvesting was suspended temporarily from 30 June 2016 because of winter and in the usual course would have recommenced in October 2016 (although it has in fact has not recommenced).

1254 At [424] of its closing submissions, VicForests states:

> VicForests has admitted the following facts for the purpose of this proceeding:
>
> (a) a Leadbeater's Possum was detected on 2 August 2016 within coupe 345-505-0006 (Hairy Hyde) at the location marked by a white cross numbered "567"

on the maps at Annexure BTN-5, to the Affidavit of Blake Nisbet affirmed 17 September 2018; and

(b) the Respondent had conducted forestry operations within Hairy Hyde prior to 2 August 2016.

(Footnotes omitted.)

1255 VicForests' first answer to this allegation is a factual one: it contends there is no evidence that a Leadbeater's Possum colony was occupying or using Hairy Hyde coupe before the commencement of harvesting on 31 May 2016, and therefore no non-compliance with cl 2.1.1.3 of the Management Standards and Procedures has been proven. In other words, VicForests posits that a Leadbeater's Possum colony may have moved into the hollow-bearing trees in the middle of Hairy Hyde coupe after the commencement of logging in that coupe on 31 May 2016. VicForests appears to suggest the likelihood of this occurring is increased by the uncontested fact that logging ceased on 30 June 2016 and has not recommenced. VicForests further contends that it will need to "re-run" the coupe overlay process for Hairy Hyde before forestry operations recommence and will conduct any future forestry operations in Hairy Hyde "in accordance with the Code, applicable management actions and management prescriptions". This evidence was consistent with Mr Paul's general evidence, given on many occasions during this proceeding, that in all its forestry operations (past and future) VicForests complied, or would seek to comply, with the Victorian regulatory scheme.

1256 I reject VicForests' contentions, and find it is improbable on the evidence that a Leadbeater's Possum colony moved into the location where Mr Nisbet detected them after VicForests commenced logging on 31 May 2016. The forest in and around Hairy Hyde coupe was, in May 2016, known to be occupied by a considerable number of Leadbeater's Possum colonies: it was obviously highly suitable habitat for them. In 2015 to 2016, there were three other Leadbeater's Possums detected within 200 m of the Hairy Hyde coupe, with each detection resulting in a part of the 200 m buffer being located in Hairy Hyde. The agreed map for the Starlings Gap coupes also shows more than five Leadbeater's Possum colonies detected in 2016 within 1 km of the Hairy Hyde coupe. The colony detected by Mr Nisbet was found in the centre of the coupe, the coupe being approximately 46 ha in size. Professor Woinarski's evidence is that the home range of the Leadbeater's Possum is around 1 to 3 ha where the habitat is high quality, and larger in poor quality habitat. All the surrounding detections suggest this habitat is not poor quality, and if anything their ranges are likely to be smaller than larger. It is likely any Leadbeater's Possums would have had to leave their home ranges to enter the centre of Hairy Hyde. Professor Woinarski also made it clear the species is arboreal and rarely comes to the

ground; and family groups are typically sedentary, exhibit "long-term site fidelity", and may use multiple den sites within their range. I note that Professor Woinarski's evidence was that "some non-breeding individuals may disperse to seek breeding opportunities or to colonise unoccupied habitat", but on balance, in this particular coupe, I find that the evidence is inconsistent with an individual Leadbeater's Possum having moved into a location in the centre of this coupe for the first time at some stage between May and August 2016. I infer that is especially so given the effects of noisy and destructive forestry operations and the way those operations are likely to inhibit the movements of an animal which is predominantly arboreal, especially movement *towards* the location of forestry operations and not away from them.

1257 In those circumstances, I find on the balance of probabilities that the detection made by Mr Nisbet on 2 August 2016 is likely to have been of a Leadbeater's Possum already occupying the area in which it was detected. VicForests' hypothesis is sheer speculation and inconsistent with the expert evidence about this species.

1258 Therefore, the conclusion I reach on this allegation is that there were Leadbeater's Possum occupying the coupe, in the area of Mr Nisbet's detection, prior to the commencement of forestry operations. They were not detected by VicForests prior to the commencement of forestry operations. No SPZ was created prior to forestry operations. The post-harvest map indicates one has now been created but the Court was not directed to any evidence about whether all of the forest within this SPZ had been retained.

1259 Clause 2.2.2.4 of the Code was contravened because VicForests failed to identify the biodiversity values relating to the Leadbeater's Possum prior to roading, and harvesting. VicForests did not address the risks to the Leadbeater's Possum through the prescribed management action (creation of an SPZ). Obviously, it also contravened cl 4.2.1.1 of the Management Standards and Procedures because it did not apply that management action to its forestry operations in the coupe, prior to them commencing.

1260 I also accept the applicant's contention that forestry operations occurred within about 220 m of the Leadbeater's Possum colony in Opposite Fitzies coupe, in which harvesting had already been conducted up to the 200 m THEZ boundary

1261 The contents of the coupe plan for Hairy Hyde also illustrate some of the deficiencies and difficulties I have highlighted elsewhere in these reasons with VicForests' forestry operations "on the ground". For some reason unexplained on the evidence the operations map for Hairy

Hyde, created on 18 May 2016, does not show the two SPZs which come in that coupe from the north, based on two detections to the north of Hairy Hyde. It might be because the detections (and SPZs) post-dated the coupe plan, but I make no finding as there is insufficient evidence one way or the other. Further, the coupe plan for Hairy Hyde states that there is no Leadbeater's Possum habitat in the coupe, and that this has been "checked". It is unclear whether this is a reference to modelled or actual habitat. Thus, the coupe plan appears to indicate to the reader that Hairy Hyde coupe has no Leadbeater's Possum habitat when there were, on the evidence, four Leadbeater's Possum SPZs formed because of Leadbeater's Possum detections which were partially located within the coupe and one of them (the one presently under consideration) was right in the middle of the coupe.

1262 Although VicForests does not say so expressly, its submissions also convey the sense that any non-compliance found to have occurred was minimal, technical or trivial. Taking a narrow approach by assessing mathematically the extent of the overlap between the SPZ and the logged area, such an argument might be made. However, that would not be the correct approach. The correct approach is to recall the purpose of the SPZ and the status of the Leadbeater's Possum. The 200 m radius buffer is equivalent to approximately 12.6 ha: see Leadbeater's Possum Advisory Group Technical Report at p 85. The purpose of the 200 m radius buffer around a colony detection was to provide the species, where detected, with some level of protection from forestry operations. The Leadbeater's Possum Advisory Group Technical Report recognises that level of protection is less than optimal. At [43] of his first report Professor Woinarski described the LPAG Report's conclusion that a THEZ of 200 m radius around existing known colonies would have only a "low to medium" impact on reducing extinction-risk, whereas increasing the exclusion zone to 500 m radius would have a "medium" impact on reducing extinction-risk, and increasing it to 1 km radius would have a "high" impact on reducing extinction-risk. The LPAG Report appears to suggest, at p 26, that 200 m was a minimum level of protection that could be afforded while maintaining a sustainable timber industry in native forest occupied by the Leadbeater's Possum. All of this evidence suggests that a 200 m buffer is minimal protection, and therefore it is critical that it be strictly observed. Coupled with this, the Leadbeater's Possum is critically endangered – that is, facing an extremely high risk of extinction in the wild in the immediate future. In that context, the conservation of every individual of the species matters. The conservation and protection of every single Leadbeater's Possum colony, without doubt, matters.

Failure to screen during harvesting operations

1263 The applicant contends that this non-compliance relates to 19 of the Logged Coupes: that is, all coupes except Blue Vein, Hairy Hyde, Tarzan, Rowles, Bromance, Lovers Lane and Swing High. The non-compliance consists of failure to maintain a 20 m vegetation buffer between forestry operations and the "view" of the landscape – for example, from roads or private properties. The obligation is contained in cl 5.3.1.5 of the Management Standards and Procedures:

> Screen timber harvesting operations (except selective harvesting operations) and new road alignments from view. Use a minimum 20 m vegetation buffer with particular emphasis on the sensitive landscape features listed in table 9 in Appendix 5 the Planning Standards.

1264 The "sensitive landscape features" referred to in Table 9 of the Planning Standards are – relevantly to the CH RFA region – features such as escarpments, waterfalls, main highways (eg the Melba Highway), hills (eg Mt St Leonard) and rivers (eg Big River). Table 9 of the Planning Standards includes, for each specified "sensitive landscape feature", a zoning management action which must be undertaken if that feature is affected by timber harvesting. These include actions such as "[m]aintain a 50m SMZ either side" of a particular road, or "[m]aintain prominent views" of a landscape feature, or "[m]aintain a SPZ" over the specified site (such as waterfalls and their surrounds).

1265 VicForests contends the applicant has failed to adduce evidence supporting the allegation in all the Logged Coupes except Greendale, De Valera, Professor Xavier, Bullseye and Opposite Fitzies. In respect of those coupes, it accepts there is evidence from Mr Lincoln on this matter. In response, the applicant contends the evidence can be found in Dr Smith's observations, the view and VicForests' own coupe plans. The applicant appears to accept there is no direct evidence for the Rubicon coupes; namely Golden Snitch, Hogsmeade, Houston and Rocketman.

1266 Aside from this submission, the debate between the parties is one of interpretation of the obligation imposed. VicForests contends the minimum 20 m vegetation buffer requirement in cl 5.3.1.5 only applies to landscape features in Table 9 of the Planning Standards, whereas the applicant contends it applies to all forestry operations.

The evidence and my findings

1267 Dr Smith was instructed to report specifically on the existence of a 20 m vegetation buffer screening forestry operations from view in the Logged Coupes he observed. His answer, in his first report, was as follows:

> I was not aware of any effective vegetation buffer that screens forestry operations on any coupes. One coupe (Dry Creek Hill Snobs Creek) is located along a road and only removes roadside vegetation, provision of a screen buffer in this location is not possible.

1268 Mr Lincoln's evidence covered five coupes which Dr Smith had not inspected: Greendale, De Valera, Xavier, Opposite Fitzies and Bullseye. In his third affidavit, Mr Lincoln deposed, for each coupe, that he could not see vegetation screening the logged area of the coupe from view from the road. He exhibited photographs he had taken in each coupe. I have examined those photographs. All show logging has occurred right to the edge of the road. Some show evidence of recent regeneration burning, again, right up to the edge of the road. Others show regenerating vegetation up to the edge of the road, where logging has previously occurred. Some of the photos also show a large amount of timber debris right up to the roadside edge, but certainly no vegetation buffer. One coupe has a mowed grass strip abutting the road rather than timber debris.

1269 I accept the evidence of Dr Smith and Mr Lincoln. Neither was cross-examined about their evidence on this point, and Mr Lincoln was not cross-examined at all. Further I accept that it could readily be observed on the view that at Guitar Solo, The Eiger, Kenya, Mont Blanc and Greendale the forestry operations had extended right to the edge of the road.

1270 As VicForests submits, cl 5.3.1.5 must be read in context. The context is a series of prescriptions designed to protect certain landscape values from the effects of forestry operations. Clause 5.3 deals with three absolute prescriptions about retention of mature trees and 50 m buffers in three specific locations, not presently relevant. However, the absolute nature of the prescription is clear from the language. Further, the specific buffer prescribed is considerably larger than the 20 m buffer the rest of the prescription refers to. Then the remainder of cl 5.3.1 (dealing with the CH FMA, which is the same as the CH RFA region) divides the prescription into what it calls "foreground" protections and "middle ground" protections; describing these as between 0 m and 500 m and between 500 m and 6.5 km respectively. Clause 5.3.1.4 imposes a specific prescription relating to "scenic drives and designated lookouts in table 9". Unlike cl 5.3.1.4, cl 5.3.1.5 contains a general prescription in

the first sentence, which is then qualified in two ways. The first is by reference to the minimum size of the buffer, set at 20 m. The second qualification refers to table 9. Its meaning is plain in my opinion – all timber harvesting operations (and new road alignments) are to be screened from view, and the minimum screening is 20 m. In addition, by reference to table 9 and for "sensitive landscape features" set out in table 9, additional screening is required, over and above the 20 m minimum.

1271 With the exception of Golden Snitch, Hogsmeade, Houston and Rocketman, in respect of which the applicant pleaded non-compliance but advanced no direct evidence, I accept the applicant's contention. VicForests has not complied with the mandatory action in cl 2.5.1.1 of the Code: "Planning and management of timber harvesting operations must comply with relevant coupe management measures specified in the Management Standards and Procedures". The non-compliance is made out in respect of cl 5.3.1.5 of the Management Standards and Procedures.

1272 Therefore, in respect of all the Logged Coupes except Blue Vein, Hairy Hyde, Tarzan, Rowles, Bromance, Lovers Lane, Swing High, Golden Snitch, Hogsmeade, Houston and Rocketman, VicForests has not conducted its forestry operations in accordance with the CH RFA and does not have the benefit of the s 38 exemption. The first seven coupes are not the subject of this alleged breach. The last four are the Rubicon coupes, for which no evidence of the breach was advanced.

Too small gaps in retained vegetation

1273 This allegation depends on a mandatory action in cl 2.2.2.1 of the Code, read with cl 4.1.4.4 of the Management Standards and Procedures. Clause 2.2.2.1 provides as follows:

> Planning and management of timber harvesting operations must comply with relevant biodiversity conservation measures specified within the Management Standards and Procedures.

1274 Clause 4.1.4.4 provides:

> No gap between retained vegetation is to be greater than 150 m.

1275 This is the part of the Management Standards and Procedures dealing with habitat retention: that is, the part that also deals with matters such as habitat tree retention. The allegation relates to the coupes Rocketman, Houston, Golden Snitch, Hogsmeade, Greendale, De Valera, Professor Xavier, and Ginger Cat.

1276 The applicant's contention is captured at [569] of its closing written submissions:

> The Applicant submits that it is clear from the context that "retained vegetation" in cl 4.1.4.4 is a reference to the retention of either single habitat trees or to the retention of hollow-bearing ash eucalypts in clumps as referred to in cl 4.1.4.3. That is to say cl 4.1.4.4 should be read as referring to the retained vegetation referred to in the immediately preceding paragraphs. The reason that the words "retained vegetation" are used is that the preceding provisions refer to retention of both individual trees and clumps of trees. "Vegetation" is thus used as a catch all to refer to both habitat trees and clumps.

1277 The way the applicant puts its contention in its submissions captures not only coupes where there is a gap of more than 150 m between retained habitat trees but also coupes where it contends habitat trees should have been retained but were not. Ginger Cat is an example of the latter category.

1278 Once again, the difference between the parties is as to the meaning of the prescription. The phrase "retained vegetation" is not given a specific definition in the Code or the Management Standards and Procedures.

1279 VicForests contends that cl 4.1.4.4 requires it:

> to ensure that there are no gaps greater than 150 m between retained vegetation and hollow-bearing trees, or potential hollow-bearing trees, where such trees are present.

1280 One matter should be noted from this contention. The qualification at the end is, I have assumed, to be read as "where such trees are present because of the application of a prescription". That is, if VicForests has not complied with an applicable prescription, and there are, in fact, no trees present because of that non-compliance, I do not understand VicForests to be contending that such a fact would excuse compliance with this prescription. In other words, non-compliance with the habitat tree prescription may well result in non-compliance with the 150 m gap prescription.

1281 VicForests contrasts the terms of cl 4.1.1.4 (which only applies to the CH RFA region) to the prescriptions applying across Victoria. They are set out in cl 4.1.1.1 of the Management Standards and Procedures, read with Table 12 of Appendix 3. Clause 4.1.1.1 states:

> Retain habitat trees in accordance with the FMA summary provided in Appendix 3 Table 12 (Habitat tree prescriptions).

The relevant part of Table 12 of Appendix 3 is extracted at [525] above.

1282 VicForests contends cl 4.1.4.4 must be read "harmoniously" with these State-wide prescriptions, and that would involve interpreting the phrase "retained vegetation" as referring

only to retained habitat trees or potential hollow-bearing trees. Thus, VicForests contends, what it is required to do by this prescription is to retain at least one additional hollow-bearing tree (or potential hollow-bearing tree) where there would otherwise be a gap between retained trees, or retained vegetation, of more than 150 m. If there are no such trees because of the type of forest in some coupes, then the obligation is not triggered. Here, the coupes in issue contained 1939 regrowth, and predominantly Mountain Ash or Alpine Ash, which "generally contains only low numbers of mature and senescent trees". VicForests then contends that Mr Mueck, whose evidence is relied on by the applicant for this allegation, misunderstood the meaning of cl 4.1.4.4 in determining whether there was a gap greater than 150 m.

1283 The applicant contends VicForests' interpretation is wrong, and further that the most probative evidence of this breach are the maps produced by Sally Mitchell, which are contained in Mr Mueck's report and were not challenged. These maps measured the distance between what the applicant identified as the relevant retained vegetation for the purpose of cl 4.1.4.4. The applicant also relies on the evidence of Dr Smith, at pp 74-75 of his first report. At that point, Dr Smith's evidence is as follows:

> Ginger Cat is about 5 hectares net and under the Code should have 20 habitat trees instead of none.

1284 Contrary to VicForests' submissions, the applicant contends there is sufficient evidence for the Court to find non-compliance in the Ginger Cat coupe, that evidence being in the post-harvest map and Dr Smith's report. Otherwise, the applicant relies on the coupe plans for the other coupes. Those coupe plans show, it contends, no retained trees at all in the harvest area or outside retained patches in those coupes. When Ms Mitchell's maps are used, it is apparent, the applicant contends that this means there are gaps of more than 150 m between retained vegetation.

1285 I accept the applicant's contentions. I do not consider that the phrase "retained vegetation" in cl 4.1.4.4 is limited to hollow-bearing trees. It includes potential hollow-bearing trees and, as Professor Woinarski pointed out, 1939 Ash regrowth are trees which are likely to develop hollows in the short term, and that is why this kind of forest should be preserved. Both 1939 Ash regrowth and Mixed Species forest are found in the CH RFA. This prescription is in terms applicable across the CH RFA and is not qualified by reference to tree species or any other matter. Its purpose is to ensure that there are no gaps in the forest which exceed 150 m. It is a habitat retention measure, designed to promote, at least to some extent, forest continuity. In my opinion, it is a straightforward prescription. If coupes are harvested so as to leave no retained

vegetation within the harvest area, and the harvested unit is large enough so that there is more than a 150 m gap, it is likely the forestry operations did not comply with this prescription.

1286 I have examined Ms Mitchell's photos for Rocketman, Houston, Golden Snitch, Hogsmeade, Greendale, De Valera and Professor Xavier. I have also examined the coupe plans. The coupe plan maps show no retained trees in the harvestable area. The "Location Agreements" section of the coupe plan has, against the entry "Location/selection of retained trees has been agreed between VicForests and Contactor/LTL" the endorsement "N/A" or "yes" appears, except for Professor Xavier, where this part is not completed. Ms Mitchell's maps show that, whether measured on the shorter or longer axis, there are gaps between vegetation which are far in excess of 150 m. Some gaps are between 700 m and 850 m. Many are more than 200 m. In some coupes the harvested area measures less than 150 m and those parts are obviously compliant with cl 4.1.4.4, but then the harvested area widens out to a non-compliant gap. De Valera is an example of this. These circumstances have arisen because, as I am satisfied the coupe plans demonstrate, no hollow-bearing trees, or potential hollow-bearing trees, were left in the harvest areas of the coupes concerned.

Summary

1287 In summary, on the miscellaneous breaches I have found there was non-compliance with the Code as alleged by the applicant in 21 of the 26 Logged Coupes. The applicant has not made out its case in respect of alleged non-compliance with cl 5.3.1.5 of the Management Standards and Procedures in Golden Snitch, Hogsmeade, Houston and Rocketman.

1288 I have found non-compliance in the following coupes and on the following bases:

Table 13: Summary of miscellaneous breach findings

Coupe	Non-compliance
Glenview (298-516-0001)	Failure to screen
Flicka (298-519-0003)	Failure to screen
Guitar Solo (307-505-0011)	Failure to screen
Mont Blanc (309-507-0001)	Failure to screen
Kenya (309-507-0003)	Failure to screen
The Eiger (309-507-0004)	Failure to screen
Professor Xavier (317-508-0008)	Failure to screen

	Failure to keep gaps under 150 m
Ginger Cat (344-509-0009)	Failure to screen Failure to keep gaps under 150 m
Blue Vein (348-506-0003)	Failure to protect Zone 1A habitat
Bullseye (345-503-0005)	Failure to screen
Hairy Hyde (345-505-0006)	Failure to identify Leadbeater's Possum colony
Opposite Fitzies (345-506-0004)	Failure to screen
Greendale (345-515-0004)	Failure to screen Failure to keep gaps under 150 m
Estate (462-507-0008)	Failure to screen
De Valera (463-504-0009)	Failure to screen Failure to keep gaps under 150 m
Skerry's Reach (462-504-0004)	Failure to protect mature Tree Geebung Failure to screen
Golden Snitch (288-516-0007)	Failure to keep gaps under 150 m
Hogsmeade (288-516-0006)	Failure to keep gaps under 150 m
Houston (287-511-0006)	Failure to keep gaps under 150 m
Rocketman (287-511-0009)	Failure to keep gaps under 150 m
Camberwell Junction (290-527-0004)	Failure to screen

The effect of my conclusions on the miscellaneous breaches

1289 Where I have found that the applicant has proven one of the miscellaneous breaches, the result, as I have indicated, is the conclusion that the forestry operations in the particular coupe concerned were not conducted in accordance with the CH RFA. That in turn means the exemption in s 38 did not apply to the forestry operations in the coupe in question, and the provisions in Pt 3 of the EPBC Act did apply.

1290 What then remains to be determined is whether the particular forestry operations in each of the coupes subject to such a finding had, or were likely to have had, a significant impact on either the Leadbeater's Possum or the Greater Glider. I deal with this below.

RESOLUTION: THE SIGNIFICANT IMPACT ARGUMENT

1291 The prohibitions in s 18(2) and s 18(4) of the EPBC Act, being the two applicable parts of s 18, to the Leadbeater's Possum and the Greater Glider respectively, should be set out:

> *Critically endangered species*
>
> (2) A person must not take an action that:
>
> (a) has or will have a significant impact on a listed threatened species included in the critically endangered category; or
>
> (b) is likely to have a significant impact on a listed threatened species included in the critically endangered category.
>
> …
>
> *Vulnerable species*
>
> (4) A person must not take an action that:
>
> (a) has or will have a significant impact on a listed threatened species included in the vulnerable category; or
>
> (b) is likely to have a significant impact on a listed threatened species include5.1d in the vulnerable category.

1292 In summary, I consider the question of significant impact is less challenging, and has less complexity, than the submissions of VicForests might suggest. It is essentially a question of fact, which VicForests accepts – see [505] of its closing submissions. The question of significant impact must be approached in a sensible, and not overly technical way, because it is dealing with "real life" conduct with alleged "real life" effects on matters of national environmental significance. Part 3 of the EPBC Act is not concerned with the theoretical but with the actual. The text of Pt 3 should not be parsed in a way which renders the protection and regulation it seeks to effect so complex, and so technical, that it is not capable of sensible, practical application to the tremendous variety of circumstances in which conduct undertaken in the environment might be assessed for its effects on matters of national environmental significance. Otherwise, appropriate protection and conservation of matters of national environmental significance could not be achieved and the fundamental objectives of the EPBC Act would be frustrated.

Whether there is sufficient certainty for the prohibitions to be engaged

1293 In its submissions on significant impact, VicForests contends there is insufficient certainty about forestry operations in the Scheduled Coupes for the Court to make any findings of fact about significant impact on either the Leadbeater's Possum or the Greater Glider in those

coupes. This is the same argument it made, and which I have rejected, in respect of s 38 and the applicant's allegations about non-compliance with cl 2.2.2.2 in the Scheduled Coupes. I reject the argument insofar as it is contended by VicForests to preclude any findings of significant impact in respect of either species. In my opinion the evidence is sufficiently clear that the listing of the Scheduled Coupes on the Timber Release Plan, especially the maintenance of their listing as recently as April 2019 during the currency of this trial, is probative of a sufficient likelihood the Scheduled Coupes may be subject to forestry operations during the life of the Timber Release Plan. Further, in the s 38 part of these reasons, I have concluded there is a sufficient probative basis for the Court to be able to make findings about how those forestry operations are likely to be conducted so as to support conclusions about compliance or non-compliance with cl 2.2.2.2. I adopt my reasoning on those matters as a response to VicForests' similar submissions about the significant impact analysis.

Correct approach to the concept of "significant impact" in Pt 3

1294 VicForests' submissions separate the statutory concept of significant impact in Pt 3 into two components – the "impact" of an action and the characterisation of whether that impact is "significant". VicForests then addresses the way it contends s 527E (which defines impact, in particular by dividing the concept into direct and indirect consequences) can apply in the circumstances pleaded by the applicant. At [501], VicForests proceeds on the basis that the consequences alleged the applicant are best seen as direct consequences, and I accept this is correct.

1295 On the question whether an impact can be described as "significant", VicForests submits that this "in part turns on what is meant by 'listed threatened species included in the vulnerable category or critically endangered category'": at [505]. The impact must, VicForests contends, affect the species as a whole. It also contends there is no role for the Court in this proceeding to consider the cumulative impacts from forestry operations.

1296 In *Tasmanian Aboriginal Centre Inc v Secretary, Department of Primary Industries, Parks, Water and Environment (No 2)* [2016] FCA 168; 337 ALR 96 at [240], I said:

> It is not contentious that the approach to significant impact is correctly set out in *Booth v Bodsworth* (2001) 114 FCR 39; [2001] FCA 1453 at [99]–[100]. A significant impact is one which is important, or notable, or of consequence, having regard to its context and intensity. See also *Northern Inland Council for the Environment Inc v Minister for the Environment* (2013) 218 FCR 491; [2013] FCA 1419 at [91]–[92], [118]. As a word of limitation, the purpose of the adjective "significant" is to exclude impacts that are properly seen as minor or unlikely: *Krajniw v Brisbane City Council (No 2)* [2011]

FCA 563 at [10]; *Northern Inland Council* at [117]–[118].

1297 This was not an aspect of my reasons which was the subject of criticism or comment by the Full Court and I do not understand VicForests' submissions to contend that these are not the base applicable principles. Having said that, it is also important to recall that the statutory phrase is "significant impact", and there are always dangers in creating "a lexicon of words or phrases intended to capture the operation of a particular statutory phrase": *Spencer v Commonwealth* [2010] HCA 28; 241 CLR 118 at [58].

1298 One of VicForests' further submissions, which I accept, is that the word "likely" in the phrase "likely to have a significant impact" in the applicable provisions of s 18 means "a real or not remote chance or possibility": see *Northern Inland Council for the Environment Inc v Minister for the Environment* [2013] FCA 1419; 218 FCR 491 at [91]. The applicant also accepts this is how "likely" should be understood: reply submissions at [94].

1299 One of the matters upon which VicForests' submissions focus is the division of s 18 into separate prohibitions for actions affecting threatened species, by reference to the threatened species category in which they are listed. That is a clear structural feature of s 18 and I accept it may be relevant in resolving any constructional choices to be made about the meaning of the prohibitions in s 18. Ultimately, however, I do not consider this feature of s 18 affects the conclucions I have reached.

Significant impact on the species as a whole

1300 This is a matter on which VicForests places some reliance. It refers to the Explanatory Memorandum to the Environment Protection and Biodiversity Conservation Bill 1999 (Cth) at [60]:

> Not all actions affecting a nationally threatened species or community will have, or are likely to have, a significant impact on that species or community. For example, approval will not be required for some actions which, if carried out on Commonwealth land, would require a permit under Chapter 5 of this Act – injury or death to one member of a species will, except in the case of the most endangered species, not have a significant impact on the species. This clause therefore does not regulate all actions affecting members of a species or community. In order to discharge Australia's international responsibilities, including obligations under the Convention on Biological Diversity, this clause regulates those activities that will, or are likely to, have a significant impact on nationally threatened species or communities.

1301 VicForests also relies on two decisions of this Court, which I discuss below. The thrust of its contention appears to be that there must be some arithmetical, or quantifiable, consequence

measuring the scale of the impact against the entirety of the population of a listed threatened species.

1302 It also refers to Cowdroy J's observations in *Northern Inland Council* at [113] and [119]. The *Northern Inland Council* case concerned the terms of s 139 of the EPBC Act, in circumstances where the Minister had failed to have regard to the approved Conservation Advice. The argument before his Honour was whether s 139(2)(b) created a jurisdictional fact. Thus, the statutory context was somewhat different, but his Honour's view was that the same meaning should be attributed to the phrase "significant impact" in s 139(2)(b) as that attributed to the phrase in s 12 and s 18: see [118]. Although there were several matters of national environmental significance in issue in the underlying actions in the *Northern Inland Council* case, relevantly to his Honour's observations on which VicForests relies, his Honour was dealing with a threatened flora species, *Tylophora linearis*. It was in that context that his Honour said (at [113] and [119]):

> In any event, even if the s 136 direction were not issued, NICE has not shown that the Maules Creek project would be likely to have a significant impact on *Tylophora linearis*. This is because the likely significant impact must be on the species of *Tylophora linearis*; it is not sufficient to show the likelihood of a significant impact on plants of that species in one location or area. That is provided of course that the species does not exist elsewhere. Such circumstance is not the case in the present proceeding.
>
> …
>
> NICE sought to distinguish *Booth* and *Krajniw* on the basis that the applicants in those cases were seeking injunctive relief under s 475(2) and (5) of the EPBC Act respectively in the absence of any prior assessment process having been undertaken. It was submitted that admissible expert evidence would plainly be necessary in such circumstance, but that as there was evidence of the existence of *Tylophora linearis* on the project site, admissible expert evidence was not necessary in the present proceeding. This submission says nothing of the issue of considering the likelihood of a significant impact on a listed threatened species as a whole. The only evidence before the Court in this regard are references in reports to other areas in which *Tylophora linearis* may be found, or is likely to be found. This is quite simply insufficient to found a finding that the Maules Creek project will have, or is likely to have, a significant impact on the *Tylophora linearis* species. That is not to say that evidence of the kind adduced in *Booth* as explained in [116] above was necessary; the extent of evidence required in proceedings considering significant impacts on species will depend upon the circumstances of each case.

1303 The *Northern Inland Council* case concerned a single "project site" for a mine, on which the threatened flora species *Tylophora linearis* had been discovered. As his Honour's remarks at [119] make clear, what his Honour said was very much fact specific to the circumstances and evidence before him. Dowsett J's observations in *Krajniw v Brisbane City Council (No 2)* [2011] FCA 563 at [10] (which concerned the construction of a bike path) should also be read

in their factual context. All his Honour said, correctly with respect, is that impact on "an individual member of the species, or even a number of individual members *may* not be sufficient to engage those sections" (emphasis added).

1304 Nevertheless, the text of s 18 plainly refers to impacts on the "species" and that is the statutory question. As a matter of fact in a given case, that will not preclude assessment of impacts on individuals of a threatened fauna (or flora) species; and indeed the whole context of the prohibitions – the taking of an action – is very likely to involve consideration of the effects of actions on flora or fauna species in identified and localised locations. That is because the taking of an action is also often likely to be location specific. The objectives of the EPBC Act, and Pt 3 in particular, could easily be frustrated with too literal an approach to this aspect of s 18. That is particularly so in the context of actions such as forestry operations, where, for forestry and not environmental or conservation purposes, the "actions" are taking place in a piecemeal way in relatively small areas of forest, but there is a wider and cumulative effect on larger areas of native forest and the species (flora and fauna) dependent on that forest. This contextual difficulty may be avoided because of the flexibility inherent in the concept of an "action", but nevertheless, when asking the statutory question about the qualitative nature of impact on a listed threatened species, in my opinion the context in which that question is asked means the question does not involve the kind of literalism implied in VicForests' submissions. Nor does it involve, to put the issue another way, any raising of the bar about what might otherwise be considered a "significant" impact. The thrust of the significant impact provisions is to conserve and protect species in the wild, so that their "chances of long-term survival in nature" are maximised (see the use of that language in s 270(1), concerning Recovery Plans). Survival "in nature" refers in my opinion to survival reflecting that species' place in the natural ecosystem – survival of a species at sufficient and sustainable levels of abundance, with sufficient and sustainable genetic diversity and across the species' natural range.

1305 Despite references to these authorities, including detailed submissions about the facts in *Booth v Bosworth*, with a focus on Branson J's findings about the numbers of flying foxes killed by the electric grid around the lychee farm, VicForests did not make a specific submission that the applicant's case was pitched at the level of impact only on a specific number of individual Greater Glider or Leadbeater's Possum.

1306 Indeed, given the limited range of the Leadbeater's Possum and the CH RFA region being its stronghold that would have been an exceedingly ambitious argument to make. However,

VicForests did not expressly make that argument in respect of the Greater Glider either. So it is difficult to see where its emphasis on these matters takes it defence.

1307 On the evidence the applicant's case clearly engaged with impact on two threatened species, at the species level, and not at the individual member of the species level. The expert evidence was directed towards that case, and I have accepted the opinions of Dr Smith and Professor Woinarski on that matter. Dr Davey also had no difficulty in identifying the Greater Glider population in the CH RFA region as an important local population. "Important" indicates its value to the survival and recovery of the species across its natural range. Especially so where, as the experts all agreed, this is the southernmost population of Greater Glider.

1308 The evidence about detections of individuals, and about the effects of forestry operations on individual members of both species which are occupying or using the native forest where the forestry operations were conducted, does not detract from that point. All this evidence is capable of being probative of impact on the species as a whole. Assessing such an impact is not a mathematical exercise, but rather a matter of considering the evidence as a whole.

1309 In any event, insofar as the Leadbeater's Possum is concerned, given its status as critically endangered, I would not have had any difficulty in concluding that impacts on distinct Leadbeater's Possum colonies in and around the coupes affected by VicForests' forestry operations were capable of being characterised as significant impacts on the Leadbeater's Possum species as a whole. That is because it is "facing an extremely high risk of extinction in the wild in the immediate future", and current measures for its protection from the effects of forestry operations have not resulted in any measurable stemming of that risk.

Interpretation and application of the Commonwealth Significant Impact Guidelines

1310 There was also a debate between the parties about the use to which the Court could put the Commonwealth's Significant Impact Guidelines in assessing and determining the applicant's allegations about the significant impact of VicForests' forestry operations on the Greater Glider.

1311 The Guidelines are not given any statutory force by the EPBC Act. Thus, they are an administrative policy document, and no more, issued by the federal department with portfolio responsibility for the administration of the EPBC Act. VicForests contends that the text of the Guidelines demonstrates they have a specific purpose, and one which is irrelevant to the issues in this proceeding.

1312 That submission is based on the introduction to the Guidelines, which states:

> The purpose of these guidelines is to assist any person who proposes to take an action to decide whether or not they should submit a referral to the Australian Government Department of the Environment (the Department) for a decision by the Australian Government Environment Minister (the minister) on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
>
> **Under the EPBC Act an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.**
>
> These guidelines outline a 'self-assessment' process, including detailed criteria, to assist persons in deciding whether or not referral may be required. Important terms and phrases are explained in the shaded boxes. The appendix to the guidelines provides further assistance for specific industry sectors.
>
> These guidelines may also assist members of the public or interest groups who wish to comment on actions which have been referred under the EPBC Act.
>
> (Original emphasis; footnotes omitted.)

1313 VicForests submits that:

> The purpose of the Guidelines is therefore to assist a person to decide whether or not they should submit a referral to the Australian Government Department of the Environment for a decision by the Australian Government Environment Minister on whether assessment and approval is required under the EPBC Act.

1314 Therefore, VicForests contends that because the purpose is to assist a prospective proponent to form an "opinion" whether an action is a "controlled action" (the definition of which, in s 67 of the EPBC Act, incorporates the prohibitions in Pt 3 and therefore the concept of significant impact), the Guidelines should be taken to have been drafted with a "risk-averse" approach to the interpretation of the EPBC Act. VicForests does not, in its submissions, develop the consequence of this contention, but it would appear to be that the examples given in the Guidelines of what might constitute a significant impact exceed the proper construction of that concept. Otherwise it is difficult to understand the point of the submission.

1315 If that is the implication of VicForests' submissions, I reject it. First, much of what is set out in the Guidelines reflects the agreed and established construction of the statutory phrase. Second, the examples (and that is what they are in my opinion) which are given in the Guidelines about the kinds of effects which are capable of constituting a significant impact are plainly examples which fall within that agreed and established construction. They do not impermissibly extend that construction. None of this is to gainsay the basic proposition that the assessment of whether a specific action is likely to have a significant impact will be a question

of fact and will, in a proceeding such as this, be necessary to determine on the evidence. That said, the Guidelines provide useful examples, and that is how the applicant has employed them. There is nothing wrong with such an approach, so long as the Court recognises, as it does, that the statutory question remains to be determined in the way I have described.

1316 The applicant has employed the language of the Guidelines in its pleadings (although not exclusively), and in its evidence and argument. Indeed not only Dr Smith and Professor Woinarski referred to them, but also Dr Davey. The Guidelines set out "criteria" by reference to the category of listing for the species. There are also some general statements about the concept of significant impact.

1317 The Guidelines describe significant impact in the following way:

> **What is a significant impact?**
>
> A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. You should consider all of these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance.

1318 This test, which is clearly taken from the authorities which the parties agree contain the established approach, is reiterated in several places in the Guidelines. There is also guidance given about the concept of "likely" in the Pt 3 prohibitions:

> **When is a significant impact likely?**
>
> To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.
>
> If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment.

1319 The Guidelines set out the following matters for species in the critically endangered (and endangered) categories. This is relevant to the Leadbeater's Possum:

> **Significant impact criteria**
>
> An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:
>
> - lead to a long-term decrease in the size of a population
> - reduce the area of occupancy of the species

- fragment an existing population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of a population
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- introduce disease that may cause the species to decline, or
- interfere with the recovery of the species.

What is a population of a species?

A 'population of a species' is defined under the EPBC Act as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion.

What is an invasive species?

An 'invasive species' is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.

What is habitat critical to the survival of a species or ecological community?

'Habitat critical to the survival of a species or ecological community' refers to areas that are necessary:

- for activities such as foraging, breeding, roosting, or dispersal
- for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators)
- to maintain genetic diversity and long term evolutionary development, or
- for the reintroduction of populations or recovery of the species or ecological community.

Such habitat may be, but is not limited to: habitat identified in a recovery plan for the

species or ecological community as habitat critical for that species or ecological community; and/or habitat listed on the Register of Critical Habitat maintained by the minister under the EPBC Act.

1320 In relation to species in the vulnerable category (the Greater Glider), the Guidelines state:

Significant impact criteria

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population of a species
- reduce the area of occupancy of an important population
- fragment an existing important population into two or more populations
- adversely affect habitat critical to the survival of a species
- disrupt the breeding cycle of an important population
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
- introduce disease that may cause the species to decline, or
- interfere substantially with the recovery of the species.

What is an important population of a species?

An 'important population' is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

1321 The use of the term "criteria" in the Guidelines has no magic about it. It is clear they are not statutory criteria and should not be used in that way. I do not consider the applicant's case seeks to do that. However, the Guidelines are issued by the department with responsibility for the administration of the EPBC Act. The fact they are issued to guide potential proponents is neither here nor there, given the guidance they seek to give is on the statutory concept of significant impact in the provisions in issue in this proceeding. It would wrong, and impermissible, for the Court to rely on the contents of the Guidelines, and the criteria in particular, as some kind of checklist or exhaustive definition. However the existence of the Guidelines should also not be ignored. The examples in the "criteria" come from a

knowledgeable source and are capable of assisting consideration and assessment of the application of what is otherwise a broad statutory concept.

1322 That said, the conclusions I have reached on the evidence could and would have been reached without consideration of the Guidelines.

What is the "action" for the purposes of s 18?

1323 Recalling the conclusions I have reached earlier in these reasons about what is and is not part of the applicant's pleaded case, I have already expressed my view that, despite the applicant's contentions to the contrary, there should be some consistency between the RFA forestry operations to which s 38 is to be applied, the scope of any loss of exemption under s 38 and the assessment of an "action" for the purposes of the prohibitions in Pt 3 of the EPBC Act; specifically, here, s 18 of the EPBC Act. While I accept that does not preclude the applicant, on its pleaded case and at the Pt 3/s 18 stage, from also making a broader contention about the likely significant impact of forestry operations on either or both species based on an analysis of forestry operations in a group or number of coupes, in my opinion that analysis can only occur where each of those coupes are coupes in which the s 38 exemption has been lost. Once the s 38 exemption is inapplicable, then I accept that how the "action" is to be characterised for the purposes of s 18 is not limited to a coupe-by-coupe approach.

1324 The applicant captures this approach in [92] of its reply submissions:

> A series of forestry operations may lose the exemption under s 38(1). The Court can then consider that series of activities (or project, or undertaking) as one action having one significant impact.

1325 I accept that submission. The concession to which I refer below poses some difficulties for VicForests in contesting otherwise.

1326 As the applicant contends, in its further amended defence VicForests admitted, in respect of both the Logged Coupes and the Scheduled Coupes that, first, forestry operations in each of the Logged Coupes was an action for the purposes of Pt 3 and s 18 in particular; and second that forestry operations in some or all of the Logged Coupes was an action for the purposes of Pt 3 and s 18. That admission is reflected in a concession made in its closing written submissions at [502]:

> On balance, it would appear that a series of separate forestry operations (within the meaning of cl (c) of the definition in the CH RFA) may constitute an action for the purpose of s 523, those forestry operation(s) constituting an undertaking or a series of activities within the meaning of s 523 (c) or (d).

(Footnote omitted.)

1327 In substance VicForests contends that concession does not take the applicant's case very far. The principal difficulty identified by VicForests in the applicant's case, and the alignment of that case with the terms of s 18, is what VicForests contends is the applicant's failure to articulate with any clarity how the Court is to assess the impact of its forestry operations in "some or all" of the coupes, as opposed to the assessment on a coupe-by-coupe basis. Much of VicForests' criticism in this respect focuses on whether the applicant has sufficiently identified any "coupe groups" to which the terms of s 18 could be applied, consistently with its concession that I have extracted above. It made this point at [485]-[486] of its principal closing submissions.

1328 In its reply submissions, VicForests submitted (at [39]):

> The applicant's failure to clearly state how its case as to "coupe groups" was put is not raised by VicForests as a mere pleading complaint: it goes to the heart of the task that the Court must now undertake. The Court must now undertake an analysis of each of the more than 60 coupes the subject of this proceeding and determine first, the requisite forestry operation for the s 38 analysis and second, if that gate be opened, the requisite significant impact under s 18. The Court is left in the invidious position of working out for itself which combination of coupes constitutes a "coupe group" and then augmenting, for itself, the (expansive) significant impact evidence which has been advanced on a coupe-by-coupe basis.

1329 After submitting the situation was unsatisfactory, VicForests then submitted (at [41]):

> Section 18 requires the Court to undertake an assessment of the impact of an action, necessarily requiring identification of the action. Here, the relevant action is an unspecified forestry operation undertaken in relation to land (coupe or coupes) in a region covered by an RFA. The lack of precise identification of the relevant "action" invites uncertainty regarding the conduct by which significant impact can be assessed. This uncertainty would not operate had the question of the relevant forestry operation (and thus action) been identified with precision.

1330 As VicForests' argument recognises, the applicant takes the concept of action at several different levels, in relation to VicForests' forestry operations. It takes the impact of forestry operations in *each*, *some* and *all* of the Scheduled Coupes. In my opinion, and contrary to the submissions of VicForests, it is clear that when the applicant makes an allegation in terms of the impact of VicForests' forestry operations in "some" coupes, that allows – within its pleaded case – for at least two different factual allegations:

(a) "some" means the geographical groups of coupes as described in [9] and [10] of the third further amended statement of claim (see below); and/or

(b) "some" means whatever combination of forestry operations in coupes which the Court finds, on the evidence, to have a significant impact on either species (if it does not find "all").

1331 Contrary to VicForests' submissions, for the Court to make findings on the basis in [1330(b)] is no more difficult a task than the making of findings on an individual coupe basis, which on any view the applicant's case requires.

1332 Paragraphs [9] and [10] of the third further amended statement of claim describe the Logged Coupes and the Scheduled Coupes respectively by grouping them according to their geographical location, which geographical location or description is also the description used on the Timber Release Plan. The section of the third further amended statement of claim which then makes allegations of past significant impact does so by specific reference to these geographic groupings: see [22]-[29C] as to Logged Leadbeater's Possum Coupes; [33]-[39D] as to Logged Glider Coupes. The allegations as to future significant impact are put on a coupe-by-coupe basis (see [42]-[70B] as to the Leadbeater's Possum and [73]-[104F] as to the Greater Glider); however, in each of these paragraphs the coupes are still identified by reference to their geographic grouping, as it appears on the Timber Release Plan (eg the reference in paragraph [104E] to "Snobbs Creek coupe 10.39" is a reference to the Dry Spell coupe in the Snobbs Creek group).

1333 There is then an overall allegation that VicForests' forestry operations in "some or all" of the Scheduled Coupes are likely to have a significant impact on the Leadbeater's Possum (see [71]) and the Greater Glider (see [105]). Read with the coupe-by-coupe pleadings, it is clear that one way the allegations about the Scheduled Coupes is put is that VicForests' forestry operations in "some" of the Scheduled Coupes, by reference to their geographical groupings, will or are likely to have a significant impact on the Leadbeater's Possum and the Greater Glider. There is nothing unclear about this.

1334 Finally, as to forestry operations in both the Logged Leadbeater's Possum Coupes and the Logged Glider Coupes, and forestry operations in the Scheduled Leadbeater's Possum Coupes and, in respect of the Greater Glider, all of the Scheduled Coupes, there is an allegation (at [105B] and [105D]) that forestry operations in "some or all of" those coupes "have, will, or are likely to have a significant impact on" the Leadbeater's Possum and the Greater Glider respectively. The nature of the significant impact is particularised in each of [105B] and [105D], and it is by reference to those particulars that the applicant's evidentiary case, and

closing submissions, were structured. Those particulars are expressed in the same way for each species, and are (in the case of the Greater Glider):

> There is a real chance that these forestry operations in some or all of the Logged Glider Coupes and scheduled coupes have, will or are likely to:
>
> (a) lead to a long-term decrease in the size of an important population of Greater Glider;
>
> (b) reduce the area of occupancy of an important population of Greater Glider;
>
> (c) fragment an important population of Greater Glider into two or more populations;
>
> (d) adversely affect habitat critical to the survival of the Greater Glider;
>
> (e) disrupt the breeding cycle of an important population of Greater Gliders;
>
> (f) modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the Greater Glider is likely to decline;
>
> (g) interfere substantially with the recovery of the Greater Glider;
>
> (h) have an impact that is important, notable or of consequence for the Greater Glider, having regard to its context and intensity, and the sensitivity, value and quality of the environment being impacted.

1335 Since VicForests accepts that its forestry operations in *each* impugned coupe, in *some* impugned coupes or in *all* the impugned coupes can in law constitute (separately and distinctly as to each, some or all) an "action" for the purposes of s 18, it is a question of fact for the Court to determine what – on the evidence – is the appropriate way, for the purposes of s 18, to identify and characterise VicForests' forestry operations which it has found to fall outside the exemption in s 38.

1336 That approach is consistent with the breadth of the inclusive meaning given to the concept of "action" in s 523(1)(d) in particular – an "activity or series of activities".

1337 In my opinion, there is a rational basis in the evidence to identify and characterise the forestry operations undertaken by VicForests, which I have found not to be covered by the exemption in s 38(1), as an "action" for the purposes of s 18. This characterisation takes into account that the term "action" is not exhaustively defined in the EPBC Act, but is given an inclusive definition by s 523, subject to the other provisions in Subdiv A of Div 1, Pt 23. None of those other provisions are relevant to my findings on this matter, nor was it submitted by any party that they were.

1338 Section 523(1) provides:

Subject to this Subdivision, ***action*** includes:

(a) a project; and

(b) a development; and

(c) an undertaking; and

(d) an activity or series of activities; and

(e) an alteration of any of the things mentioned in paragraph (a), (b), (c) or (d).

1339 As I have stated, the characterisation of what constitutes an action in a given case is a question of fact. I find that:

(a) Each forestry operation in each Logged Coupe and Scheduled Coupe is an action.

(b) Each series of forestry operations in each coupe group (as identified in Table 8 at [162] above) is an action, because the geographical groupings of forestry operations in a number of individual coupes reflects a planned sequence or series of activities by VicForests in a specific area of native forest.

(c) The forestry operations in all of the Logged Coupes are, collectively, an action. The forestry operations in each of those individual coupes which are collectively identified as the Logged Coupes constitutes a series of activities undertaken by VicForests in specific areas of native forest in the CH RFA region, in accordance with the July 2017 and the April 2019 Timber Release Plans.

(d) The forestry operations proposed to occur in all of the Scheduled Coupes are, collectively, an action. Since the Scheduled Coupes are identifiable from both the July 2017 and the April 2019 Timber Release Plans, they can be described as a series of activities within the inclusive meaning in s 523. The Timber Release Plans themselves each describe a Timber Release Plan as "a list of areas and corresponding maps, outlining where timber harvesting, regeneration and road works are authorised to be completed by VicForests". The Timber Release Plans describe what kinds of activities will take place in the coupes listed: for example, "road alignment – construction"; "road alignment – improvement"; "thinning from below"; "group or gap selection"; "clearfelling" and "seed tree retention". Thus, the proposal to undertake forestry operations in *one* of the Scheduled Coupes would be the commencement of the "series of activities" or action in relation to *all* the Scheduled Coupes. That proposal is, as I have found, sufficiently established by the entry of the Scheduled Coupes on the July 2017 Timber Release Plan, and more specifically on the evidence of VicForests'

decision in April 2019, in the face of this proceeding being well advanced, to retain the Scheduled Coupes on the Timber Release Plan, taking into account the public notification function that the Timber Release Plan carried. Alternatively, in my opinion the forestry operations in the Scheduled Coupes are, collectively, able to be characterised as a project or undertaking proposed by VicForests.

(e) The forestry operations in all 66 impugned coupes are, collectively, an action. That is because they can also be described as a series of activities, albeit a series of activities which has been specifically nominated by the applicant. While this global characterisation does aggregate conduct which has already occurred with conduct which has yet to occur, at a factual level the forestry operations in all 66 coupes can properly be described as a series of activities. If the conduct is found to be likely to have the requisite level of adverse impact, the prohibition in s 18 is engaged at the time the conduct is undertaken. This means the "action" in all 66 impugned coupes was, at the time of trial, only partially undertaken, but it is the adverse impact of that entire series of activities which must be assessed.

1340 I find it is sufficiently rational and appropriate to characterise the forestry operations undertaken in coupes identified by their geographical location as an "action", even though they may be separated in time in terms of when the forestry operations occur. That is because the conduct under consideration is the logging of native forest, where the forest functions as a whole ecosystem, not as a series of plots on maps, or schedules in planning documents. Nor does the forest function in coupes. By taking an approach to s 18 by reference to VicForests' conduct of forestry operations on a geographical basis, the practical and ecological realities of the action are more appropriately framed, and questions of impact can be more appropriately addressed, because the geographical grouping is a closer (but far from perfect) approximation of the realities of the habitat available for the species concerned. The same is true of a characterisation which examines forestry operations collectively in the Logged Coupes, or forestry operations collectively in the Scheduled Coupes, or forestry operations collectively in all 66 impugned coupes.

1341 VicForests' forestry operations are, as I have explained in these reasons, conducted in a coupe after there have been a number of preliminary decisions made about what parts of the native forest in that coupe will be harvested, by what method, and subject to what restrictions or limitations. When the forestry operation is undertaken, it is undertaken – as an action (or activity) – which incorporates those preliminary decisions. The conduct of the forestry

operation is the physical manifestation of those preliminary decisions. Thus, the "action" for the purpose of s 18, where it involves the conduct of a forestry operation, is to be understood as one which includes, or is the manifestation of, the preliminary planning and decision-making that necessarily preceded it: for example, what is entered on a coupe plan, a species detection map, a map with applicable management prescriptions or other forestry planning instruments. Where the forestry operation is planned to leave retained patches of native forest, or to leave habitat trees, or to incorporate an SPZ, or to involve the creation of a logging track, then as it is conducted, the "action" must be taken to include all those preliminary decisions as they are reflected in what occurs, or does not occur, "on the ground" in the forest as part of the forestry operation. This approach is consistent with the terms of the Code, for example the description of the "Code Principles" in cl 1.3, and the reference to the "planning and conduct" of timber production, as well as the explicit recognition in that clause that the framework in the Code (which includes many planning aspects) "translates the high level Principles into on-ground action".

An overall finding on significant impact

1342 The statutory question, asked in the context of an understanding of what the impugned action is, embodies a broadly expressed concept, and is highly fact dependent. In the present proceeding, and despite the parsing and dissecting which has been undertaken in the parties' submissions, I consider the answer to the statutory question in respect of each of the species in issue is straightforward. I am comfortably satisfied the applicant has proven its case on significant impact on the balance of probabilities.

1343 Although I have made findings about several different ways in which VicForests' forestry operations can be characterised as an action for the purposes of s 18, ultimately those characterisations are not critical to my conclusions on significant impact because in my opinion, whether one approaches the question at individual coupe level, geographical coupe group level, or the totality of the Logged Coupes or Scheduled Coupes, the appropriate finding is that VicForests' forestry operations are likely to have had, and are likely to have, a significant impact on both the Leadbeater's Possum and the Greater Glider. The significant impact is apparent, on the balance of probabilities, at the individual coupe level, as I explain below. The impact is magnified at the geographical coupe group level where the clustering of forestry operations magnifies the impact because of the effects on available habitat in close proximity. The impact is further magnified at the "all Logged Coupes", "all Scheduled Coupes" and "all

impugned coupes" levels because overall available habitat for both species in the CH RFA region, which they can be verified to be using and therefore requiring, has been declining, principally by reason of forestry operations and fire. Therefore, when the question of impact is assessed across forestry operations in all Logged Coupes and all Scheduled Coupes or all impugned coupes, the impact is even greater because at a landscape level larger tracts of native forest on which the species currently depends, and will depend in the foreseeable future as the forest structure changes, become inaccessible to it. Further, for the Leadbeater's Possum, as the landscape scale of the action increases (from individual, through to geographical coupe group and through to all Logged Coupes or Scheduled Coupes), the impact on individual members of the Leadbeater's Possum species increases, and for a species which is critically endangered, as I have found, impact on individual members of that species can be (and in this case is) a significant impact.

1344 Thus, the intensity of the impact will differ depending on the scale of the forestry operations included in the action as alternatively characterised, but even at coupe level, the threats posed to each of these species by forestry operations by the removal of parts of their actual or potential habitat are so great, and the impacts of forestry operations so clear, that on the evidence I have no difficulty in reaching my conclusions at a coupe-by-coupe level as well as at a broader-scale level.

1345 Part of the applicant's case is put at a coupe-by-coupe level, so it is necessary to descend to that level, and I have done so. However, I also accept Professor Woinarski's opinion, expressed in his third report, that there is something of a:

> [*reductio*] *ad absurdum* to assess the impacts of timber harvesting at individual coupes, when it is the cumulative and continuing impact of harvesting that is most relevant to the species' conservation outlook.

1346 That is why the principal basis on which I would express my conclusions about significant impact is at either the geographic coupe group level, or at the level of VicForests' forestry operations as a whole in the Logged Coupes (as a series of activities) or in the Scheduled Coupes (as a planned series of activities). That is where the landscape-scale effects are more obvious.

1347 As to each of the Leadbeater's Possum and the Greater Glider, I rely on and adopt without repeating the general findings I have made at [419]-[680] and in the section of these reasons describing each species. Those matters are relevant to the nature and intensity of the impact

(past or future) which I find likely to have occurred or to occur, or are relevant to explaining why measures that might otherwise be capable of mitigating any impact fail to do so.

Findings on significant impact: the Leadbeater's Possum

1348 The first point to note is that, contemporaneously with the trial of this proceeding, the Scientific Committee reaffirmed that the Leadbeater's Possum was critically endangered. That is, despite all the measures to which VicForests refers in its submissions on significant impact, despite the existence of native forest in the CAR reserve system, despite increased detections of Leadbeater's Possum (the explanation for this is contentious and I refer to it below), the body charged under the EPBC Act with determining the risk levels facing threatened species reaffirmed that the Leadbeater's Possum was at the highest risk level for a species that was not functionally extinct. I have given weight to that fact, and to the contents of the 2019 Conservation Advice, in my fact finding about the significant impact of VicForests' forestry operations on the Leadbeater's Possum.

1349 At [18] of his first report, Professor Woinarski describes what prompted the Scientific Committee's reconsideration:

> Following a public submission by the Australian Forest Products Association in March 2017 seeking to downlist the species (e.g. to Endangered status), the Australian Minister for the Environment instituted a review of its conservation status. That review has not yet been completed. The proposal to down-list the species was informed largely by new information (see para 6 above) suggesting that the population size of Leadbeater's possum was conceivably larger than previously recognised, and that recent sampling had discovered many new colonies.

1350 In other words, the review was called for by the peak body for those involved in timber harvesting. I infer from this, and from what is in the evidence from VicForests' own employees about the restrictions that Leadbeater's Possum THEZs impose on timber harvesting activities, that the material effect that the current prescriptions for Leadbeater's Possum have on timber harvesting is one of the matters which prompted the review. Otherwise, it is difficult to see what legitimate interest any forestry-based organisation would have in the threatened status of the species.

1351 What Professor Woinarski had said at [6] of his first report was this:

> Recent technical advances – most notably the use of remote cameras (camera traps) and thermal imagery – have allowed for much recent increase in knowledge of the distribution and habitat use of the species. As a result of these breakthroughs, there has been a significant increase in the number of sites from which Leadbeater's possum has been recorded. This increase reflects an increase in survey effort and efficacy rather

> than any expansion in the possum's distribution or increase in its population size.
>
> (Footnote omitted.)

1352 The Scientific Committee's decision, and the new Conservation Advice, were published only a few days after the oral hearing in this proceeding concluded. By agreement, the new Conservation Advice was tendered. As I have noted earlier, the parties focused during the hearing on the 2015 Conservation Advice. However, the fact of the new advice, and its content in the context of the rejection of the submission by the Australian Forest Products Association, are material to my conclusions on significant impact for the Leadbeater's Possum, and so in this part of my reasons, my focus is on the 2019 Conservation Advice for the Leadbeater's Possum.

1353 In summary, the 2019 Conservation Advice found the Leadbeater's Possum eligible for listing in the critically endangered category on the basis of more criteria, not less, than its eligibility in 2015. Most of those criteria centred on population decline related to reduction in suitable habitat across its range, with a focus being on the reduction in the number of hollow-bearing trees. Actions which remove existing hollow-bearing trees, and trees which will develop into hollow-bearing trees, in areas the Leadbeater's Possum is known to occupy are contributing to this ongoing decline. That is because such actions increase fragmentation of remaining habitat, contribute to the mortality of colonies affected directly by harvesting, and reduce the incidence of an already scarce resource (hollow-bearing trees). That, alone, is a significant impact on the species.

Existing prescriptions and measures have not arrested decline

1354 The thrust of many of VicForests' submissions on significant impact in relation to the Leadbeater's Possum is that there are a range of measures and protections in place which mean that forestry operations in the impugned coupes are not likely to have any impact of the requisite kind on the Leadbeater's Possum. The contention is encapsulated at [576] of VicForests' closing submissions:

> Given the significant amounts of Leadbeater's possum habitat that are excluded from timber harvesting, the small areas of harvesting involved in the Scheduled Coupes, the fact that there is a sophisticated surveying regime for Leadbeater's Possum in the Central highlands together with detailed prescriptions based on actual presence of Leadbeater Possum or presence of habitat, the Court cannot be satisfied that any forestry operations in the Scheduled Coupes would pose a significant impact on Leadbeater's Possum.

1355 There is no doubt that there has been an increase in measures and protections in relation to the Leadbeater's Possum over the last decade, including increased surveying and the introduction of prescriptions such as the 200 m THEZ. It is also true as VicForests submits that past and scheduled forestry operations in the impugned coupes represent only a "fraction" of existing potential habitat for the Leadbeater's Possum – 4.9% or 9,296 ha is estimated by the Scientific Committee to be subject to harvesting between 2018 and 2036. Further, it is also true, as the draft Recovery Plan recognises (at p 32), that:

> The detrimental impacts of timber harvesting on current and prospective habitat suitability for Leadbeater's possum can be reduced to some extent through changes in harvesting practices, notably replacement of clear-felling with 'aggregated retention' or 'variable retention' harvesting.

1356 In relation to this last factor, much depends on how the forestry operations are carried out on the ground, and how different the silvicultural methods really are from clear-felling, as I have explained earlier in these reasons. Specifically in relation to the "on the ground" implementation of prescriptions in areas occupied by Leadbeater's Possum, Professor Woinarski's evidence, which I accept, was:

> Yes, I certainly visited, I think, about 20 to 30 coupes, and that gave me some idea of the extent to which the prescriptions and prohibitions were being actually realised in the field, and I found in at least several cases that there had been logging right up to the retained area boundary, the streamside reserves, including impinging on those reserves. I found that some of the retained trees, Ash trees which were meant to have been retained as habitat trees or hollow-bearing trees, had in fact been killed by post-harvesting regeneration fires.

1357 In relation to the Leadbeater's Possum and VicForests' regrowth retention harvesting method (which is supposed to leave stands of retained trees either in a coupe, or on the edge of a coupe), and as I have found in the s 38 part of these reasons, the effectiveness of any such measures is materially compromised, on the evidence, by poor implementation. Professor Woinarski's opinion, in his first report (which I accept) is:

> In theory, Regrowth Retention Harvesting may have less severe impacts on Leadbeater's possum than clear fell harvesting or other conventional protocols, because it (i) may maintain a larger extent of habitat connectivity; and (ii) increases the likelihood of maintaining mixed-age forests – and hence both components of Leadbeater's possum habitat: old trees and dense interconnected understorey. However, my brief inspections of these Rubicon coupes indicated that survival of the retained habitat was patchy (see Figure 2 above). Furthermore, if the amount of timber that was required to be extracted from the Central Highlands ash forests needed to be maintained at a constant level, then the reduced output per coupe associated with Regrowth Retention Harvesting may mean that a larger gross area of forest would need to be disturbed. Accordingly, I do not consider that Regrowth Retention Harvesting would meaningfully reduce the significance of the overall (or per coupe) impact of

> timber harvesting on Leadbeater's possum.
>
> (Footnote omitted.)

1358 The first sentence of that opinion is highly qualified, even taken at its highest. The probative value of the second sentence is apparent when Fig 2 ("Examples of destruction or damage to retained forest patches within or adjacent to harvested areas, using the regrowth retention harvesting method (Rocketman/Houston coupes)") in Professor Woinarski's report is also reproduced:

1359 The third sentence was an opinion on which Professor Woinarski was not challenged in cross-examination; nor did VicForests point in its submissions to any evidence to suggest this was incorrect. It is a logical consequence of the new silvicultural methods, and is capable of effectively cancelling out any potential benefit they might have.

1360 The effectiveness of other key measures is also questioned in the evidence: the 200 m THEZs are an example. Professor Woinarski's opinion, given in oral evidence is that:

> there's no grounds whatsoever for thinking that 200 metre radius for these THEZs is sufficient, and, in fact, if you look at the JANIS document, which we referred to earlier today, it said that these areas should only be accepted if they're of sufficient size and management, and they're not of sufficient size, so they don't meet the JANIS criteria, I don't think.

1361 A similar opinion is expressed in the draft Recovery Plan (at p 60):

> Leadbeater's Possum Advisory Group (2014b), concluded that a timber harvesting exclusion zone of 200 m radius around existing known colonies would have only a 'low to medium' impact on reducing extinction-risk, whereas increasing the exclusion zone to 500 m radius would have a 'medium' impact on reducing extinction-risk, and increasing it to 1 km would have a 'high' impact on reducing extinction-risk.

1362 In his second report, Professor Woinarski examined the effectiveness of the THEZs in some detail, basing his opinions on research he undertook for DELWP in June 2017 to review the

THEZ system. The applicant relies on this opinion in its closing submissions and VicForests did not reply substantively to this aspect of the applicant's argument. The aspects of Professor Woinarski's opinion which I found particularly relevant to the question of significant impact, in the sense of THEZs being effective to ameliorate any apprehended adverse impacts from forestry operations, are the following, taken from [66] of his second report:

> (b) notwithstanding a very considerable survey effort, only about 6-10% of the possum's potential habitat had been surveyed, so most colonies remained undiscovered and many to most remain unprotected;
>
> (c) the likelihood of short, medium and longer-term persistence of Leadbeater's possums in THEZs was uncertain, because there is little information on the spatial ecology of Leadbeater's possums (e.g. how much area they need), how many individual possums occur in any THEZ and whether this number is sufficient for that population's (or colony's) long-term viability;
>
> (d) most THEZs are small and many are now isolated as a consequence of timber harvesting, and the set of THEZs forms a very diffuse archipelago of isolated fragments in the context of the broader landscape. Such isolation and fragmentation will make management challenging, will expose the individual THEZs to the impacts of disturbance, and will constrain possum gene flow and dispersal.
>
> (e) DELWP undertook a quantitative assessment of the benefit of the THEZ system in terms of its contribution to reducing extinction risk for Leadbeater's possum. They found that the THEZs reduced the risk of 'quasi-extinction' by 34% relative to the risk arising from protection in the Leadbeater's possum reserve system alone. However, my report noted that this assessment predicted a considerable residual risk (45% chance) of the quasi-extinction of Leadbeater's possum, and (ii) the figure of 34% reduction in extinction risk due to the establishment of the set of THEZs *relates solely to an implausible future scenario of 200 years without bushfire*. When a single bushfire is factored into the analysis, the population within the conservation reserve system, including THEZs, is far more likely than not to become quasi-extinct.
>
> (f) The 200 metre radius used in the establishment of a THEZ was considered by the LPAG Technical Report (2014) as sub-optimal. In Table 6 of that Report, it rates a set of potential conservation management actions and prescriptions according to their likely mitigation of impacts and benefit to Leadbeater's possum. The 200 metre buffer THEZ was considered to provide generally minor benefits (a 'low-medium' impact on (reducing) the risk of extinction, a 'medium' impact on (retaining) the number of individuals, a 'low' impact on (retaining) habitat quality, a 'low' impact on (retaining) extent of habitat, a 'medium' impact on 'spreading the risk', and a 'low-medium' overall benefit). In contrast, a nominal buffer size of 500 metre radius for THEZs was predicted to have generally 'medium' benefits, and a nominal one kilometre radius for THEZs was predicted to have generally 'high' benefits.
>
> (g) Furthermore, the establishment of THEZs requires the demonstrated observed presence of one or more Leadbeater's possums. Notwithstanding technical advances and the admirable tenacity of researchers and others, Leadbeater's possums can be elusive and timid, and not readily detected, so it is highly likely that some populations of Leadbeater's possums in coupes scheduled for

> harvesting are not detected and hence not protected. The same argument applies for parts of coupes, where one or more Leadbeater's possum may be detected in part of a scheduled coupe (and hence protected) but not in another part, and hence these are not protected.

(Original emphasis; footnotes omitted.)

1363 In his oral evidence, Professor Woinarski put it thus, in response to a question from the Court (a portion of which I have reproduced earlier but repeat here for convenience):

> All right. Now, I think people will correct me if I haven't got this right, but as I understood Dr Davey's evidence, he – his opinion was that these reserves were able to provide connectivity between the THEZs for the Leadbeater's Possum, and I think his opinion was, certainly in answer to the questions that I asked him, that they would move through them. Do you have a comment or an opinion about that?---It's not demonstrated that they can move through them, so there's no empirical evidence for that, (a). (b) We know from Professor Lindenmayer's research that they don't really do well, or that they tend not to occur in these fragmented, linear strips. (3) – or (c) it doesn't necessarily sufficiently compensate for the lack of habitat retained around the actual – for the size of the THEZs themselves, which it would seem from the available evidence need to be larger, and larger doesn't necessarily mean small connected by narrow strips. Larger is basically to ensure that there's resilience around the colony area themselves.
>
> …
>
> So you don't disagree with the shape, so to speak; you're just, in your report, saying it should be bigger?---Absolutely, and there's no grounds whatsoever for thinking that 200 metre radius for these THEZs is sufficient, and, in fact, if you look at the JANIS document, which we referred to earlier today, it said that these areas should only be accepted if they're of sufficient size and management, and they're not of sufficient size, so they don't meet the JANIS criteria, I don't think.

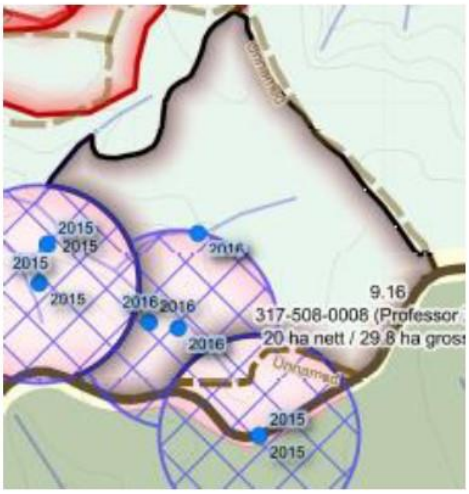
1364 Professor Woinarski also made this point in his third report at [40], in response to Professor Baker's report:

> I dispute Professor Baker's interpretation that my statements 'assume that Leadbeater's Possum is limited to the area in which it is detected'. My statement 41d clearly implies that because Leadbeater's possum may have relatively large home ranges, a 200 metre protective (exclusion) buffer around a sighting may not encompass all the area in which individuals of that possum colony move (and all of the habitat area on which that colony depends). Professor Lindenmayer's research reports movements of individual Leadbeater's possums up to 600 metres (linearly), reiterating the inadequacy of the 200 metre timber harvesting exclusion zones around Leadbeater's possum sightings.
>
> (Footnote omitted.)

1365 Professor Woinarski also pointed out some of the flaws, from a conservation perspective, with a prescription of this kind. This aspect of his opinion illustrates the considerable gap between a prescription designed for clarity in the conduct of forestry operations (recalling Mr Paul's evidence, which I accept in its context, about the need for clear guidance to foresters and

contractors) and what is necessary and effective from an ecological and conservation perspective to protect a threatened species:

> Furthermore, as noted in my earlier report to this case (paragraph 67 and Figure 5 in that previous report), depending upon their spatial separation, nearby records of Leadbeater's possum may or may not be protected with additional THEZ establishment. For example in Figure 3 below, harvesting would be allowed immediately adjacent to a Leadbeater's possum record, simply because that record happened to fall within an existing THEZ, even if the later record happened to be closer to the core of the home range of that population. In this case, some limited additional protection was added, but the general point remains valid.



1366 The "limited additional protection" to which Professor Woinarski referred still resulted in harvesting occurring within 50 m of the record (when the post-harvest map and the figure in Professor Woinarski's report are compared). As other evidence from Professor Woinarski to which I have referred demonstrates, most of the detections made are made while animals are foraging, rather than in or close to their dens or nests. Therefore, a detection itself may say little about where the animal is, in relation to its home range (eg whether at the edge or the centre), and in relation to the location of its nests and dens.

1367 In considering whether the applicant has proven a likely past or future contravention of s 18, unlike the question for s 38, compliance with a prescription is of less relevance. I have found VicForests has not always complied with the THEZ prescription. However, I accept it usually attempts to do so, albeit in a fairly strict and technical sense (as Professor Woinarski's example above demonstrates). For Pt 3 of the EPBC Act, compliance with a prescription is not necessarily sufficient to ameliorate significant impact: the *effectiveness* of the prescription will be a key factual factor in that assessment.

1368 I find that, even when it is properly observed and implemented on the ground (which is not always the case, as the evidence shows), the Leadbeater's Possum THEZ prescription has a small, unquantifiable and currently scientifically unknown ameliorating effect on the impact of VicForests' forestry operations on the Leadbeater's Possum. It does not affect my conclusion on significant impact.

1369 It is unclear on the evidence whether, for the purposes of planning and implementing its forestry operations, VicForests previously had access to Professor Woinarski's 2017 report, or whether it proactively sought access to it. Neither Mr Paul nor Mr McBride refer to it in their evidence. It would seem improbable in the extreme that, if VicForests' staff are as concerned about the conservation efforts for the Leadbeater's Possum as Mr Paul's and Mr McBride's evidence suggested they are, those responsible for forestry operations in the impugned coupes and in other areas of native forest which might be suitable Leadbeater's Possum habitat would not know about that report, and its conclusions on the likely ineffectiveness of THEZs. Yet so far as VicForests' evidence was concerned, there was no suggestion anything was proactively being done, since 2017, to address the issues raised. The change in silvicultural methods is expressly not responsive to Professor Woinarski's work: it is responsive to the failure of VicForests to secure FSC accreditation. The lack of practical, specific, attention to the difficulties with THEZs highlighted in Professor Woinarski's report is another specific example of VicForests' failure to comply with cl 2.2.2.2 of the Code in the conduct of its forestry operations. While it is not part of the pleaded case, it is an example which confirms my satisfaction about the findings I have on the applicant's pleaded case.

1370 Similarly, the prescriptions about Leadbeater's Possum Zone 1A and Zone 1B habitat is, as other aspects of this proceeding show (in the miscellaneous breaches), productive of technical and fine distinctions which while relevant to compliance or non-compliance with the Code, are of marginal if any relevance to the question of significant impact. Concurring with and relying on the draft Recovery Plan, in his second report at [54] Professor Woinarski said that:

> 'Zone 1A and 1B habitat represents only a small proportion of the area in which Leadbeater's Possum occurs', and as the density of old hollow-bearing trees undergoes landscape-wide decline, the number of sites qualifying at this threshold will continue to diminish.
>
> (Footnote omitted.)

1371 His opinion, which I accept, is that:

> a key targeted conservation mechanism in the RFA planning process is of very limited

> utility, and most likely protects only a small proportion of the Leadbeater's possum population.

1372 Professor Woinarski was not challenged in cross-examination about his opinions concerning the ineffectiveness of the Zone 1A and 1B prescriptions. Nor was the Court invited to find that what was in the 2019 Conservation Advice or the draft Recovery Plan about this issue was unreliable or inaccurate.

1373 Particularly in the light of the conclusion reached in the draft Recovery Plan, and also the 2019 Conservation Advice, about the importance of all habitat currently occupied and used by Leadbeater's Possum, the Zone 1A and 1B prescriptions do not ameliorate to any meaningful extent the significant impact of forestry operations on the Leadbeater's Possum. Especially so when the factual and interpretative exercise of how many hollow-bearing trees per 3 ha is as fraught in practice as the evidence suggests.

1374 At its highest for VicForests, and notwithstanding all the measures taken, the key fact, as the 2019 Conservation Advice recognises, is that the species' population is still in major decline. By reference to direct observation (Criterion 1 A2(a)), the 2019 Conservation Advice refers to a decline of over 50% in 2000-2018. The proportion of sites where Leadbeater's Possum were observed had declined from 20% to 10%. When the effects of loss of habitat from logging are added to the effects of habitat loss from fire, the 2019 Conservation Advice concludes:

> The directly observed decline of the Leadbeater's Possum population is thus at least 54.3 percent in the Ash forests (50 percent decline x 92.3 percent habitat + 100 percent decline x 7.7 percent habitat).

1375 When assessed against Criterion 1 A2(b) – using hollow-bearing trees as an index of abundance for the species – the 2019 Conservation Advice found that between 2000 and 2018, and taking into account the effects of fire and timber harvesting, there was between a 53.6% and 65.7% decline in the abundance of hollow-bearing trees.

1376 When assessed against Criterion 1 A3(b) – again using hollow-bearing trees as an index of abundance for the species – the 2019 Conservation Advice found, looking forward to the period from 2018 to 2036, there was a "plausible range" of decline in abundance of between 60% and 81.3%. Moving into a different predictive window based on three generations of Leadbeater's Possum (2006-2024), the 2019 Conservation Advice estimates for Criterion 1 A4(b), the decline in hollow-bearing trees to be approximately 83.4% (from a "plausible range" of 77.8% to 87.7%).

1377 The 2019 Conservation Advice also found that there was a reduction in the extent of the occurrence of Leadbeater's Possum, combined with severely fragmented habitat and a continuing decline in the area, extent and/or quality of Leadbeater's Possum habitat.

1378 It is correct that Professor Baker challenged some of the studies by Professor Lindenmayer that Professor Woinarski relied upon, and that (it appears) the draft Recovery Plan and 2019 Conservation Advice also rely upon. I have explained earlier in these reasons why I do not accept Professor Baker's criticism. The fact that the combined authors of the draft Recovery Plan and the 2019 Conservation Advice also rely on these studies, and that those authors represent both federal and State environmental departments, strengthens my view that the predictions should be treated as reliable. Similarly, Dr Davey's opinion that the species' decline was not as severe as Professor Woinarski suggests is not an opinion I accept, especially in the face of the conclusions in the 2019 Conservation Advice, with which his opinions are substantively inconsistent. I prefer to rely on the 2019 Conservation Advice, especially given it is issued under the EPBC Act.

1379 Further, the 2019 Conservation Advice states that the estimated total population of the Leadbeater's Possum would qualify it for listing as vulnerable on the basis that:

> Notwithstanding the considerable uncertainty in these estimates, the population of possums may exceed 10,000 mature individuals, but is more likely in the range 2,500-10,000 which is low.

1380 These are the realities for the species, despite the matters to which VicForests adverts. These realities may explain why, as the draft Recovery Plan notes at p 59:

> Another high-level conservation recommendation was that highlighted by the Threatened Species Scientific Committee in the Conservation Advice approved by the Australian Minister for the Environment:
>
> > "the most effective way to prevent further decline and rebuild the population of Leadbeater's possum is to cease timber harvesting within montane ash forests of the Central Highlands" (Threatened Species Scientific Committee 2015).
>
> That Conservation Advice also noted that 'all populations of Leadbeater's possum are important' and recommended 'protecting all current and future Leadbeater's possum habitat'.

1381 The draft Recovery Plan also recognises this fact in plain terms:

> Although a range of prescriptions are in place to reduce impacts, and new processes (e.g. regrowth retention harvesting) have been introduced, timber harvesting **reduces the extent, quality and connectivity of suitable habitat for Leadbeater's possum, and hence increases its risk of extinction**. Timber harvesting practices need to

> continue to adapt to minimise impacts on Leadbeater's possum.
>
> (Emphasis added.)

1382 While this is a statement directed at timber harvesting in the Central Highlands region generally, and not only at VicForests' forestry operations in the impugned coupes, unless the forestry operations under consideration are negligible in extent (which they are not) and unless the native forest harvested and proposed to be harvested is obviously not suitable habitat for the Leadbeater's Possum (which is not the case), then the opinion expressed in the draft Recovery Plan supports, together with the other matters to which I have referred, a finding of significant impact.

The applicant's argument on significant impact for the Leadbeater's Possum

1383 The applicant's argument in relation to the Leadbeater's Possum is encapsulated in [608] of its closing submissions:

> For the reasons set out at [578-603] above, the applicant contends that the evidence permits the Court to reach a conclusion in respect of s 18(2) in the circumstances of this case. Specifically, there is evidence that the logged and scheduled forestry operations will:
>
> a. lead to a long-term decrease in the size of the population;
>
> b. adversely affect habitat critical to the survival the species;
>
> c. modify, destroy, remove, or decrease the availability or quality of habitat to the extent that species is likely to decline;
>
> d. interfere with the recovery of the species.

1384 Paragraphs [578]-[603] of the applicant's closing submissions deal with some of the legal issues to which I have already referred, such as the role of the significant impact Guidelines and the concept of "action" in the EPBC Act. The evidentiary basis for the submission is contained in what follows after [608].

1385 The four consequences set out in this submission reflect the content of the Significant Impact Guidelines. As I have found, the Guidelines have some utility in filling out the content of the concept of significant impact, although the matters to which they refer are matters which it is plain would otherwise be well within the concept. Provided they are not treated by the Court as some kind of exhaustive checklist, or a substitute for the more general statutory concept, there is no difficulty in employing them.

1386 The first three consequences identified by the applicant are all connected, and focus on the impact forestry operations have on the habitat of Leadbeater's Possum. That is because, as

Professor Woinarski explained (both in his report and in oral evidence), the fate of the Leadbeater's Possum is inextricably linked with the fate of its habitat. In oral evidence he put it thus:

> Because, particularly for this species, it's really – its survival is contingent on its habitat. It's not affected by predation or parasitism or any of the other threats which affect threatened species. It's affected primary – or entirely by habitat quality and suitability. So the whole future of this species depends on retaining its suitable habitat – well, a critical habitat or increasing that.

1387 The Leadbeater's Possum's habitat dependency is particularly acute in relation to hollow-bearing trees. Although it forages, and feeds on, Acacia, which is a plentiful species that regenerates relatively easily and quickly after both fire and logging, a determinative factor for use of particular forest by Leadbeater's Possum is the presence of a sufficient number of hollow-bearing trees, of suitable quality for Leadbeater's Possum. That is because, as both Professor Woinarski and the 2019 Conservation Advice make clear, Leadbeater's Possum require hollow-bearing trees as a nest resource. Without sufficient nest resources, the population of the species will not be maintained, and without increasing nest resources, the population cannot recover.

1388 One of the points Professor Woinarski made about habitat for the Leadbeater's Possum should be quoted:

> Okay. Would you agree that the risks to Leadbeater Possum associated with timber harvesting could be reduced or minimised if the harvesting is done on sites that are poor habitat for Leadbeater Possum?---The forest system is very dynamic, so what might be poor habitat today may well have the cohort of trees which are needed for Leadbeater's Possums 30 to 50 years hence. So all else being equal, your statement is true, but I think we've got to reflect that a range of habitat features are finite in this environment and may well become even more limiting in the future, and the hollow bearing trees is particularly that.

1389 He explained this further in answer to a question from the Court:

> So a forest of relatively young age at this stage may well be unsuitable for Leadbeater's Possum because it doesn't contain hollow-bearing trees, but we know that hollow-bearing trees are diminishing in the landscape and will continue to do so, and those – for example, the 1939 regrowth cohort of mountain ash will provide those hollows, so long as they're retained in the landscape in the future. So while they may be currently unsuitable, they're prospectively suitable into the future, and, in fact, conservation outlook for Leadbeater's Possums depends on maintaining a large number of those 1939 regrowth trees, because they will provide the hollows 50 to 100 years hence that the species will depend upon, if it survives that long.

1390 The significant point being made here by Professor Woinarski is something I consider VicForests' evidence did not really address. The forest is not static, and nor are the needs of

the species who depend on it. Preserving what is currently being used by threatened species is one matter, but preserving habitat that will develop into habitat they can use is equally important. The role of the 1939 regrowth in this region in providing future hollows for the Leadbeater's Possum is an acute example. This was also a matter Dr Smith emphasised as critical to the survival and recovery of the Greater Glider.

1391 Asked in cross-examination about Professor Baker's thesis that regenerating coupes, post-harvest, can provide food for Leadbeater's Possum because of the relatively fast growth of Acacia species, Professor Woinarski again retuned to the complexities of predicting use of habitat, and the number of factors which need to be considered:

> And in coupes that are regenerating that have, as Professor Baker says, a significant Acacia component – coupes of that nature would have the potential to contribute to high-quality habitat for Leadbeater's Possum, assuming that there are hollow-bearing trees within the area. Is that fair to say?---The hollow-bearing trees is the limiting factor in this case. We know that they're limited, they're finite, and that they're competitively – that there's competition for them amongst a whole range of mammal and bird species.
>
> Yes?---We know that they typically – or they have a high rate of decay or falling over post-timber harvesting in that coupe, so they're likely to be less abundant following harvesting. We know that partly because of the high incidence of – or extent of wildfire in these systems that Acacia understorey is widespread and becoming more common.
>
> Yes?---So that the limiting factor for Leadbeater's Possum in most cases is not the Acacia understorey, but rather the old, hollow-bearing trees. So that is the critical factor.
>
> You need both, though, don't you?---You need both, but one - - -
>
> Well, when I say you need both, I mean the Leadbeater Possum needs both?---One – yes, yes, correct. Good point. One is rare and becoming rarer, and the other is abundant and becoming more abundant, so that the critical factor is the old, hollowbearing trees.

1392 In this evidence Professor Woinarski also refers to the casualties of any retained current or potential hollow-bearing trees post forestry operations. In particular, in his first report, he refers to the "[s]usceptibility of retained trees to being killed by fire in post-harvesting management burns, and hence reduction in habitat quality and extent in retained areas". As I have noted above, the Court observed this on the view.

1393 The need for Leadbeater's Possum colonies to have contemporaneous access to a range of hollows was also made by Professor Woinarski in cross-examination:

> Okay. Yes, because I did predicate – what I put to you was that – I did predicate presence of hollow-bearing trees within the area?---Yes, and I make the point that it's not simply one hollow-bearing tree. Leadbeater's Possum – individual colonies move from one hollow to another hollow to another hollow in their home range. They need to do that to avoid predators and to minimise things like parasitism and the like. So

> they need a set number of hollow-bearing trees, or a particular number of hollow-bearing trees before that area is suitable for them.
>
> And just on that - - -?---So just retaining one or two hollow-bearing trees would be insufficient.

1394 Earlier in these reasons, I have addressed the parties' competing submissions about the relevance of the habitat which is described as "critical" as opposed to "suitable". That debate occurred more in the context of the Greater Glider than the Leadbeater's Possum. At least so far as the Leadbeater's Possum is concerned, its perilous status, declining population and dependence on hollow-bearing trees mean that, as the draft Recovery Plan makes clear, habitat likely to support the Leadbeater's Possum population needs to be conserved. The plan states (at p 30):

> The extent, quality and connectivity of suitable habitat is the critical factor for conservation of Leadbeater's possum, and conservation management actions should focus primarily on factors and actions that serve to increase (or most effectively reduce the rate of decline in) the current and prospective habitat extent, quality and connectivity.

1395 And then at 35:

> The 1939 regrowth is, in most areas, the oldest cohort of forest, and hence this age class will be essential for the future restoration of the old growth ash forest estate in the Central Highlands.
>
> Hollow-bearing trees are scarce and declining in the Central Highlands and will not be naturally replaced for decades. These are therefore a critical resource that requires full protection.

1396 The key finding made in the draft Recovery Plan (at p 38), which is consistent with Professor Woinarski's evidence, and which I accept, is:

> Given the current Critically Endangered status of Leadbeater's possum, and its predicted severe ongoing decline, including significant risks of extinction, all current and prospective suitable habitat is critical for its survival, and necessary for its recovery.

1397 This is consistent with the applicant's submissions at [614] of its closing submissions that, in contrast to this approach, Dr Davey and Professor Baker adopted an interpretation of habitat suitability which did not take into account or give sufficient weight to the critically endangered status of the species, especially by their concentration on the term "critical habitat" as if it had some statutory force in the context of s 18, which is does not.

1398 A further factor about habitat should be noted, and I consider it is also important. That is the effects of fragmentation of suitable habitat, in particular habitat actually used and occupied by Leadbeater's Possum, as much of the habitat in and around the impugned coupes can be

described. In his second report (at [28]), Professor Woinarski made the following point about the effects of fragmentation caused by forestry operations, even with the THEZ prescription being implemented:

> Relative to a Leadbeater's possum population living in an extensive continuous forest, a population contained within a 200 metre radius THEZ, surrounded or nearly so by harvested areas, is far more likely (i.e. has a real chance or possibility) to face decrease in population size.

1399 Quite a bit of time in submissions was spent by the parties on describing various estimates of the likely suitable habitat available for the Leadbeater's Possum in the Central Highlands region. One measure of this discussed in the evidence was the estimated area of occupancy for the species. As I understand the evidence, this refers to the area of suitable habitat currently estimated to be occupied by a species. The draft Recovery Plan estimates, relying on unpublished DELWP data (at p 20) that the "calculated area of occupancy at December 2015 was 46,400 ha".

1400 The draft Recovery Plan, based on Dr Lumsden's work, estimates there is approximately 35,764 ha of native forest that has a great than 50% probability of being occupied by Leadbeater's Possum, with around 42% being in dedicated permanent reserves and around 58% being in State forest. If one includes forest with only a greater than 30% probability of occupancy by Leadbeater's Possum, the area increases to 93,285 ha, with a higher proportion (just over 65%) in State forest and a lower proportion (just under 35%) in dedicated permanent reserves. In his first report, Dr Smith was critical of the modelling results from Dr Lumsden's work, on which some of the occupancy estimates in the draft Recovery Plan and the 2014 Leadbeater's Possum Advisory Group Technical Report were based. I accept there is accordingly some doubt about the reliability of this kind of occupancy modelling. As I have attempted to emphasise in these reasons, in any event, in terms of determining what native forest is "suitable" or "critical" habitat for the Leadbeater's Possum (and the Greater Glider for that matter) more weight should be given to evidence about which forest the species are, in fact, using and occupying, rather than where modelling might suggest they *should* be.

1401 The 2019 Conservation Advice (at p 17) sets out an increased estimated occupancy area for the Leadbeater's Possum:

> Area of occupancy based on the IUCN guidance to use a 2 x 2 km grid (IUCN Standards and Petitions Subcommittee 2017) is estimated to be 972 km^2 which is limited under sub-criterion B2. This value is likely to increase in the future due to the accumulation of new sighting locations.

1402 That figure equates to 97,200 ha. It is clear from the draft Recovery Plan and the 2019 Conservation Advice, as well as Professor Woinarski's evidence, that the IUCN model is based on detections. The more detections that are reported, the more the estimated area of occupancy may increase, because of the way the IUCN model calculates occupancy. Nevertheless, despite this increased estimate in the 2019 Conservation Advice, discussed in the section dealing with Criterion 2, the Committee nevertheless determined (at p 18) the species was eligible for listing under this criterion:

> The Committee considers that the extent of occurrence of Leadbeater's Possum is restricted, it is found at a restricted number of locations and that continuing decline can be inferred in amount and quality of habitat. Leadbeater's Possum is eligible for inclusion in the Endangered category under criterion 2B1a,b(iii).

1403 Professor Woinarski's opinion, which I accept, is that the increased survey effort, and therefore the increased estimate of area of occupancy, cannot be said to indicate the population is more robust, or less endangered, than previously thought: see [1351] above.

1404 Professor Woinarski pointed to what he considered were the more material scientific studies, those of Professor Lindenmayer, which demonstrated population decline in monitored sites: that is, in native forest known to be used and occupied, rather than modelled to be so. Professor Woinarski's opinion was (at [64] of his second report, with emphasis added):

> At paragraph 222 (and illustrated in his Figure 3) of his report, Dr Davey notes that the DELWP report shows a very substantial increase in records of Leadbeater's possums in the Central Highlands. As noted in the DELWP report, this increase is due to (i) a greatly increased survey investment and coverage by government researchers, individuals and non-government conservation organisations, and (ii) the development and implementation of technical innovations, notably remote cameras (camera traps) and thermal imagery. **In contrast, consistent monitoring of Leadbeater's possum at a large series of fixed monitoring plots shows a significant ongoing trend for declining abundance and occupancy over this period**.
>
> (Footnote omitted.)

1405 In his second report, Professor Woinarski also made the point (at [68]) that habitat calculated by area around a detection (which would apply to both the IUCN method and the THEZ method) did not necessarily capture an area which would all be suitable or useful to the Leadbeater's Possum:

> The figures quoted are of the area within THEZs; but individual THEZs may (and often do) have more than one age class. So, for example, if a Leadbeater's possum family lived in and was detected in a forest originating in 1909, but that within 200 metres of that record there was also younger forest, then that extent of younger forest would be included in the THEZ. However, it would be erroneous to presume that the Leadbeater's possum family was 'occupying and using' that younger-aged forest; just

> as it may be erroneous to presume I habituate a hotel simply because one occurs in my street.

1406 I accept Professor Woinarski's evidence on these matters. These matters reinforce my view that the surest guides to determining what forest is habitat critical to the survival of each species are detections and presence; that is, "on the ground" observations and evaluations about the nature and character of the native forest in question.

1407 According to VicForests' closing submissions, the gross area of the impugned coupes is approximately 2,310 ha. Against this, VicForests alleged that "34% of the area of potential habitat … within the range of Leadbeater's Possum in the Central Highlands was located in formal national parks and conservation reserves" and "a total of 69% of the area of potential habitat within the range of Leadbeater's Possum in the Central Highlands was in areas excluded from timber harvesting". These kinds of mathematical comparisons were relied on by VicForests to contend that forestry operations in the impugned coupes affected – on any view – only a small portion of the potential habitat available to the Leadbeater's Possum.

1408 I am not persuaded by this kind of exercise, essentially for reasons I have expressed to this point. These calculations only examine potential habitat or assumed occupancy. In all of the coupes in issue in relation to the Leadbeater's Possum there have been detections which demonstrate, without challenge, actual occupancy and use of the forest in those coupes. There is no need to resort to hypotheses about whether forest is "potential" habitat. The forest in these coupes (relevantly to those identified with the Leadbeater's Possum) is actual habitat. Removal of that habitat in fact affects members of the Leadbeater's Possum species, especially taking into account my acceptance of the evidence that the THEZ of 200 m radius is insufficient and ineffective to halt the decline towards extinction of this species. The effect or consequence is not minor or trifling: it is real. The incremental logging of native forest known to be occupied and used by Leadbeater's Possum is a material contributing factor to the ongoing decline of the species and that is, for the purposes of s 18, a significant impact.

1409 The range of the Leadbeater's Possum is shrinking. Whether that is entirely due to habitat loss or not may not be certain. However the draft Recovery Plan identifies the following:

> A substantial decline from the past to the current range is evident from the fossil record and from more recent historic habitat loss (especially in its former lowland swamp forest range). Distributional decline is also inferred from bioclimatic modelling, which suggests a range reduction of 88% over the last 250 years (Burgman and Lindenmayer 1998), and from genetic analyses (Hansen et al. 2009).

1410 This makes more critical the protection and conservation of native forest where the Leadbeater's Possum is currently known to be present, and to use, so that its range is not further adversely affected.

1411 The fourth consequence identified by the applicant in closing submissions concerns the effect of forestry operations on the recovery of the Leadbeater's Possum species. I have expressed my reasoning about the relevance of recovery of threatened species to the issues presented by the applicant's case earlier in these reasons. Therefore, actions which have an adverse impact on recovery of a species are capable of being seen as significant impacts. Again, all will be fact dependent, but the centrality of the objective of recovery of threatened flora and fauna to the scheme of the EPBC Act (as I have explained) must inform the content of significant impact in Pt 3 prohibitions such as s 18, otherwise the objectives of the Act will be frustrated and likely defeated.

1412 Professor Woinarski was one of the co-authors of the draft Recovery Plan for the Leadbeater's Possum, together with representatives of the federal Department of Environment and Energy and DELWP. No authors are identified in the 2019 Conservation Advice. It is as well to recall again the purpose of a Recovery Plan, as revealed by the terms of s 270(1) of the EPBC Act which provide for its (mandatory) content:

> A recovery plan must provide for the research and management actions necessary to stop the decline of, and support the recovery of, the listed threatened species or listed threatened ecological community concerned so that its chances of long-term survival in nature are maximised.

1413 The draft Recovery Plan reinforces this objective, stating

> that the pre-eminent purpose of this Recovery Plan is to stop the decline and support the recovery of Leadbeater's possum so that its chances of long-term survival in nature are maximised …

1414 The plan commences with this statement, which reflects the evidence in this case, and Professor Woinarski's opinions, which I have accepted:

> This Plan recognises that although substantial research and conservation achievements have been made associated with the previous Recovery Plan and other initiatives, the status of Leadbeater's possum is declining severely, such that it has recently (April 2015) been up-listed to Critically Endangered under national legislation. Based on the extent of recent, current and projected decline, the 2015 Australian *Threatened Species Strategy* listed this species as one of only two mammal species with 'emergency' priority for conservation management.

1415 The summary then turns to identify the focus of the Recovery Plan:

> This Plan focuses particularly on the main threat to this species – decline in the extent, quality and connectivity of suitable habitat, with this decline due mostly to historic, current and projected severe bushfire and changed fire regimes, timber harvesting and loss of hollow-bearing trees. Conservation planning for Leadbeater's possum is a long-term proposition and commitment. Because of the impacts of historic fire and other disturbances, the availability of suitable habitat is predicted to decline for at least another 40-50 years, such that it will be extremely challenging to achieve recovery of this species in the short term. Actions taken now to enhance its conservation status are unlikely to reverse the current decline in the extent of its suitable habitat or of its population over the 10-year period of this plan, but they will help to slow this rate of decline. And importantly, actions taken or not taken now will affect its likelihood of extinction over a 50 to 100 year timeframe.

1416 Again, the evidence in this proceeding bears out those statements, and I accept them. Although the draft has not received Ministerial approval since 2016 (there was no evidence as to why), its content is the product of expert input, including from those responsible for the administration of the conservation and biodiversity protection regime at federal level, and those responsible for both the conservation regime and the regulation of forestry operations at state level. Its content should be given considerable weight, especially since one of its authors was called as an expert witness and available to be tested on the statements of this plan. While available to be tested on this matter, Professor Woinarski was not cross-examined about the contents of the draft Recovery Plan, nor its emphasis on protection and recovery of Leadbeater's Possum habitat.

1417 The plan then explains the long-term recovery objective for the Leadbeater's Possum, and what is needed to occur to achieve it:

> *To increase the extent, quality and connectivity of currently and prospectively suitable habitat, and its occupancy by Leadbeater's possum, in order to maximise the probability of persistence of the species.*
>
> This long-term objective would require the following outcomes:
>
> - the total population size of Leadbeater's possum stabilises and then increases over a 20-50 year period from now;
> - risks to Leadbeater's possum from catastrophe (notably extensive, severe bushfire) are managed effectively through securing viable subpopulations across an area that is at least as extensive as its distribution immediately prior to the 2009 bushfires;
> - the extent and continuity of high quality habitat and old-growth forest is substantially increased;
> - there is an ongoing commitment, with appropriate resourcing, to effective and enduring management of threats to this species, including effective management that results in a pattern of bushfire frequency and severity that is less detrimental to this species (and its forest environment) than that presently prevailing;

- the distinctive subpopulation in the lowland swamp forest is retained and its population size and the extent and suitability of its habitat are substantially greater than at present.

1418 The inextricable link between not only protection of existing habitat, but an increase in habitat, and provision for future habitat (especially hollow-bearing trees) and the recovery of the species could not be clearer. At p 15 the draft Recovery Plan states:

> Collectively, these monitoring and modelling data demonstrate that the conservation future for Leadbeater's possum is highly precarious. Under current conditions, it is predicted that the species will continue on a severe downward trajectory from its current highly imperilled status for at least another 50 years, before regrowth trees from the 1939 fires start to form hollows (i.e. the next five to six decades may represent a 'bottleneck') after which the Leadbeater's possum habitat extent may increase. Depending upon their severity, incidence and extent, future bushfires will exacerbate these predicted trends for decline, and further delay (or render implausible) any future recovery.
>
> This Recovery Plan recognises that there has been very substantial investment over several decades in research and management actions, and some notable conservation policy initiatives, with these efforts contributing significantly to enhanced knowledge of the species and to the maintenance of some subpopulations. Notwithstanding such effort, the current and projected trends for the species and its habitat are for a severe decline. Existing management and protective mechanisms are demonstrably insufficient to stop the decline and support the recovery of the species. A concerted long term vision, commitment and management effort, with adequate resourcing and policy settings, is necessary to protect this species into the future.

1419 While these matters are expressed at a policy level, that is not their relevance for present purposes. Their relevance is to support the views I have formed on the evidence about VicForests' submissions that existing prescriptions and other measures (such as the reserve system) lead to the conclusion that its forestry operations in the impugned coupes are not likely to have had, and are not likely to have in the future, a significant impact on the Leadbeater's Possum. These facts and opinions make it clear that is not the case, because the species continues to be imperilled. The measures have neither slowed nor arrested the species' decline.

1420 These passages also emphasise, as the applicant's contentions did, and as Professor Woinarski did, the importance of preserving the native forest which will, in 50-100 years' time, be the source of hollow-bearing trees for the Leadbeater's Possum. Native forest not being static, the impact of forestry operations on native forest which is habitat critical for a threatened species cannot be assessed simply by reference to the use that forest has for such species in the present. While the 1939 regrowth does not currently provide a source of hollows for the Leadbeater's Possum, and while it is a prime timber harvesting target, if it is logged then the impugned coupes (restricting my consideration to those coupes, although the proposition rationally applies more widely to similar Ash forest in the CH RFA region) are removed as a source of

suitable habitat for the Leadbeater's Possum over the next 50-100 years as the trees and hollows they are currently using for nesting senesce and become unviable for that purpose.

1421 Finally, as the applicant submitted, and as this part of my reasons has already adverted to, the impacts of wildfire must be taken into account. I have set out my findings about those impacts at [651]-[676]. For the question of significant impact, the inevitability of wildfire, and its increasing frequency and intensity and disruption to previous ecological cycles (as Professor Woinarski has described) means that the likely impact of forestry operations is magnified. In circumstances such as forestry operations, the context of the action includes what else is likely to transpire in native forest, over which there may be little control.

Other factors and aspects of the evidence to which I have given weight

1422 I have found earlier in these reasons that the Leadbeater's Possum is one of only a very small number of fauna species which are identified as "critically endangered". That places the species in a special category, acknowledging the severity of the risks it faces. To illustrate that, as Professor Woinarski states in his first report at [17], one of the nine Australian mammal species in that category has become extinct since its listing and another is almost certain to have done so. It is not possible to contemplate a more urgent situation, and any adverse impact on the species beyond one that is negligible or fleeting or for some other reason not material is likely to be significant. A matter emphasised in the draft Recovery Plan is the uniqueness of the Leadbeater's Possum:

> Leadbeater's possum is taxonomically distinctive as it is the only species in the genus *Gymnobelideus*, otherwise most closely related to the tropical striped possums *Dactylopsila* (Edwards and Westerman 1992; Osborne and Christidis 2001; Cardillo *et al.* 2004). Recognising this evolutionary distinctiveness and its proximity to extinction, it is rated as one of the world's 100 highest priority mammal species for conservation. Leadbeater's possum is also included as one of 12 Australian threatened mammal species accorded high priority in the 2015 Australian Threatened Species Strategy, and (its lowland subpopulation) is listed as one of the 20 priority threatened species in Zoos Victoria's Fighting Extinction program.

1423 This is a factor to be taken into account in identifying the context of VicForests' action for the purposes of Pt 3. Not only is the species affected a listed threatened species in the critically endangered category, but it is one which has an internationally recognised characters of evolutionary distinctiveness. The maintenance of biodiversity depends on such matters. The particular characteristics of the Leadbeater's Possum make impacts from forestry operations more significant.

1424 Another factor which emerges from the draft Recovery Plan is that some of the conservation work to date has focused on small numbers of individuals of the species. On p 41 of the plan, there is discussion about various captive breeding and translocation programs. The numbers of individual Leadbeater's Possum involved were small: recruiting three to six individuals per year for captive breeding, translocating five unpaired wild caught individuals. The point of relevance to the assessment of significant impact is that with a species at this level of risk of extinction, individual members of the species do matter: they matter for alternative methods of arresting the decline of the species, and if that is so, then it seems counterintuitive and irrational to discount or dismiss the potential effects of individual members of the species from forestry operations. As Professor Woinarski's reports made clear, individual Leadbeater's Possum or colonies caught in forestry operations have little or no prospects of even short-term survival, let alone long-term survival. Without concluding such a factor is decisive one way or the other, it is also not irrelevant in a species at this level of risk of extinction.

The effects of fire

1425 The 2019 Conservation Advice notes the dramatic effects of fire on the population of Leadbeater's Possum and identifies it as one of the major causes of the observed, and predicted, population decline of the species. Whether or not there are longer-term changes which could reduce the frequency and intensity of fires in native forest occupied by species such as the Leadbeater's Possum, the occurrence, location, frequency and intensity of wildfire is not a matter humans can directly control. That is in contrast to timber harvesting, which is entirely susceptible to direct human control. Where it is clear that timber harvesting increases estimates of population decline of Leadbeater's Possum (as the Conservation Advice states and I accept), and where it is clear (as I am satisfied it is in this proceeding) that particular native forest is in fact occupied and used by Leadbeater's Possum, then the removal of that forest as current habitat for the Leadbeater's Possum, and the removal of native forest which will otherwise provide hollow-bearing trees in the medium term (eg the 1939 Ash regrowth) is an impact that is of considerable consequence for the maintenance of the Leadbeater's Possum as a species, let alone for its recovery. The context of the impact of VicForests' forestry operations is the presence of a serious threat (fire) over which humans have no control.

The CAR reserve system and its capacity to mitigate or ameliorate the effects of forestry operations on the Greater Glider and the Leadbeater's Possum

1426 The 2015 Conservation Advice for the Leadbeater's Possum notes that much of forest in the reserve system is not suitable for the Leadbeater's Possum:

> Lindenmayer et al. have undertaken large scale vegetation surveys in the central highlands of Victoria since 1987 (e.g., Lindenmayer, 1989; Lindenmayer et al., 1990; 1991a, b; 2000). Their data layers indicate that at 1987 and 1989 montane ash forest was represented by 171,200 ha, but of this only 6.7 per cent was predicted to support suitable habitat for Leadbeater's possum. Lumsden et al. (2013) also note that while there are 43,501 ha of unburnt ash forest protected in parks and reserves within the Central Highlands at 2013, not all this area is likely to be suitable and occupied by Leadbeater's possum, with modelling based on post-2009 fire surveys estimating that the possum is likely to only occupy 15,000 ha.

1427 VicForests makes the following submission:

> Given the significant amounts of Leadbeater's possum habitat that are excluded from timber harvesting, the small areas of harvesting involved in the Scheduled Coupes, the fact that there is a sophisticated surveying regime for Leadbeater's Possum in the Central highlands together with detailed prescriptions based on actual presence of Leadbeater Possum or presence of habitat, the Court cannot be satisfied that any forestry operations in the Scheduled Coupes would pose a significant impact on Leadbeater's Possum.

1428 What this allows is a chipping away at Leadbeater's Possum habitat, with no consequence (other than for the Leadbeater's Possum). When will the threshold change and when will there not be "significant amounts" of native forest that is Leadbeater's Possum habitat that is excluded form harvesting? What is the tipping point on VicForests' arguments? The reality is there isn't one, because this is what the slice and dice approach of coupe-by-coupe approach encourages.

1429 As I have explained, the overall context in which significant impact must be assessed for this species is that it is on a path to extinction, with the effects of wildfire exacerbating how endangered it is. In 2013, in an article in evidence, Professor Lindenmayer and his co-authors explain the situation in the following way. The Court expressly invited the parties to address it in final submissions on whether there were any limits on the use which the scientific articles in evidence could be put. The applicant addressed this in closing submissions, contending it could be treated as other expert evidence. VicForests does not appear to have addressed the matter. Where there are no restrictions on admissibility, the Court is free to give the opinions such weight as it considers appropriate. Less weight might be attributed if there are other reasons in the evidence to do so (eg Dr Lumsden's modelling, which was criticised by Dr Smith). Here, the article is written by a scientist of whom Professor Woinarski and Dr Smith both expressed the highest opinion. In those circumstances, I am prepared to accept what is said by Professor Lindenmayer as relevant, and to give it weight.

> In the 15 years since the last major strategies for the conservation of Leadbeater's Possum were developed (Macfarlane et al. 1998) considerable new research has been

conducted. This work has demonstrated:

- There have been significant losses of large old (hollow-bearing) trees which are nesting sites for Leadbeater's Possum (Lindenmayer and Wood 2010; Lindenmayer *et al.* 2012a).
- Old growth stands – which support the highest abundance of hollow-bearing trees (Lindenmayer *et al.* 1991a, 2000) – are a tiny fraction (1/30th-1/60th) of what they were at the time of white settlement. This is the result of a century of logging (including the deliberate past conversion of old growth forest into regrowth stands), 40 years of intensive and extensive clearfelling, and repeated wildfires (Lindenmayer *et al.* 2012a).
- Leadbeater's Possum is absent from sites burned in the 2009 fire and the abundance of the species is significantly depressed on unburned sites where the surrounding landscape has been burned (Lindenmayer *et al.* 2013a).
- Extensive fires in 2009 have damaged almost half of the known habitat of Leadbeater's Possum and the species appears to be on an extinction trajectory. Indeed, populations of Leadbeater's Possum have been lost from extensive areas such as the Lake Mountain region.

1430 As the evidence demonstrates, in particular the draft Recovery Plan and the 2019 Conservation Advice, the circumstances have not improved, and the population decline continues. That is why the reserve system provides no panacea, and nor do the prescriptions and measures which have been introduced since 2013. The destruction of any habitat occupied and used, or likely to be occupied and used, by Leadbeater's Possum will have an impact on the Leadbeater's Possum as a species that can be described as significant.

Conclusion: the Leadbeater's Possum

1431 For a species in the perilous state of the Leadbeater's Possum, removal of habitat at the scale of native forest of 5 ha to 34 ha is an impact which can readily be described as significant. Especially so when each colony only occupies, on the evidence 1-3 ha. If the inevitable inference to draw from these findings is that native forest of sufficient quality to be occupied and used by Leadbeater's Possum, or reasonably predicted to be occupied and used by Leadbeater's Possum, should not be subject to timber harvesting, then that is an inference which in my opinion emerges with clarity on the evidence. However, that is not part of the necessary findings for the Court on the question of contravention, or likely contravention, of s 18 of the EPBC Act.

1432 I am satisfied the applicant has established on the balance of probabilities that VicForests' forestry operations (at each of the three levels I have described) are likely to have had (for the Logged Leadbeater's Possum Coupes) and are likely to have (for the Scheduled Leadbeater's Possum Coupes) a significant impact on the Leadbeater's Possum.

Findings on significant impact: the Greater Glider

1433 The evidence I have described in these reasons, and the findings I have made, establishes that on the balance of probabilities there is likely to have been, and is likely to be in the future, *an* impact from VicForests' forestry operations on the Greater Glider as a species.

1434 One important component of assessing whether the impact can properly be characterised as significant is to consider the threatened status of the species concerned. The more precarious the status of the species, the more likely it is that once an impact is established, it may be characterised as significant. That is the case with the Leadbeater's Possum. The threatened status of the Greater Glider is not as extreme, and therefore closer attention needs to be paid to the factual question whether the established impact can properly be described as significant. In my opinion, it can.

1435 Although its threatened status is not categorised as being as dire as the Leadbeater's Possum, the definition of "vulnerable" should be recalled: the Greater Glider faces a high risk of extinction in the wild in the medium-term future. As I have explained, the basis for its classification is its population decline. The key feature to note about this decline, as the Conservation Advice does, is that the rate of decline is extremely high in the Central Highlands. The decline is extrapolated over the relevant 22-year period to be at a rate of 87%. As I have also explained earlier, the population of Greater Glider in the CH RFA region is an important population, at the southern edge of the national range of the Greater Glider and for this reason plays a critical role in the maintenance of genetic diversity of the species.

1436 Many of my general findings, and my findings about why VicForests was required to comply with cl 2.2.2.2 in the Logged Glider Coupes and the Scheduled Coupes in respect of the Greater Glider are relevant to my conclusion of significant impact. That includes the findings I have made about my lack of persuasion that VicForests' proposed adoption of new and supposedly less intensive silvicultural methods in an unspecified proportion of the Scheduled Coupes will make any substantive difference on the ground to threats posed to the Greater Glider from timber harvesting. I adopt those findings in my consideration of this aspect of the applicant's case: see in particular [987]-[1076].

1437 What I set out below are some further particular matters which have contributed to my conclusion on significant impact.

1438 One matter which informs or underlies many of the more specific aspects of the evidence is the proposition in the Conservation Advice that "[p]rime habitat [for the Greater Glider] coincides largely with areas suitable for logging". For this species, there is a direct conflict between the conduct of forestry operations and preservation of its habitat which it occupies and uses, or which is suitable for it to occupy and use.

1439 It is common ground there is no Code prescription for the Greater Glider in the CH RFA Area. While, as I have discussed earlier, VicForests contends there are some protective measures applied (such as retention of further habitat trees if Greater Glider are detected), for the Greater Glider in the Central Highlands there has been no concentrated effort to improve conservation measures for the species regulating the conduct of forestry operations – in contrast to the Leadbeater's Possum. There are no effective, obligatory and consistent measures for the Greater Glider applicable to VicForests' forestry operations which could even be weighed in the balance against a conclusion of significant impact.

1440 In relation to the Logged Glider Coupes, based on detections and his observations and research in the coupes, Dr Smith's opinion was, using his own modelling (which was not challenged):

> Greater Gliders in logged coupes are predicted (from the model) to have an average density of 1.1 per hectare. As logged coupes varied in size from around 18-70 ha. they are likely to have supported maximum populations of up to 20 -77 individuals per coupe.

1441 At [107] of his second report, Dr Davey accepted Dr Smith's estimates were reasonable, and explained that the high numbers were due to "[s]ite and stand productivity, scatterings of living habitat trees in Ash forest and mix of age class in Mixed Species forest". He also agreed (at [108]) that Greater Glider could be killed during forestry operations.

1442 There were 17 Logged Glider Coupes. According to my calculations, the combined gross area of those coupes is approximately 540 ha. Therefore, based on Dr Smith's estimates, there may have been populations of up to around 600 affected by the forestry operations in those coupes, and it can be inferred a not insignificant proportion of them may have been killed, especially given they are nocturnal and forestry operations occur during the day, therefore they were more likely to be in their dens. While there may be a point at which the impact of an action on individual members of a listed threatened species is so negligible as not to be capable of contributing, at a factual level, to a finding of significant impact, these numbers are beyond negligible. They are a notable effect. They are material – not so much as individual members of the species, but because losses of that number of individuals is capable of affecting genetic

diversity, the density levels of the Greater Glider in particular areas of forest and what might then occur as they come together from their otherwise rather isolated existence to breed. Effects on this number of individual animals is capable of further weakening the Central Highlands population as a whole. Further, the fact of such considerable numbers illustrates the actual – not potential – value of the habitat in the impugned coupes to the Greater Glider. These matters support a conclusion of significant impact.

1443 The next matter is the habitat value in a qualitative sense of the Logged Glider Coupes and the Scheduled Coupes. In Appendix 1 to his first report, the descriptions applied by Dr Smith, in relation to the native forest in the Logged Coupes and Scheduled Coupes, based on his own observations, included, consistently, "high quality", "important and critical", "exceptionally abundant large old senescent trees with hollows", "abundant pole sized stems (40 – 80 cm diameter) ideal for glider movement and feeding", "high quality mixed species uneven aged old growth", "structurally suitable habitat for Gliders feeding above the understorey", "unusual abundance of dead stags", "suitable structure for gliding and feeding and abundant hollows", "uneven aged old growth on both coupes with abundant large old senescent Gums and Stringybarks scattered across the coupes", "important fire refuge areas", "[o]ld growth habitat is particularly abundant in the general area making it an important fire refuge area", "open grown Ash with early hollow development" and "uneven-aged old growth with living senescent old growth trees with hollows".

1444 I am comfortably persuaded on the basis of Dr Smith's evidence that the predominant quality of the habitat for Greater Glider in the Logged Glider Coupes, and in the Scheduled Coupes, was and is high. The habitat was therefore important. It can be justifiably described as "critical", given the evidence about the diminution of old-growth forest, the slow development of Mixed Species forest with sufficient hollows, and the numbers of hollow-bearing trees per hectare required for high densities (and therefore more robust populations) of Greater Glider. Destruction of this kind of habitat, combined with the removal of it as potential habitat critical for the Greater Glider in the future (see below) is a contributing factor to my conclusion of significant impact.

1445 The forestry operations will, on the evidence, remove the habitat in the impugned coupes from regrowing to the same level of suitability for and use by the Greater Glider, because, as Dr Smith pointed out many times in Appendix 1, the harvesting rotations (of 80 years or less) are too short to allow that to occur. Thus the quality of this habitat to support Greater Glider is

unlikely to be regained. That is a factor which contributes to the significance of the impact of the forestry operations, particularly in circumstances where, as noted by Dr Smith and supported by Tyndale-Biscoe's *Life of Marsupials* (on which Mr McBride relied), there is no guarantee that Greater Glider will move into new areas of habitat or recolonise coupes post-harvesting.

The CAR reserve system does not ameliorate the impact from forestry operations to bring it below significant

1446 As it did with the Leadbeater's Possum, VicForests (relying on Dr Davey's opinions) contended that the amount of habitat available for the Greater Glider within the reserve system rendered any impact from its forestry operations in the impugned coupes (and, it seemed to be contended, more generally from its forestry operations in the Central Highlands region) not a significant one. I do not accept that contention. First, it is inconsistent with the Conservation Advice, on which I place weight. In particular, I note again that the Conservation Advice identified the need to assess the relative effectiveness of threat mitigation options as a priority and certainly did not take the approach that, because of the CAR reserve system, that need was somehow diminished.

1447 Second, if it were correct, the Greater Glider population would not be experiencing the population decline it is, because (on this hypotheses) the robust and non-impacted populations in the reserve system would be growing so much that there was no concerning level of population decline. Neither VicForests nor its experts made any such suggestion. Thus, the premise of the contention (that there are stable and robust populations in the reserve system) is not made out on the evidence. A proposition to this effect was put to Dr Smith in cross-examination:

> I want to suggest to you that the conservation advice does not mention, in the evidence upon which it relies, the known regions and sites where greater glider populations are relatively stable and not in decline, many of which are now in the reserve system. Do you disagree with that proposition?---I am not aware of any surveys which have identified stable large populations which are not in decline. You would need to point me to that reference.

1448 No reference was provided. While Dr Smith did not dispute – and I accept – that there are populations of Greater Glider within the reserve system in Victoria, there is no evidence to suggest they are not experiencing any population decline. Indeed, since as the evidence demonstrates huge swathes of the reserve system have been burned in wildfires, it is something of an illogical proposition. This line of argument is another example of VicForests' case failing

to take into account the whole of the ecological context in which the Greater Glider as a species exists, including its extreme susceptibility to destruction and decline by wildfire. That is an important part of the context of assessing significant impact from forestry operations. These matters cannot be compartmentalised.

1449 A further factor affecting the capacity of the reserve system to be a panacea for the impact of forestry operations in native forest on the Greater Glider (and indeed on hollow-dependent species) is the manner in which the conduct of forestry operations fragments the reserve system and isolates Greater Glider populations from one another. Dr Smith explained this in his oral evidence:

> So absent fire or predation, there's no reason why the population of greater gliders within the reserve system should be vulnerable in any way?---No, I don't entirely agree with that because the reserve system is isolated and fragmented, so that if you remove the habitat in the matrix that the reserve system is embedded in, you remove the capacity for genetic exchange between glider populations within those isolated reserves. And in the event of, say, climate change, cooling or warming, and you need to maintain full genetic diversity in your populations, you may lose that capacity, and some of those populations may die out through inbreeding or loss of genetic diversity in the long term. So in my view, it is a risk to rely totally on a fragmented reserve system for conservation.

1450 I note again the flaw in the line of argument underpinning the cross-examination. To commence with "absent fire or predation" (the other recognised threats to the Greater Glider) is to remove the question of significant impact from its proper context, which is native forest as a functioning ecosystem.

1451 For completeness, as Dr Smith also pointed out in cross-examination, several surveys undertaken by him and Dr Lumsden included areas within national parks.

Conclusion: the Greater Glider

1452 One of the observations made by Dr Smith in his first report is:

> We are now at the point where the same mistakes that were made with respect to Leadbeater's Possum can and are being made with respect to the Greater Glider, potentially driving it from vulnerable to endangered.

1453 Based on the views I have formed of the evidence, that observation has force. The evidence of Professor Woinarski paints a grim picture for the Leadbeater's Possum: if the present trajectory continues, it may well become extinct in the wild. The statutory concept of significant impact in Pt 3 is not limited to avoiding, or attempting to mitigate the likelihood of, such extreme situations. It is a flexible and adaptable concept, designed to be applied in particular factual

circumstances to advance the relevant objectives of the EPBC Act, which as I have explained are not restricted to ensuring that a listed threatened species does not move from one threatened category to a worse one.

1454 Thus, there is room for more optimism for the Greater Glider if the threats to its survival and recovery in the wild are mitigated. There can be no doubt that forestry operations are one of the key threats. The forestry operations impugned in this proceeding are geographically and numerically extensive, covering 66 coupes and, by my calculations, approximately 2,400 ha. At that landscape level, VicForests' forestry operations are likely to have had, and to have, a significant impact on the Greater Glider for the reasons I have explained. It is also the case that, because of the particular qualitative characteristics of the native forest in the Logged Glider Coupes and the Scheduled Coupes, an impact of that nature is also likely to have occurred, or likely to occur, at a coupe-by-coupe level.

CONCLUSION ON SIGNIFICANT IMPACT

1455 As I have found, in relation to the Logged Coupes, the undertaking of forestry operations in each coupe constituted the taking of an action for the purposes of s 18 of the EPBC Act. At that level, in each of the Logged Glider Coupes and the Logged Leadbeater's Possum Coupes, I am satisfied those forestry operations are likely to have had a significant impact on the Greater Glider as a species and the Leadbeater's Possum as a species. Further, at that level, in each of the Scheduled Coupes, I am satisfied those forestry operations are likely to have a significant impact on the Greater Glider as a species; and, at that level, in each of the Scheduled Leadbeater's Possum Coupes, I am satisfied those forestry operations are likely to have a significant impact on the Leadbeater's Possum as a species.

1456 The intensity of the impact is magnified if the matter is assessed at the geographical coupe group level, or at the totality of the impugned coupes level. I have explained why that is so.

1457 I rely upon the findings I have made on various aspects of the evidence for my conclusion at the individual coupe level. However, it is appropriate to set out those findings at the individual coupe level, as the parties addressed the matter in detail at that level. I do so in Table 14 below. In general, I have accepted the contentions of the applicant and the evidence on which they are based. That includes giving significant weight to the opinions of Dr Smith and Professor Woinarski, including what they said about individual coupes. The fact that there were a small number of coupes which either they did not visit, or about which they did not express an opinion of significant impact, does not persuade me no findings of significant impact should

be made in those coupes. The more general level findings I have made are in my opinion equally applicable to such coupes, and I have – as I have indicated – given weight to the fact that there are detections of one or both species in or close to each of the 66 impugned coupes, as well as clear evidence about the nature of the suitable habitat present in all of the coupes. It is not the case that any of the 66 impugned coupes has been established to have been included by mistake, or to have some defective evidentiary basis.

Table 14: Summary of findings

Coupe Group	Coupe Number	Coupe Name	Logging Status	Reason s 38 exemption lost	GG SI	LbP SI
Acheron	309-507-0001	Mont Blanc	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Acheron	309-507-0003	Kenya	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Acheron	307-507-0004	The Eiger	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Acheron	309-507-0007	White House	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Ada River	348-517-0005	Tarzan	Logged	Clause 2.2.2.2 (PP)	Yes	No
Ada River	348-518-0004	Johnny	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Ada River	348-519-0008	Turducken	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Ada Tree	344-509-0009	Ginger Cat	Logged	Clause 2.2.2.2 (PP) Failure to screen Failure to keep gaps under 150 m	Yes	Yes
Ada Tree	348-506-0003	Blue Vein	Logged	Clause 2.2.2.2 (PP) Failure to protect Zone 1A habitat	Yes	Yes
Ada Tree	344-509-0007	Blue Cat	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Baw Baw	483-505-0002	Rowels	Logged	Clause 2.2.2.2 (PP)	Yes	No

Baw Baw	483-505-0018	Diving Spur	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Beech Creek	300-524-0002	Waves	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Beech Creek	300-539-0001	Surfing	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Big River	290-527-0004	Camberwell Junction	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Big River	290-525-0002	Vice Captain	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Cambarville	312-510-0007	Bromance	Logged	Clause 2.2.2.2 (PP)	Yes	No
Cambarville	312-510-0009	Lovers Lane	Logged	Clause 2.2.2.2 (PP)	Yes	No
Coles Creek	297-538-0004	Home & Away	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Hermitage Creek	307-505-0011	Guitar Solo	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	Yes
Hermitage Creek	307-505-0001	Drum Circle	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Hermitage Creek	307-505-0009	Flute	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Hermitage Creek	307-505-0010	San Diego	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Kalatha Creek	298-509-0001	South Col	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Loch	462-507-0008	Estate	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Loch	462-506-0019	Brugha	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Loch	462-507-0009	Jakop	Scheduled	Clause 2.2.2.2 (PP)	Yes	No

Matlock	317-508-0010	Swing High	Logged	Clause 2.2.2.2 (PP)	Yes	Yes
Mount Bride	345-526-0003	Louisiana	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Mount Bride	345-526-0004	Bourbon Street	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Mount Despair	298-516-0001	Glenview	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Mount Despair	298-519-0003	Flicka	Logged	Clause 2.2.2.2 (PP) Failure to screen	Yes	No
Mount Despair	298-502-0003	Chest	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Mount Despair	298-510-0003	Bridle	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
New Turkey Spur	348-515-0004	Greendale	Logged	Failure to screen Failure to keep gaps under 150 m	No	Yes
New Turkey Spur	348-504-0005	Gallipoli	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Nolans Gully	297-505-0001	Goliath	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Nolans Gully	297-509-0001	Shrek	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Nolans Gully	297-509-0002	Infant	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Nolans Gully	297-511-0002	Junior	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Noojee	462-504-0004	Skerry’s Reach	Logged	Clause 2.2.2.2 (PP) Failure to protect mature Tree Geebung	Yes	Yes

				Failure to screen		
Noojee	462-504-0009	Epiphanie	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Noojee	462-504-0008	Loch Stock	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Rubicon	288-516-0007	Golden Snitch	Logged	Failure to keep gaps under 150 m	No	Yes
Rubicon	288-516-0006	Hogsmeade	Logged	Failure to keep gaps under 150 m	No	Yes
Rubicon	287-511-0006	Houston	Logged	Failure to keep gaps under 150 m	No	Yes
Rubicon	287-511-0009	Rocketman	Logged	Failure to keep gaps under 150 m	No	Yes
Salvage Creek	463-504-0009	De Valera	Logged	Failure to screen Failure to keep gaps under 150 m	No	Yes
Snobbs Creek	288-505-0001	Dry Spell	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Snobbs Creek	288-506-0001	Dry Creek Hill	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
South Noojee	462-512-0002	Backdoor	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
South Noojee	463-501-0005	Lodge	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Starlings Gap	345-503-0005	Bullseye	Logged	Failure to screen	No	Yes
Starlings Gap	345-505-0006	Hairy Hyde	Part logged, part scheduled	Clause 2.2.2.2 (PP) Failure to identify Leadbeater's Possum colony	Yes	Yes
Starlings Gap	345-506-0004	Opposite Fitzies	Logged	Failure to screen	No	Yes
Starlings Gap	345-504-0003	Smyth Creek	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes

Starlings Gap	345-504-0005	Starlings Gap	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Starlings Gap	345-505-0009	Blacksands Road	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Sylvia Creek	297-526-0001	Gun Barrel	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Sylvia Creek	297-530-0001	Imperium	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
Sylvia Creek	297-530-0002	Utopia	Scheduled	Clause 2.2.2.2 (PP)	Yes	Yes
The Triangle	317-508-0008	Professor Xavier	Logged	Failure to screen Failure to keep gaps under 150 m	No	Yes
Torbreck River	312-007-0014	Skupani	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Torbreck River	312-508-0002	Splinter	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Torbreck River	312-503-0002	Bhebe	Scheduled	Clause 2.2.2.2 (PP)	Yes	No
Torbreck River	312-002-0006	Farm Spur Gum	Scheduled	Clause 2.2.2.2 (PP)	Yes	No

THE SCOPE OF S 475(2)

1458 The debate between the parties about s 475(2) of the EPBC Act is not engaged by reason of the findings I have made about the Scheduled Coupes, and also because I have rejected VicForests' submissions that its proposed forestry operations in the Scheduled Coupes are too uncertain and speculative to be the subject of any findings either in relation to s 38 or in relation to s 18.

1459 However, I do accept the thrust of VicForests' contentions about s 475(2). I accept the Act intends there to be a correlation between offence or other contravention and the injunctive relief granted. That is apparent from at least two textual matters: first, the use of the phrase "conduct constituting" and second the use of the phrase "the conduct" at the end of s 475(2). The conduct said to be the contravention is the conduct the Court has power to restrain. That is not to say that in certain factual circumstances, the Court is limited to granting injunctive relief which precisely correlates with the conduct constituting the contravention. However, the premise of s 475(2) is that there must be substantial equivalence before the power arises.

1460 I do not accept the applicant's contention that the use of "has engaged, is engaging or is proposing to engage" supplies an alternative construction. The use of the past tense indicates that the taking of an action may be incomplete, or may be undertaken in stages. There must nevertheless still be conduct in the future which is sought to be restrained, and that conduct must (relevantly) be the conduct said to constitute the contravention. That conduct will, under the scheme of the Act, be framed by reference to the taking of an action. Therefore the scope of s 475(2) will depend on how the action is described or characterised.

1461 So, relevantly here, as VicForests submits, if there was only a finding of contravention of s 18 as to the taking of an action in each of the individual Logged Coupes, the power in s 475(2) would not arise in relation to the individual Scheduled Coupes, or the Scheduled Coupes as a whole. There would be no correlation between the action which is the contravention and the action sought to be restrained.

1462 However, where there are (as here) findings that the forestry operations in each, some or all of the Logged Coupes, and forestry operations in each, some or all of the Scheduled Coupes, have contravened or are likely to contravene s 18, there is no impediment to the power under s 475(2) arising. The question of whether it is appropriate to exercise it, and if so how, are matters on which the parties will be heard in due course.

1463 I also accept VicForests' contention that s 475(3) is an ancillary power, and the power arises if (and only if) an injunction has been granted under s 475(2). That is not to say, however, that the Court may not have the power to grant ancillary relief of the same kind under s 23 of the Federal Court Act. It would also not prevent an application for a remediation order under s 480A of the EPBC Act. If that matter arises in this proceeding the parties will have an opportunity to address the Court on it if the applicant seeks any such orders, once a concrete form of any such proposed orders is articulated.

SUBMISSIONS ON ORDERS

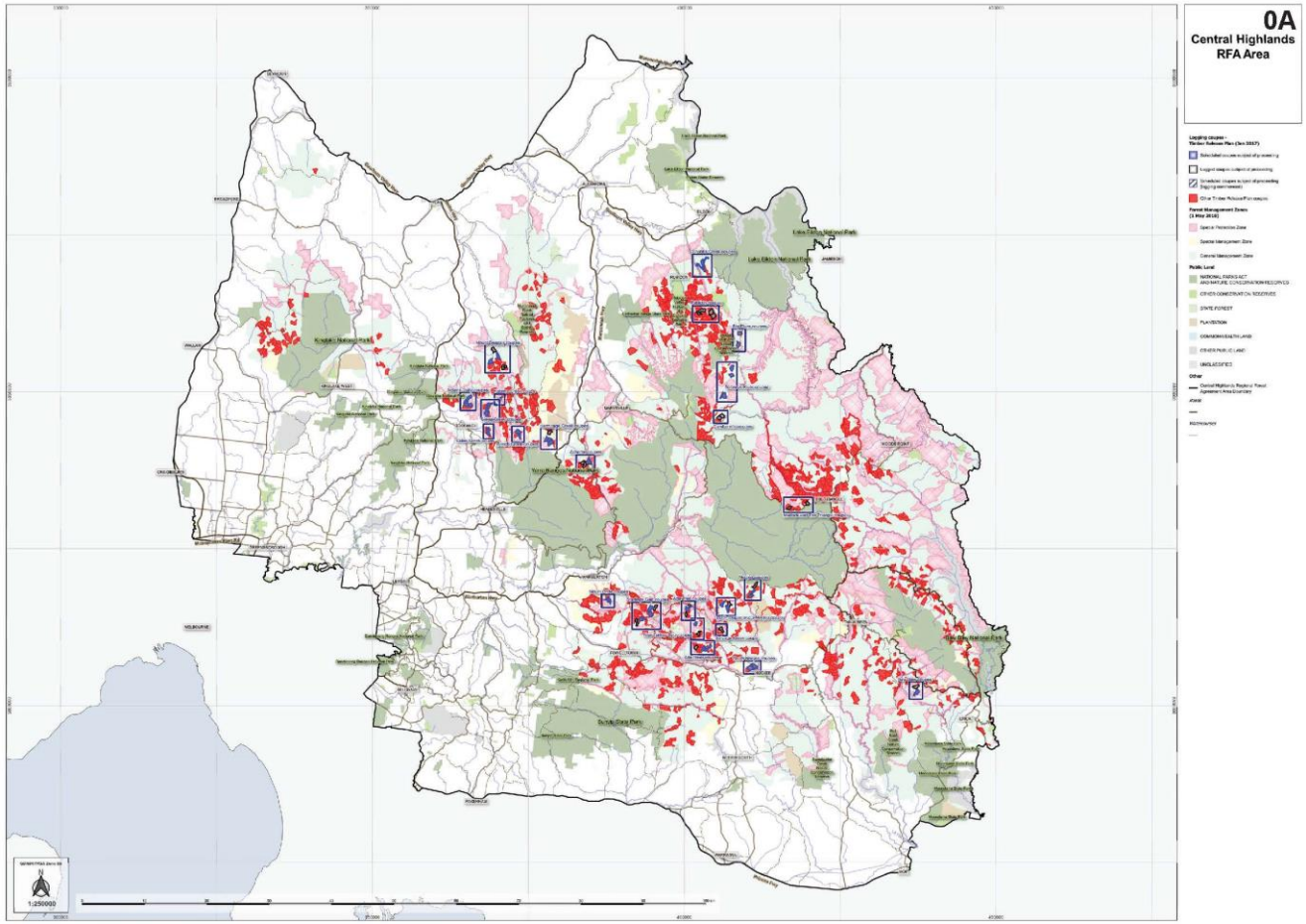
1464 The Court will give the parties an opportunity to attempt to agree on the appropriate orders the Court should make, given the conclusions it has reached. If there is no agreement, the parties will be able to file short submissions on appropriate orders.

I certify that the preceding one thousand, four hundred and sixty-fourl (1464) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Mortimer.

Associate:

Dated: 27 May 2020

ATTACHMENT A



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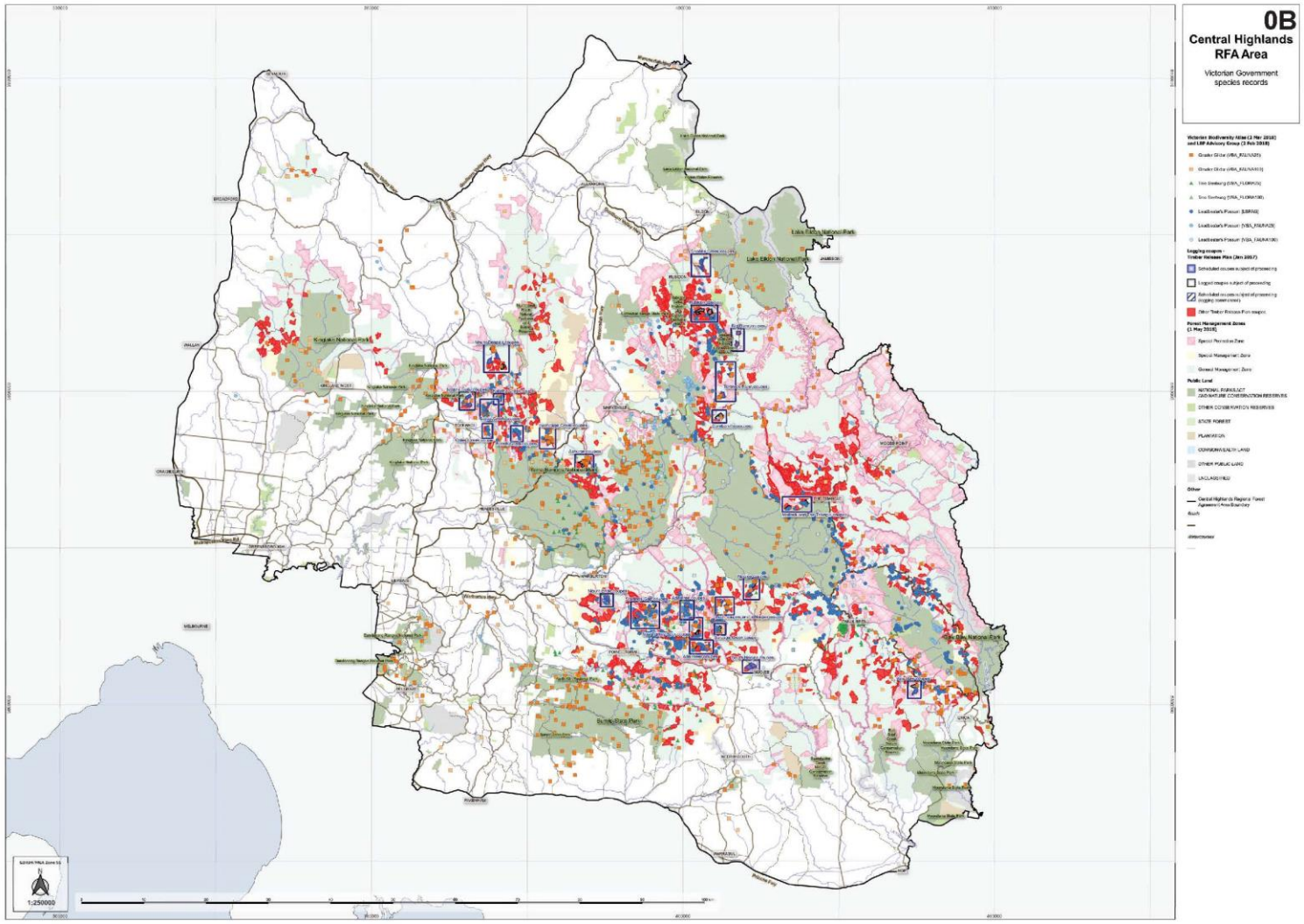
ATTACHMENT B



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