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Details of Filing

Document Lodged:	Submissions
File Number:	VID1228/2017
File Title:	FRIENDS OF LEADBEATER'S POSSUM INC v VICFORESTS
Registry:	VICTORIA REGISTRY - FEDERAL COURT OF AUSTRALIA

Dated: 7/08/2019 5:46:03 PM AEST Registrar

Important Information

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Federal Court of Australia No. VID 1228/2017

District Registry: Victoria

Division: ACLHR

FRIENDS OF LEADBEATER'S POSSUM INC

Applicant

and

VICFORESTS

Respondent

Applicant's Closing Submissions

A. Significance of s 475 for the resolution of issues in the liability phase of the proceeding

1. This is an application for injunctive relief under s 475 of the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* (**the Act**) and for declaratory relief pursuant to s 21 of the *Federal Court of Australia Act 1976* (Cth). Section 475(1) provides that:

> (1) If a person has engaged, engages or proposes to engage in conduct consisting of an act or omission that constitutes an offence or other contravention of this Act or the regulations:
>
> (a) the Minister; or
>
> (b) an interested person (other than an unincorporated organisation); or
>
> (c) a person acting on behalf of an unincorporated organisation that is an interested person;
>
> may apply to the Federal Court for an injunction.

i. Text of s 475

2. It is important to commence with the terms of s 475 because s 475 is the primary basis on which the Federal Court's jurisdiction is engaged and the primary basis on which relief may be granted in the proceeding. That jurisdiction may be engaged and that relief may be granted on the basis of past conduct ("has engaged"), present conduct ("engages") or future conduct ("proposes to engage").

3. If the Court is satisfied of *any* of those three alternative bases – past, present or future conduct – the Court may grant an injunction restraining the person from engaging in the conduct under s 475(2). It is clear from the express terms of s 475(2) that past conduct alone may form the basis on which an injunction is granted – it is not the case that an injunction can only be granted in respect of proposed conduct. If that were the case, s 475(2) would read "[i]f a person is proposing to engage in conduct constituting an offence or other contraventions of this Act or the regulations, the Court may grant an injunction restraining the person from engaging in the conduct". But that is not how s 475(2) reads – the reference to past and present conduct in s 475(2) must be given work to do.

4. It is consistent with that construction that s 475(3) allows orders for repair or mitigation where an order under s 475(2) is made. Orders for repair or mitigation would not be necessary if only proposed conduct was restrained – s 475(3) clearly contemplates that orders may be made under s 475(2) in respect of both past and present conduct.

5. There was some debate during the course of the hearing as to whether the tense of s 38 had any significance for the operation of s 475 (TS 730.1-731.43). Given the place of Part 4 in the scheme of the Act, which is concerned with the regulation of proposed actions, the proposition that the benefit of s 38 cannot be lost in respect of proposed conduct, i.e. conduct proposed to be taken not in accordance with a Regional Forest Agreement (**RFA**) is without any proper basis. By definition, the proposed action to be restrained is **not** an action that is entitled to the benefit of the s 38 exemption. As a consequence the proposed "action" is an action to which Part 3 of the Act is directed.

6. Simply because the proposed action may (unsuccessfully) be sought to be characterised by the proponent as exempt by operation of s 38 cannot deprive the Court of the jurisdiction conferred upon it by s 475. If the benefit of s 38 were only capable of being lost *after* conduct was taken and was not capable of being lost either in respect of proposed actions or ongoing actions, two of the three limbs of s 475 would be left without scope of operation. In terms of its objectives, the intended protective operation of the **Act,** and in particular Part 3 and Chapter 4, would be **entirely** defeated.

7. The Applicant submits that the starting point for the Court is s 475. It is clear from the terms of s 475(1)-(3) that an application under s 475 may be made in respect of any or all of present conduct (ongoing), past conduct and/or future conduct. This context should frame how the Court looks at the issues raised in such an application.

ii. Application of s 475 to past and proposed conduct

8. To some extent, questions relating to s 475 are questions to be dealt with in the relief phase, rather than the liability phase. However, it is important to emphasise at the outset that <u>past conduct</u> may form the basis of relief under s 475(2). At trial, VicForests emphasised that, absent an entitlement to s 475 injunctive relief, the Court is powerless to grant declaratory relief (T88.21-29; T666.13-21).

9. That submission must fail because s 475(2), in its terms, applies to past conduct.

10. In any case, irrespective of s 475 of the Act, s 21 of the *Federal Court Act* provides an independent source of power upon which the Court may rely to grant declaratory relief.

The power in s 21 is not conditioned upon another statutory based power, nor is it excluded by any provision in the EPBC Act. Section 21 is a power independently conferred on the Court under the constituting statute of the Federal Court.

11. Separately, it is important to stress at the outset that s 475 is intended to operate in respect of proposed conduct.

12. Much of VicForests' defence has been premised on an argument that the claim for relief is premature as the proposed conduct has not yet occurred. This approach is entirely inconsistent with fact that one of the fundamental premises and purposes of the Act is to deal with conduct that has not yet occurred:

    a. Part 3 of the Act provides for conduct that a person must not take without approval. The present case is concerned with action that has or will have or is likely to have a significant impact on listed threatened species in the vulnerable and critically endangered categories.

    b. Chapter 4 of the Act provides for the assessment and approval of actions that Part 3 prohibits without approval, in order that approval may be given in appropriate circumstances. Such actions are defined as "controlled actions". The definition of controlled actions is in s 67, which provides that:

        > An action that a person proposes to take is a ***controlled action*** if the taking of the action by the person without approval under Part 9 for the purposes of Part 3 would be… prohibited by the provision. (underlined emphasis added)

    c. It is clear from these provisions that the regulatory scheme is one that contemplates the regulation of conduct that has not yet occurred – i.e. proposed conduct. In this respect, the purpose of the Act is to ensure that action that would have the relevant impact on the environment is subject to the scrutiny of the federal Minister before it is taken, if it is permitted to be taken at all. This scheme prioritises the prevention of environmental damage over the punishment of conduct that causes such damage.

13. 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).

iii. No lack of evidence in respect of proposed conduct

14. There is no lack of evidence as to which harvest method will be deployed in each coupe when the planned harvesting takes place.

15. The Timber Release Plan (**the TRP**) (CB 6.8A-B) makes the harvest method to be deployed for each coupe explicit, particularly given that it was re-gazetted in April 2019 and the methods designated for the Scheduled Coupes were not amended. The TRP proposes conduct – it is required to (and does) include a schedule of coupes *selected for timber harvesting* and detail the location and approximate timing of timber harvesting in the proposed coupes: s 37(1) of the *Sustainable Forests (Timber) Act* 2004 (Vic) (CB 6.6-6.8A).

16. If the Court rejects the TRP as the best evidence, and accepts the evidence that the 31 May 2019 Draft version of VicForests Harvesting and Regenerations Systems document "Version 1.1 Revised Draft for review and stakeholder input" (Doc 12.2) will be adopted and implemented by VicForests, the evidence shows that, in any event, there will be no departure from the methods designated in the 2019 TRP. This is because:

    a. Mr Paul categorically ruled out the use of single tree selection, the selection harvest method described in section 1.4 of the 31 May 2019 document (CB 12.2) as the method for any of the scheduled coupes (T316.1-.11);

    b. there is no substantive difference between the traditional methods of clearfell, seed tree and regrowth retention harvesting (**RRH**), and the methods described in the most recent 31 May 2019 Draft version of VicForests Harvesting and Regenerations Systems document "Version 1.1 Revised Draft for review and stakeholder input" (Doc 12.2). Indeed the methods in that draft provide for *more intensive* harvesting than the traditional methods. This is addressed in detail below at [69]-[105].

    c. Earlier versions of the Systems Document proposed an additional method, method 4, including in the March 2019 version of the document (CB 4.11.2.3) which provided for 50% retention. That proposed method which might, if

applied, have resulted in a "new" method has now disappeared entirely (Paul, T317.4-.26).

17. There is no relevant difference between the traditional methods and the proposed new methods (i.e. they are all high intensity methods and the new methods do not make a relevant difference to the impact on the Greater Glider or the Leadbeater's Possum). For this reason they are collectively referred to as "**high intensity forestry operations**" throughout these submissions. Whichever of the methods is chosen, it will cause the relevant damage or have the relevant impact, such that an injunction should issue.

18. The Applicant's case in this respect is founded in and proved by the evidence of Mr Paul, VicForests' own documents, including the 31 May 2019 document (CB 12.2), and the evidence of what VicForests has been doing and is continuing to do on the ground in coupes where Greater Gliders have been reported sighted, sightings the accuracy of which VicForests accepts. The evidence of Mr Paul, the face of VicForests in the litigation (Paul T182), was unequivocal. Expressly invited to do so, VicForests through its authorized representative and spokesperson, Mr Paul, refused to undertake to the Court that it would not use the old methods, clear fell, seed tree retention or RRH on the scheduled coupes (T325.5-.25). It is not hard to understand why Mr Paul refused to give such an undertaking in June 2019. The traditional methods are the only methods VicForests has been using since August 2018 on coupes in the CH RFA where Greater Gliders and Leadbeater's Possums have been detected and VicForests has been on notice of their detections (T321.10-.48). There is ample evidence that VicForests has been using only the traditional methods (discussed below at [345]-[359]), and will continue to use the traditional methods, even if rebadged for the purpose of seeking to obtain FSC certification.

19. To the extent that there is any lack of evidence, there is a lack of evidence that VicForests will do anything to lessen the damage caused to the Greater Glider and impact on the Greater Glider and Leadbeater's Possum. VicForests makes many assertions but does not back these up with evidence.

B. Section 38 and loss of exemption by reason of breaches of the Code

20. 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.

21. Before turning to the question of significant impact under s 18, it is necessary to first address how and why the exemption under s 38 of the Act has been lost in respect of both the relevant past conduct and the proposed conduct subject of the pleaded case.

22. Part 4 of the Act provides that certain conduct is exempt from the prohibition on taking action without approval. As held in the Separate Question Reasons (*Friends of Leadbeater's Possum Inc v VicForests* 260 FCR 1 (2018) (**s 38 Reasons**) at [189] [195(b)] [220-221]), that is because conduct that is exempted under Part 4 takes place in accordance with a substitute scheme of regulation, such that approval by the Minister is not required.

i. Section 38 and issues of construction

23. Section 38 of the Act provides that:

> **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:
>
> a. ***RFA*** or ***regional forest agreement*** has the same meaning as in the *Regional Forest Agreements Act 2002*.
>
> b. ***RFA forestry operation*** has the same meaning as in the *Regional Forest Agreements Act 2002*.

24. There are two issues of construction raised by this section.

25. The first issue is what is "an RFA forestry operation". "RFA Forestry operation" is defined in the Act as having the same meaning as in the *RFA Act 2002* (Cth) (**the RFA Act**).

26. As was the subject of debate during the hearing, the RFA Act does not include a definition of "an RFA forestry operation" but only "RFA forestry operations", which are relevantly defined in s 4 of the RFA Act as:

> (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).

27. The Central Highlands RFA (**the CH RFA**) (CB 6.12, pdf p 5) defines forestry operations as meaning:

> (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.

28. 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.

29. If "forestry operation" is to be interpreted as broadly as any one (or more) of the planting, managing or harvesting of trees for a commercial purpose, what is the Court required to focus on to determine the question of whether or not there has been a loss of exemption?

30. The Applicant submits that that question is answered by focusing on the balance of s 38. That is, the question of whether a forestry operation is "undertaken in accordance with an RFA".

31. Where the planting, managing or harvesting of trees is <u>not</u> undertaken in accordance with the substitute scheme of regulation accredited by the CH RFA, the exemption will be lost.

32. The extent to which the exemption is lost will be determined by the nature of the breach.

    a. Where VicForests has made a management decision that constitutes a breach of cl 2.2.2.2 in respect of the Greater Glider across the Central Highlands (e.g. the Interim Greater Glider Strategy), the exemption will be lost in respect of all

management of trees across the Central Highlands where the Greater Glider is or may be present (or alternatively, where it is threatened with serious or irreversible damage). The failure to comply with cl 2.2.2.2 in the management of trees in this respect is a failure that will necessarily flow into the harvesting of trees because VicForests, having failed at the management of trees stage, will, as a direct consequence, not take a precautionary approach to harvesting with respect to the Greater Glider.

b. Where VicForests fails to comply with a prescription in harvesting a coupe (e.g. a failure to comply with cl 2.2.2.2 in the silviculture method used or proposed to be used as designated in the TRP or listed in the coupe plan, or a failure to identify and protect mature Tree Geebung in accordance with cl 2.2.2.4 of the Code of Practice for Timber Production 2014 (**the Code**) and cll 4.2 and 4.3 of the Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2014 (**the Management Standards**)) the exemption will be lost in respect of the forestry operation of harvesting the coupe in question.

33. While coupes do not define forestry operations, they are an incident of the management and harvesting of trees. Thus the exemption may be lost over the area of a coupe when the management or harvesting in question that breached the Code related solely to that same individual coupe. However, there is no necessary correlation between the loss of an exemption and the geographical confines of a particular coupe.

34. The Applicant submits that in each instance the exemption is lost for all purposes in respect of the forestry operation in question – whether it be all forestry operations nominated in the TRP where the Greater Glider is or may be present or seriously/irreversibly damaged, or whether it be on an individual coupe where there was a breach as to a mature Tree Geebung. Section 38 does not limit the purpose for which the exemption is lost. For example, loss of exemption due to a failure to comply with a mandatory Code provision concerning mature Tree Geebung in a specific coupe means loss of the exemption for that coupe for all purposes.

35. That does not mean, however, that that forestry operation will be required to be referred to the Federal Minister for approval. It is only where there is a real question as to whether an "action" has had, will have or is likely to have a consequence that is notable, important or of consequence that the loss of exemption will have any

consequence (in the Tree Geebung example, for that specific coupe), because it is only in those circumstances that the proposed action will need to be referred to the Minister or risk contravention of s 18.

36. Whilst the evidence at trial establishes that, as a matter of law, the exemption was lost for all of the coupes in the CH RFA where Greater Glider is or may be present (or seriously/irreversibly damaged), when:

    a. each of the 2017 and the 2019 TRP was made without applying cl 2.2.2.2;

    b. The Pre-harvest Biodiversity Survey Instruction was drafted without applying cl 2.2.2.2;

    c. The Interim Greater Glider Strategy was made without applying cl 2.2.2.2 (all of which is discussed below),

    the relief claimed by the applicant in the proceeding is more limited. The relief claimed is confined to the logged coupes and the scheduled coupes.

37. The manner in which the Applicant's case is pleaded is that:

    a. The management of and harvesting of the trees in the logged 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 scheduled 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 scheduled 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.

38. The construction advanced by the Applicant in respect of s 38 is consistent with the reasoning in the s 38 Reasons, which is to the effect that actions will be exempt from the operation of federal law where they accord with a substitute scheme of regulation: s 38 Reasons at [146-149], [189], [195(b)] and [220-221]. The converse is also the case.

39. Importantly there is nothing in the concept of an "RFA forestry operation" or in the balance of the text of s 38 that requires or even suggests that forestry operations are to be defined and confined by either the (artificial) geographical limits of a coupe boundary, or the temporal limits of the particular occasion of an aspect of the forestry operation. The relevant limit is the breach of the substitute scheme of regulation. In this case each of the breaches relied upon is of a mandatory provision in the Code forming part of that substitute system.[1]

40. Given the conclusions above, in order to identify with precision the conduct that is the basis of the Applicant's s 475 application (and will be the focus of the contravention of s 18(2) and (4) allegation), it is necessary to turn to the conduct that the Applicant alleges constitutes breaches of the Code.

41. A list of all coupes in the proceeding, and the Code breaches that are relied upon by the Applicant in each coupe, was set out in the table that was Annexure 1 to the written opening submissions filed by the Applicant. A table that provides coupe-specific evidence references relevant to Greater Glider allegations is **Annexure 1** to these submissions.

C. Failure to comply with cl 2.2.2.2 of the Code

i. State regulatory framework

42. Timber resources are allocated by the Crown to VicForests under Part 3 of the Sustainable Forests Timber Act 2004 (Vic) (**SFT Act**). The allocation orders relevant to this proceeding are at CB 6.4-6.5A.

43. Section 37 of the SFT Act requires VicForests to prepare a plan in respect of harvesting, selling and managing those timber resources, and to comply with any relevant codes of practice in making that plan. That plan is the TRP. The TRPs in this proceeding are at ASOF 1.3 at [4] and CB 6.8A, 6.8B.

44. Section 46 of the SFT Act requires VicForests to comply with any relevant code of practice relating to timber harvesting. The Minister of Environment makes the Code under s 37 of the *Conservation Forests and Land Act 1987* (Vic) (**CFL Act**), and the

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[1] The Applicant notes that s 40 of the Act is concerned with forestry operations where there is no RFA in place. It is not clear from the Explanatory Memorandum which accompanied clause 40 what s 40 was intended to achieve: *Explanatory Memorandum*, EPBC Bill, pdf p 38 [114]; see also *Supplementary Explanatory Memorandum*, EPBC Bill, which does not refer to these clauses.

Management Standards and Planning Standards for timber harvesting operations in Victoria's State forests 2014 (the **Planning Standards**) are incorporated into the Code pursuant to s 31(2) of the CFL Act. Variation of the Code can only occur in accordance with Part 5 of the CFL Act.

45. The Code sets out 'Code Principles', which express the broad outcomes of the intent of the Code, relevantly including that '[b]iological diversity and the ecological characteristics of native flora and fauna within forests are maintained' and that '[t]he ecologically sustainable long-term timber harvesting capacity of forests managed for timber harvesting is maintained or enhanced (CB 6.9 p26).

46. Under Code Principles, the Code provides that "*[t]imber 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 ... biodiversity, forested landscapes ... are avoided or minimised*" (CB 6.9 p26).

47. The Code then sets out Operational Goals that are aligned with each Code Principle, and Mandatory Actions to each Operational Goal. (CB 6.9 p27). Mandatory actions to achieve the goal of Conservation of Biodiversity (see section 2.2.2) include cl 2.2.2.2 (CB 6.9 p27).

ii. Correct test for cl 2.2.2.2

48. Clause 2.2.2.2 of the Code (CB 6.9, pdf p 34) provides that:

> *[t]he **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.*

49. The precautionary principle is defined by the Code (at pdf p 15) as follows:

> *when contemplating decisions that will affect the environment, the precautionary principle requires careful evaluation of management options 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.

50. It is the definition in the Code to which the Court must have regard when applying cl 2.2.2.2. The Court is familiar with the High Court authorities that dictate that the text, purpose and context must control the choice to be made by the Court.[2] For present purposes it is sufficient to go to one passage from *Baini v The Queen* (2012) 246 CLR 469, where Chief Justice French, Hayne, Crennan, Kiefel and Bell JJ stated at 476 [14] that:

> *… the fundamental point is that close attention must be paid to the language" of the relevant provision because "[t]here is no substitute for giving attention to the precise terms" in which the provision is expressed. Paraphrases of the statutory language, whether found in parliamentary or other extrinsic materials or in cases decided under the Act or under different legislation are apt to mislead if attention strays from the statutory text. These paraphrases do not, and cannot, stand in the place of the words used in the statute.*

51. That was a case in which it was argued that the phrase "substantial miscarriage of justice" should be given the same construction as in an earlier decision of the Court: *Weiss v The Queen* (2005) 224 CLR 300. However, the legislation had been amended in the meantime. The Court held that it was critical to look at the text of the provision as amended, not the earlier decision of the Court that concerned a different provision.

52. Because it is necessary to look at the text, purpose and context, the Applicant submits that cl 2.2.2.2 should be applied in its terms, and not by reference to the five step test adopted by Osborn J in *Environment East Gippsland v VicForest*s (2010) 30 VR 1 at [177]-[211], and in particular at [188].

53. The Applicant respectfully submits that his Honour was plainly wrong in adopting the five step test and in imposing as part of that test two preconditions, the imposition of which derives no support from the text of the Code, whether clause 2.2.2.2 itself or from the Code definition of "precautionary principle". The error was in approaching the

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2 *Lacey v Attorney-General of Queensland* (2011) 242 CLR 573 at [44]; *Certain Lloyd's Underwriters Subscribing to Contract No IH00AAQS v Cross* (2012) 248 CLR 378 at 389 [24]–[25] (French CJ and Hayne J); *Thiess v Collector of Customs* (2014) 250 CLR 664 at [23], (French CJ, Hayne, Kiefel, Gageler and Keane JJ)

task of construction not by reference to the text but by reference to earlier authority on a relatively similar but far from identical provision. His Honour adopted the test in and observations of Preston CJ in *Telstra Corporation Ltd v Hornsby Shire Council* (2006) 67 NSWLR 256 at 269 at [128]-[183]. But in *Telstra*, Preston CJ was concerned with different text and entirely different statutory scheme, s 6(2)(a) of the *Protection of the Environment Administration Act 1991* (NSW): Authorities Bundle (**AB**) 13 p4-5. It is evident that s 6(2)(a) is in very different terms to the definition of the precautionary principle in the Code and cl 2.2.2.2 of the Code.

54. To the extent, if any, that VicForests has engaged with the precautionary principle concerning the Greater Glider, it has done so in reliance upon the statement of Osborn J in *Environment East Gippsland* (see Exhibit 45, 3.4.42, "VicForests' Precautionary Approach to Biodiversity Management", January 2014, pdf p 891). As correctly conceded by Mr Paul, if Osborn J was incorrect in the required approach to the precautionary principle as set out in that decision, then VicForests (to the extent it has applied or purported to apply the precautionary principle at all) has acted on a wrong principle (Paul, T216.38-217.13).

55. 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.

56. The use of the adjectives "carefully", "wherever" and "properly" directs attention to the thoroughness required of the proponent of the action in order to comply. A cursory checklist or 'tick a box' approach will not constitute compliance. In this respect, reliance may be placed by the Court on High Court authority which has held that a statutory requirement to "consider" imports a requirement to give proper, genuine and realistic consideration – likewise a regulatory requirement to "evaluate" or "assess" requires proper, genuine and realistic assessment or evaluation: *Bondelmonte v Bondelmonte* (2017) 259 CLR 662 at [43].

57. Unlike in cases where prescriptions exist for threatened species, no prescription has been put in place since the Greater Glider was listed, and the CAR Reserve system, which purports to protect threatened species, was created before the Greater Glider was listed (as was the East Gippsland prescription in respect of the Greater Glider). Thus it cannot be said that the existing system and prescriptions provide for the management of the Greater Glider, in its current threatened state, in the Central Highlands region.

58. 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.

59. This question will be answered in this order:

    a. What were the decisions that VicForests made to select coupes for harvesting, to designate those coupes for harvesting by a particular silvicultural method, and as to prescriptions to protect Greater Glider?

    b. Do those silvicultural methods and (lack of/inadequate) prescriptions cause serious or irreversible damage to the Greater Glider?

    c. In making those decisions – i.e. selecting the coupes and silvicultural methods – did VicForests carefully evaluate management options and properly assess the risk-weighted consequences of those options to, where practicable, avoid that damage.

60. The Applicant notes that, although the approach outlined above represents the correct approach to applying cl 2.2.2.2, the Applicant can readily establish its case on the above approach or the approach adopted by Osborn J. Satisfaction of the Osborn J test is separately addressed below.

iii. What are the decisions made by VicForests that failed to comply with cl 2.2.2.2

61. In the course of conducting forestry operations, VicForests makes a range of decisions that affect the Greater Glider. The primary decisions in issue in this proceeding are the selection of the logged and scheduled coupes for harvesting, and the designation of silvicultural methods for those coupes.

62. In conducting forestry operations VicForests also makes a range of decisions as to how to determine and manage the presence of the Greater Glider. These decisions include:

a. VicForests Precautionary Approach to Biodiversity Management of January 2014" (Doc 3.4.45);

b. "Pre-Harvest Biodiversity Instruction" of June 2016 (CB 2.1.34);

c. The Interim Greater Glider Strategy (CB 2.1.33);

d. Coupe Reconnaissance Instructions of July 2016 (CB 3.4.37);

e. "TRP - Process for Preparation and Approval" (CB 3.4.13. pdf p 294-296)

f. Giant Tree Protection policy' (Paul (2) CB 3.4 at [114], [116-117]; Paul (3) CB 3.5; CB 3.5.96).

g. High Conservation Values document of 2017 (CB 3.6.120; and 8 March 2019 version at 4.12.2.3);

h. Harvesting and Systems Regeneration Document (8 Mar 2019 version at CB 4.11.2.3; 31 May 2019 version discovered on 2 June 2019 at 11.81; further 31 May 2019 version discovered subsequently at 12.2).

63. 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.

64. The Applicant contends that in all of these decisions VicForests has failed to comply with the precautionary principle.

1. Selection of coupes and identification of silvicultural methods

65. The decision to select the coupes and designate the methods for the logged and scheduled coupes was first made at the time that the 2017 TRP was gazetted.

66. The decision was remade when the April 2019 TRP was gazetted without any change to the methods designated for the scheduled coupes (notwithstanding VicForests' espoused commitment to shift to a move adaptive suite of methods and notwithstanding evidence earlier filed in this proceeding as to the sightings of Greater Gliders in the scheduled coupes and the accuracy of which VicForests accepts).

67. Decision-making at the level of the TRP is important to conservation of biodiversity values in the Central Highlands. It is at the TRP level that VicForests can more easily consider broader landscape issues such as habitat connectivity, corridors, large conglomerations of coupes, and the accumulation of existing logging history.

68. VicForests disputes that it is possible to identify the silvicultural method that will be used in any particular coupe and therefore submits that it is not possible for the Court to assess the damage or impact that will be caused in any of the scheduled coupes. However the Applicant submits that there is no relevant difference between the traditional methods and the proposed methods. That proposition is made good in the paragraphs that follow.

a. Traditional and proposed clear-felling/traditional seed tree retention

69. 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)).

70. 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).

71. 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.

72. 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).

73. 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).

74. 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).

b. Traditional regrowth retention harvesting/variable Retention Systems 1 and 2

75. 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).

76. Examples of coupes logged by RRH are Rocketman and Golden Snitch (CB 3.4.36, pp 4 and 8).

77. 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).

78. Davey accepted that the area that is harvested within RRH coupes is clearfelled and "is certainly intensively harvested" (TS 513.18-33).

79. 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).

80. 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.

81. 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.

82. 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).

c. System 4 – now abandoned

83. Earlier drafts of the new Systems document contained a System 4, which provided for 50% variable retention (March 2019 version CB 4.11.2.3 at p 16). That System does not form part of the 31 May 2019 version of the document (Paul, T317.4-.26).

d. Selection harvest systems, also called "group selection or single tree selection

84. 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.

85. 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.

e. Traditional high intensity burns

86. High intensity burns are normal practice in each of the traditional methods. The experts said that high intensity burns kill or damage retained hollow-bearing trees – making them likely to die or fall over before the surrounding forest regrows to an age that Greater Gliders can use for landing (Smith (1) CB 4.2.1 p68). Trees witnessed on the view as apparently experiencing "die back" included trees that had not survived post harvest "controlled burns".

87. Although the new systems document states that there will be an increasing preference for

cooler burns, the only possible benefit in this respect will be that hollow-bearing trees may not be killed. Accordingly this adjustment will only bring VicForests closer to complying with existing regulations which they are currently breaching (i.e. failing to properly retain habitat trees).

f. Application of prescriptions in new Systems document by reference to gross coupe area

88. 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).

89. 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).

g. Retained trees are no improvement over the Code and patches are subject to harvesting

90. In relation to retained trees, the "prescriptions" for Variable Retention Systems 1 and 2:
    a. Do not specify any minimum number of habitat trees to be retained per hectare in the logged parts of the coupe in excess of the Code requirements;
    b. Reiterate the existing Code prescription as to how retained trees are to be spaced (150m),

    together, this permits trees to be retained at the same numbers and spatial arrangement as under traditional methods.

91. As the Court observed on the view at Greendale coupe - an evaluation site for the new clearfelling and seed tree operations – there were no retained trees at all in the harvest unit, despite the "prescriptions" for this System that state "where two or less habitat trees per hectare are present, retain habitat trees", and "use 2-1 habitat tree retention", and which apply equally to Variable Retention Systems 1 and 2 (CB 12.2 pdf p21-25). In cross-examination Mr Paul was asked whether he accepted that there were no habitat trees or recruitment trees retained in the harvest unit of Greendale. He responded that he could not remember exactly, it was possible, possibly not in the harvested area, but there's certainly area around the outside within the gross coupe boundary that's retained (T307.12-17)
92. This appears to confirm that it is permissible under the new systems to apply the habitat tree "prescriptions" in place for clearfelling and seedtree operations, and Variable Retention Systems 1 and 2 in the same manner as existing practice – i.e. to count habitat tree retention in exclusion areas across the gross coupe boundary rather than require retained trees in the harvest unit.
93. By contrast, Dr Smith said gaps between retained trees in small gap clearfelling should be 50-100m (Smith (4) CB 4.12.1 p15).
94. Mr Paul was asked how it was that the Variable Retention System 2 is tailored to or takes into consideration the for the Greater Glider to glide between tall trees and then have a landing tree with a 40cm trunk. Mr Paul said that level of detail was not in there and it was a higher level document. He said there will be more detailed prescriptions built into it and said Castella coupe as an example the trees were approximately 30 to 40 m apart and were all of reasonable size for that species to move between. Pressed that there was nothing in the document that says in terms of spacing one should factor

in what he had just said, Mr Paul said 'no the document doesn't seem to say that specifically' (T319.26-37).

95. It was put to Mr Paul that the prescription for an additional 20 habitat trees to be retained is across the gross coupe area. Mr Paul responded "wherever they exist" (T319.13-17). This means that if VicForests identify 20 habitat trees in the gross coupe area within areas already excluded from harvesting or within the 15% to be retained of the areas not otherwise set aside, those trees can be counted to meet the requirement to retain 20 "additional" habitat trees. It therefor changes nothing in terms of how the coupe would be logged on the ground.
96. Retained patches are permitted to be harvested under the new systems. Firstly, it was apparent at Castella that the "retained area" in that coupe was in fact designated for logging *in that rotation* (CB 12.7). This means that VicForests considers it permissible to harvest the retained areas under its new systems.
97. Secondly, unlike the regrowth retention harvesting document which specified that retained areas must be protected for 1 rotation (nominally 60 years in Ash), by contrast all 4 iterations of the Systems document before the Court did not include any specification for the period that retained areas must be protected.
98. Thirdly, Baker's evidence was that Systems 3-5 (in the March iteration, which became only Variable Retention System 2 and System 4 in the May iteration), are all aimed at shifting forests further towards multi-cohort stands, and ordinarily that means re-entering every 10, 15 20 years. In providing VicForests' feedback on its proposed new systems, Baker had asked VicForests whether it was planning to do "multiple entries" to make up for reduced harvest areas (CB 11.94; T655.33-657.7). He said when you move to uneven-aged or multi-cohort forest silviculture, you're leaving some trees. He said typically the way we would do multi-aged uneven-aged silviculture is that you would come back every 10, 15, 20 years. That's what he referred to as "multiple entries". He said the hectare you harvested today, that would be left until 60, 70, 80 years. But the idea is that you come in with less intensive operations but you are doing them more frequently (T657.14-28).
99. Smith was of the view that the proposed new 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. They represented little or no improvements over current inadequate practice (Smith (4) CB 4.12.1 p7).

h. What would be a different method?

100. The Applicant does not contend that forestry operations must cease in their entirety. The Applicant submits that there are methods and prescriptions that would permit forestry operations to take place with less impact on the Greater Glider. Based on the evidence of Smith, the Applicant proposes as follows.

101. A sub-set of the coupes in this proceeding must be completely protected from logging given they constitute critical habitat for Greater Gliders and are critical to the recovery of a species currently in severe decline (Smith (1) CB 4.2.1 pp 28, 43-45, Smith (4) 4.12.1 p 17). They contain known significant and important populations of Greater Glider, and highly important habitat, including areas described by Smith as extremely rare and critically important to the species, and important refuge areas.

102. In other coupes, where forestry operations are to be conducted, they must be informed by surveys for Greater Gliders and their habitat and proposed forestry operations adjusted to protect Greater Gliders and their habitat. There are multiple means by which this may be achieved:

    a. protection of habitat around known records of Greater Glider by unlogged buffers of 100-200m (wider in less productive forest), and retention and protection by 50-200m unlogged buffers of all remaining large living habitat trees (Smith (1) CB 4.2.1 p43); or

    b. the implementation of buffers where they are found, for example, employing the prescription under the East Gippsland RFA, and incorporated into the Planning Standards, that requires complete protection of 100 hectares where more than 10 Greater Gliders are recorded within a kilometre) (CB 6.11 p43); or

    c. otherwise protecting important habitat areas such as old growth refuges, recruitment old growth, and corridors – which will provide for the recovery of the species (Smith (1) CB 4.2.1. p43-45); and/or

    d. adopting measures to reduce or avoid impacts through low-intensity selective logging. Studies in NSW and QLD have shown that low intensity selective harvesting operations that remove less than 15% (dry forest) to 33% (wet forest) of tree basal area within logging coupes and retain unlogged connecting corridors in riparian buffers maintain Greater Glider abundance close to pre-harvesting levels. Low intensity harvesting is now standard practice in NSW (uneven aged

forests) (Smith (1) CB 4.2.1 p 29, 31-32). An alternative in uniform regrowth Ash forests is small gap harvesting which leaves one third to grow to maturity and one third to old growth in perpetuity, with protection of all uneven age Ash by 100-200m buffers on hollow-bearing trees. However, Smith says that given current imbalance in age structure due to past over-harvesting and fire, all remaining 1939 Ash is now needed to grow into old growth to achieve the one third old growth target, and so the opportunity to implement small gap harvesting has largely been eliminated (Smith (1) CB 4.2.1 at 22 at [4]; 4.12.1 p17).

103. Smith said that all the suggestions he had made were based on his experience of these techniques in the field and in actuality and he believed they were all practical, including that protecting all remaining 1939 Ash was a practical measure (T411.44-412.9).

i. Conclusion on difference between traditional and proposed new methods

104. As Smith said, the application of any of the proposed new systems to the Scheduled Coupes are likely to modify or remove habitat critical to the survival of Greater Gliders and cause a long term decrease in the size of the Greater Glider population in the Central Highlands both at the coupe level and collectively at the regional level (Smith (4) 4.12.1 p13-14, 26).

105. The Applicant submits that there is no real difference between the traditional methods and the proposed new methods. For this reason, the Applicant will refer to both the traditional methods and the proposed methods as "**high intensity**" silvicultural methods or forestry operations.

2. Effect of high intensity forestry operations on Greater Glider

106. The impact of high intensity forestry operations on the Greater Glider is complex and multifaceted, but in essence the Applicant submits that high intensity forestry operations cause serious and irreversible damage to the Greater Glider (albeit that either serious or irreversible damage would be sufficient to engage cl 2.2.2.2). It is convenient to first set out matters agreed between Smith and Davey relating to the Greater Glider before turning to questions of the effect of such silvicultural methods on the Greater Glider.

a. Agreed matters relating to Greater Glider biology, distribution and habitat

107. The Greater Glider is the largest gliding marsupial. It is a member of the nocturnal and arboreal leaf eating Ringtail Possum family (Pseudocheiridae). It sleeps in hollows in

large old living and dead trees during the day and leaves its hollow at dusk to feed on young leaves and flower buds of eucalyptus trees at night. Greater Gliders are predominantly solitary and each individual may occupy many different nest trees (with suitable hollows) within its home range of about 1-3 ha in more productive forests. Nest sites may be changed frequently with individual gliders reported to use up to 18 den trees within their home range (Smith 4.2.1 p 7 at [Q1]; Davey (2) at [51]).

108. Frequent nest tree changes may be necessary for temperature control, avoidance of parasites and to reduce predation by Owls and Spotted-Tail Quolls, for which Greater Gliders are an important food resource. The importance of Greater Gliders to the Quoll is such that timber harvesting regimes that reduce Greater Glider numbers are recognized as a threat to the species. (Smith (1) CB 4.2.1, p7 at [Q1]; Davey (2) CB 5.2.1 at [51]).

109. There are two sub-species, *P. v. volans* distributed from Central Victoria to about the Tropic of Capricorn and *P. v. minor* north of the Tropic of Capricorn.

110. Greater Glider are likely to forage within 100-200 m of their nest trees (Smith (1) CB 4.2.1 p53 at [Q30c]; Davey (2) CB 5.2.1 at [107]).

111. Habitats occupied by Greater Glider have been well studied. Smith refers to the literature of Tyndale Biscoe and Smith, 1969, Rubsamen et al 1984, Henry 1985, Kehl and Boorsboom 1984, Smith and Lindemayer 1988, Foley et al 1990, Smith et al 1994, Smith et al 1995, Andrews et al 1994, Smith et al 1997, Smith et al 2002, Kavanagh 2000, Incoll et al 2001, Foley et al., 2004, Kavanagh and Wheeler 2004, Eyre 2006, McLean et al 2018.

112. Hollow-bearing trees are the single best predictor of Greater Glider abundance (Smith (1) 4.2.1 p38 at [Q13a)]; Davey (2) CB 5.4.1 at [69]). However hollow-bearing trees are generally declining in the Central Highlands due to multiple causes including fire, natural decay and forestry operations (Smith (1) 4.2.1 p38 at [Q13c-13d]; Davey (2) CB 5.4.1 at [69], [238]; Woinarski (1) at [24b, f, g]; Woinarski (2) at [27] [42] [54]).

113. However the habitat of the species is, of course, more complex than hollow bearing trees. The species has been found to prefer tall more productive, mature eucalyptus forests with an overstorey of large old trees that provide hollows suitable for denning/nesting and a high basal area of large trees (>40cm diameter) suitable for movement by gliding (Smith (1) CB 4.2.1, p8 at [Q2c]; Davey (2) CB 5.2.1 at [58]).

114. In the Central Highlands, Greater Glider habitat is found in two broadly different tall

eucalypt forest types – being Ash and Mixed Species, with characteristics as follows:

a. Uniform age Ash forests that have not been intensively burnt for more than 120 years;

b. Uneven-age 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-age Mixed Species forests with an overstorey of scattered or abundant old trees with hollows and an understorey of trees of different sizes including abundant trees > 40cm diameter (Smith (1) CB 4.2.1 pp 8, 12; Davey (2) CB 5.2.1 at [51], [69]).

b. High intensity forestry operations cause immediate loss of individual Greater Gliders present in coupes

115. The immediate impact of high intensity forestry operations is that the majority of Greater Gliders present in the logged coupes, and scheduled coupes, will perish either at the time of logging or shortly thereafter.

116. Smith said any Greater Gliders in the parts of coupes that have been logged are likely to die. He said it is likely that Greater Gliders in any narrow (<50m wide) retained areas will also die due to lack of adequate foraging area as home ranges required for feeding are generally in the order of 1-3 hectares (Smith (1) CB 4.2.1 p49 at [28d]).

117. That is significant given that Greater Gliders were estimated to be present in the coupes in significant numbers.

118. Smith estimated that the logged coupes, which varied in size from around 18-70 ha, were likely to have supported maximum populations of up to 20-77 individuals per coupe prior to logging, given the number of hollow bearing trees in each coupe (Smith (1) CB 4.2.1 p53 at [30c-d]; Davey (2) CB 5.4.1 at [107][3]). Smith estimated average densities per hectare of gliders in logged and schedule coupes at 1.1 and 1.3 gliders per hectare (CB 4.2.1, pdf, page 50). Davey accepted this to be a reasonable estimate (T506.12 to 30).

119. The fact that Gliders were not detected in all parts of all coupes is not to the point. The

[3] These Greater Glider densities are explained by high productivity environments, the presence of scattered living habitat trees in the Ash coupes, and the predominance of uneven aged forests in Mixed Species coupes (Davey (2) CB 5.4.1 at [107]; Smith (1) CB 4.2.1 p49-50 at [Q28e], [Q28g], [30e]).

detections by Jake McKenzie do not purport to be exhaustive – only parts of the coupes were surveyed. In any event, Smith said that Greater Gliders were likely to use and traverse all of the forest in the coupes in which they occur (Smith (1) CB 4.2.1 p53 at [30c] [30e]; Davey (2) CB 5.2.1 at [107]).

120. Woinarski referred to and adopted as an accurate study of immediate impact the Tyndale Biscoe research. He said over an intensive 5-year study (1992-96), Tyndale-Biscoe and Smith accompanied timber harvest operations in a 1,589 hectare study area and reported on the fate of Greater Gliders as their den trees were felled, and thereafter. He said over this period, they reported 40 Greater Gliders directly killed when trees in which they were denning were felled. He said although many individuals escaped immediate damage because they glided away from the tree as it was being felled, the fate of these escaped individuals was bleak because the animals were unable to move into new areas. Tyndale-Biscoe and Smith concluded "(these results) *suggest that very few animals survive the first week after tree fall even though most of them are not physically injured then. The conclusion that their disappearance is due to death and not emigration from the area is based on the topography of the study area and the sequence of felling …The results of this study establish, what has long been known indirectly, that destruction of the habitat destroys the inhabitants. It does indicate more clearly than hitherto how rapidly this effect can occur; even though the majority of gliders were not physically injured by tree fall, most of them died within 1 week*" (Woinarski (3) CB 4.11.1 at [31]).

121. In cross-examination, Davey accepted that "the learnings of Tyndale-Biscoe and Smith can certainly be applied" (T 493.20-.21). Davey also referred to studies by Kavanagh and Wheeler (2004, p. 424) which found that "intensive logging caused the gliders to restrict their home ranges to unlogged forest" and "no gliders continued to live for more than a few weeks within the most intensively logged areas" (Davey (2) CB 5.4.1 at [105]).

122. Davey disputed the conclusion that most Greater Gliders would perish following forestry operations. He said based on his observations of clearfelling, clearfelling with seed tree and habitat tree retention, and heavy selection logging, there may be some mortality of Greater Gliders while others move into retained forests and narrow strips in the years following an intensive harvest event (Davey (2) CB 5.4.1 at [105]).

123. Smith was critical of this impact assessment by Davey. He said Davey repeatedly assumed that the impacts of clearfelling on Greater Glider populations and habitat is

minor because "individuals affected by harvest event would have moved *into retained forest*" (p125 Skerry's Reach Coupe) (Smith (3) CB 4.10.1 p5 at [1d]). Smith said Tyndale Biscoe was a comprehensive scientific study which has shown this assumption to be incorrect, and that Greater Gliders displaced by logging die in situ rather than emigrating. This study found that less than 7% of affected animals survived 12 months after logging and those that survived likely lived on the boundary of the harvested area with home ranges that were only partially affected by logging (Smith (3) CB 4.10.1 p5-6 at [1d]).

124. The Applicant submits that the evidence of Smith should be accepted as being consistent with the scientific literature (also relied upon by Woinarski) and that Davey's evidence that Gliders would survive in situ, should be rejected as being inconsistent with that literature without any satisfactory explanation as to why he so departed.

c. Loss of high quality Greater Glider Habitat

125. The impact of forestry operations in the logged and scheduled coupes is not, however, limited to the immediate loss of individual gliders within a coupe. High intensity forestry operations in the logged and scheduled coupes will result not just in the loss of hollow bearing trees but the long-term loss of high quality Greater Glider habitat.

126. Smith visited each of the coupes the subject of the proceeding. It was evident from the cross-examination of Smith that he had carefully inspected (including by counting tree stems) and made careful notes of his inspection of each of the coupes and scheduled coupes (T446.30-34, T447.12-15 &.26-34, T448.19-23, 29-31 & 34-35).

127. In his First Report (Smith (1) CB 4.2.1) in Appendix 1 (pdf pp 68-105), he gave evidence about the Forest Type, Forest Structure, Glider Habitat, Glider Abundance, Compliance with the Code and Significance of Logging Impact for each coupe. He described the habitat in all of the coupes in the proceeding as of a high, very high or extremely high quality or value, extremely or very rare, critically important, critical resource, critical, unusually high suitability, highly suitable, and necessary to preserve or recruit old growth.

128. He reached these conclusions for various reasons – high numbers of habitat trees (see eg pdf p 71), uneven age, pre 1900, pre 1860 or old growth Ash or within 100m of such habitat (see eg p78, 82, 87, 93), forest composition and structure (see eg pdf pp 78, 87, 93), geographical features including important fire refuges (see eg pdf p 83, 93), presence

of 1939 Ash (see p22, 24, 28-29, 37, 38, 50).

129. Forestry operations impact living and dead hollow-bearing trees through direct felling, destruction during post logging burns, and accelerating the collapse of retained hollow-bearing trees due to damage, windthrow and regeneration fires (Smith (1) 4.2.1 p 14, 38-39, 48, 58 see Appendix 1 Coupe Table; Smith (2) p7, Davey (2) CB 5.4.1 at [69], [238]; Woinarski (1) at [24b, f, g], [83]; Woinarski (2) at [27] [42] [54]). These findings were observed equally in coupes logged by RRH as those logged by clearfell or seed tree. Smith's coupe-specific assessments for coupes he inspected which VicForests said were logged by RRH are Mount Despair Flicka, Acheron Kenya, Hermitage Creek Guitar Solo, Ada Tree Ginger Cat and Ada River Tarzan coupe. These are set out in Annexure 1. In summary, Smith's assessments included that logging in Flicka, Kenya, Guitar Solo, Tarzan had an extremely high impact due to the loss of high quality (important and critical) uneven aged old growth mixed species habitat with a known high abundance or occurrence of Greater Gliders before logging. Smith recorded that retained habitat trees were felled, intensely burned, damaged or killed on these coupes, and found insufficient habitat trees was retained. He found that Ginger Cat had a lack of retained habitat or recruitment trees and was about 5ha nett and under the Code should have had 20 habitat trees instead of none (Smith (1) 4.2.1 CB pp 68, 71, 74-75, 83, 89).Further, it is not only areas that presently contain hollows, but also those that provide habitat important for feeding and movement in proximity to hollows, and which will soon provide hollows, that are important for Greater Glider. Smith gave evidence that 1939 Ash is important to the Greater Glider insofar as:

    a. 1939 Ash regrowth is structurally ideal for feeding and movement by Greater Gliders but often lacks large trees with hollows.

    b. It will be of high value to Greater Gliders where it occurs on the boundary with or intermixed with Mixed species forest since the latter can provide abundant hollows (CB 4.2.1 p 40).

    c. so little 1939 ash remains that it should be protected now to recruit future old growth ash and rebalance ash age structure in order to achieve one third old growth and provide for the long term persistence of Greater Glider, in circumstances where old growth Ash is now scarce and at a historic low (3%) (CB 4.2.1 p 21, 27-28, 40-41; Smith (1) p20 at [Q4gv]).

d. Long period of recovery for habitat and populations

130. The experts agreed that it would take many years for logged habitat to recover to a point where it was capable of supporting Greater Gliders.

131. Hollows suitable for Greater Gliders do not generally develop in Mountain Ash, Messmate and Mountain Grey Gum trees until they are > 110 years of age and the number of hollows per tree does not peak until trees are in excess of 400 years of age (Ambrose 1982). (Smith (1) 4.2.1 p38 at [Q13b)]; Davey (2) CB 5.4.1 at [69]). In Ash forests, hollow-bearing trees are restricted to uneven aged and old growth remnants, which as Smith points out in his First Report in Appendix 1, are now extremely rare in the Central Highlands (Smith (1) 4.2.1 p38, p58 at [7], Appendix 1 pp78, 87, 93, 101).

132. The evidence establishes that, after initial clearfelling local Greater Glider populations are not likely to recover until the forest reaches about 40 years of age in Ash and about 60-80 years of age in Mixed Species (when trees first reach 40 cm diameter), and only where sufficient habitat trees are retained (Smith (1) CB 4.2.1 p49, Smith (3) CB 4.10.1 p6-7 at [1f]; Davey (2) CB 5.4.1 at [102]). Davey accepted that recovery of the Greater Glider was an important and separate consideration in the context of assessment of significant impact (TS 496).

133. Davey's PhD study, Figure 6, reproduced in his second report (CB 4.1, pdf, p 26-27) profiles habitat for the Greater Gliders. It shows that, at 25 years, zero or very few animals, at 180 years forest age was such as to achieve maximum Greater Glider density with 50% density only being achieved after approximately 70 years (Davey, T 487.30-488.40, 493 ll1-6, Davey (2), pdf, page 170, [62]). It was his oral evidence that, in ash forest, at between 80 and 100 years, you would be "starting to get some very good densities of Greater Gliders" but if you wanted to achieve maximum densities, it would take around 180 years (TS 489.1-.10). In the case of irregular mixed aged forests (not a product of clearfell or similar logging practices), it would take 90 years to achieve the return of maximum Greater Glider population densities (TS 490.1-.16).

134. Consistent with this evidence from Davey, Smith's evidence was that the populations would only recover where: (1) Habitat trees were retained and survived; (2) Forests are managed on long rotations (80-180 years) (Smith (3) 4.10.1 p6-7).

135. Whilst hollow bearing trees are a critical resource for Greater Gliders, the evidence discloses that VicForests has no systematic process for recording or identification of such

trees on coupe plans. Identification of habitat trees is left to contractors. That is so despite coupe plans being required to designate what the contractor is required to do (Paul, T274.37-.276.14). There is nothing in the VicForests' documents providing a minimum 100 year rotation for ash (Paul, T294.33-.34). There is no rotation specification for mixed species forest.

136. Further, where habitat trees are not retained, forests will take even longer to recover. It appears that habitat trees will not be retained in many of the logged coupes. Smith observed in many of the logged coupes that it appeared that the retained habitat trees had been killed in the regeneration burn and/or were unlikely to survive, or insufficient habitat trees had been retained (Smith (1) CB 4.2.1 at p58, p68; Smith (2) CB 4.3 p7). Recovery times in burnt clearfelled coupes without retained habitat trees would be >120 years, when hollows start to develop (Davey (2) CB 5.4.1 at [68]; Smith (1) CB 4.2.1 at p42 at [Q19], p36; Smith (2) CB 4.3 p6-7).

e. No guarantee Greater Gliders will be able to re-colonise forest if it recovers

137. Further again, even if that habitat did eventually recover, Smith found that there was no guarantee that Greater Gliders would be able to recolonize that area. For this to occur it would be necessary for:

    a. Greater Glider populations to be maintained in nearby protected refuge habitats to provide source populations for re-colonization. The extent to which this may occur at all is unknown – VicForests does not map these areas for Greater Glider habitat (T204.25-47, T211.10-29);

    b. Habitat corridors to be preserved and protected between protected forest and regenerating forest to enable Greater Glider to recolonize logged areas from protected areas. This issue crystallised with the discussion of cl 2.2.2.8 in the course of the trial. Clause 2.2.2.8 requires long term (strategic) forest management incorporating wildlife corridors so as to facilitate animal movement between patches of forest and contribute to a linked system of reserves. Davey said that to comply with 2.2.2.8, it would be necessary to map the reserves (T481, 517.13-21). There was no evidence that this occurs. Mr McBride admitted in cross-examination that VicForests does not even have a plan for habitat corridors in the logged and scheduled coupes, let alone the reserves (T380.14-15).

138. Smith said it is unlikely that these essential conditions for re-colonization will be met

under current management. He said:

a. First, there is a real risk that coupes will be re-logged before they regenerate to a suitable age and size for Greater Gliders, particularly where forests are harvested primarily for woodchip because wood pulp can be obtained from small diameter trees (Smith (3) CB 4.10.1 p6-7);

b. Secondly, site inspections showed 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. He said in Tarzan coupe, for example, his 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 (Smith (3) CB 4.10.1 p6-7).

c. Thirdly, the conversion of uneven aged mixed species forest even aged structure, permanently removes habitat components critical to the survival of uneven-aged and old growth dependent fauna such as the Greater Glider (Smith (2) 4.3 pp7-8; Smith (1) 4.2.1 p33-34). Smith said he did not observe any logged coupes in which he would consider the number of retained trees (including habitat trees and seed trees) to exceed 10% of the coupe. He estimated, based on observations and counts of large tree stems, that logged coupes typically retained between 0 and 4% of the basal area of the original stand as habitat and seed trees, and due to their small size, degree of fire damage (from regeneration burns) and isolation (exposure to windthrow, and lack of protection in clumps), that most of those trees retained will not survive in order to provide habitat in 50-80 years (when the surrounding forest would be structurally suitable) (Smith (2) 4.3 p 7).

139. Davey agreed that re-colonisation of logged coupes depended on retention of sufficient habitat trees (Davey (1) CB 5.1.1 pp113-114 at [251-253]; Davey (2) CB 5.4.1 p39 at [102]). However, he did not inspect the coupes and could not therefor provide an opinion about re-colonisation based on whether sufficient trees had in fact been retained. He appeared to assume that habitat trees had been retained consistent with the Code (Davey (1) CB 5.1.1 at [264i]; Table 15, for example Flicka coupe, column 4 penultimate sentence, repeated for other coupes). These assumptions were inconsistent with Smith's observations.

140. There are also limits on the ability of Greater Gliders to recolonize an area given the low reproductive output of Greater Gliders. As reported by Smith (Smith (1) CB 4.2.1 p10 at [Q2d]), breeding occurs from March to June and a single young is raised, reaching maturity in about 9 months (McKay 2008). Annual fecundity is low (about 0.5-0.9 young per female per year) and reproductive lifespan is likely to be short <10 years) (Henry 1985). The low fecundity of the Greater Glider makes it especially slow to recover after disturbance events such as clearfelling (Smith (1) CB 4.2.1 p10 at [Q2d]; Davey 5.2.1 at [51]). Any expectation that Greater Gliders would recolonise an area must take into account that recolonisation would be very slow.

f. Serious and irreversible damage to Greater Gliders and Greater Glider habitat in the Central Highlands

141. Having regard to the evidence summarized above, the Court should find that forestry operations in the logged and scheduled coupes are more likely than not to eliminate Greater Gliders from the logged areas for 40-80 years, and the Court cannot be satisfied that it is more likely than not that Greater Gliders will be able to recolonize those areas even at that time.

142. This will cause serious and irreversible damage to the species for at least four reasons.

143. First, the Greater Glider is facing a high risk of extinction in the wild in the medium-term future (Conservation Advice CB 6.18). The Greater Glider has been listed as vulnerable on the basis of the risk of extinction of the species and on the basis of the sharp population decline caused by habitat loss, principally major threats to large hollow-bearing trees on which the species depends (CB 6.18 p3). In these circumstances, the loss of known and abundant populations of Greater Glider and high quality Greater Glider habitat is serious.

144. Second, the Central Highlands Greater Glider population constitutes, as the experts agreed, an important population of Greater Gliders.

145. Smith said that the term “important” population with respect to the Greater Glider is a population likely to be necessary for the species long-term survival and recovery and one which is necessary for maintenance of the species genetic diversity (Smith (1) CB 4.2.1 p15-16). He said Greater Glider populations that are most likely to be of key importance for the long term survival and recovery of the species are those which:

    a. 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, ought, predation, logging or climate change;

b. 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;

c. 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;

d. 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).

146. Smith said that the whole Greater Glider population in the Central Highlands is an important population because it satisfies these criteria (Smith (1) CB 4.2.1 p16). He said, more specifically (p17):

a. It encompasses the largest concentration of Greater Glider records in Victoria and possibly Australia;

b. It extends over a very extensive area that exceeds the maximum extent of any single wildfire or series of wildfire events occurring over the past 150+ years. This means that there is always likely to be some area of undisturbed habitat that can provide refuge while surrounding disturbed forest recovers (provided that it is not destroyed by clearfelling). In 1939 the majority of the Central Highlands was burnt by fire and in 2009 36% was burnt by fire (Lumsden et al 2013). 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, making it an extremely rare and valuable habitat resource for Greater Gliders;

c. Old growth habitat (particularly in high elevation Mixed Species) and fire refuges are well dispersed throughout the Central Highlands and are connected by a

network of riparian zones and gullies that generally include larger and older trees than surrounding forest. This was particularly evident from aerial photos and site inspections in both Mixed Species and Ash forests conducted by Smith during preparation of his evidence;

d. The Central Highlands includes a range of natural environmental gradients (elevation, temperature, rainfall, fire frequency) that are unrivalled elsewhere within the species range in Australia. These gradients run from the lowlands to the uplands (snow line) and encompass a wide range of dry and wet forest types providing an optimal gradient for protection against climate change and large scale disturbance by wildfire. Dry mixed species forests (particularly those on the boundary with Ash forest) are particularly important in the Central Highlands as they are not killed by fire and contain higher densities of long lasting, large old trees with hollows, and are likely to be re-colonized more rapidly after fire (10 + years) than Ash Forests. They also occur at higher elevations more climatically suited to the Greater Glider;

e. The range of natural environmental gradients is important for the preservation of species genetic diversity;

f. 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;

g. The Central Highlands region represents an important evolutionary stable ecological area as evidenced by the survival and persistence of Leadbeater's Possum's during the severe climate fluctuations (ice ages and warm periods) and disturbances (logging and fire) of the past 2+ million years;

h. Preservation of such populations is important because it maintains the distribution of the species across its range and prevents the shrinkage of the species' range (Smith (1) CB 4.2.1 p19 at [Q4giii]) and p49, Smith (3) CB 4.10.1 p6-7 at [1f]; Davey (2) CB 5.4.1 at [102]).

147. Davey agreed that the Central Highlands population is an important population because it occurs at or near the limit of the species range (Davey (1) 5.1.1 at [249]; T 470.31-471.7). Due to the paucity of information in terms of what constitutes a regional population of Greater Gliders in the Central Highlands, Davey treated "any populations

found in the Central Highlands as an important population" – as to actual numbers, regional populations may change in the future, he assumed there to be 21 such populations, adopting this number based upon 21 identified Leadbeater's populations in the Central Highlands (T471, l29-l40). While Dr Davey accepted that forestry operations would cause 'local' population losses and declines, he disputed that this would decrease these important regional populations, due to application of existing Code prescriptions and the reserve system (Davey (1) 5.1.1 at [264i], [266]). The reasons these contentions should be rejected are addressed at [175]-[200] below.

148. Third, the fragmentation of existing populations of Greater Glider will lead to loss of genetic diversity of Greater Gliders, which will weaken their long-term viability.

149. Smith said there is a real risk that current intensive timber harvesting operations will greatly reduce Greater Glider populations in timber production forest and isolate surviving Greater Gliders and Greater Glider habitat patches in many (100's) of small fragmented patches none of which could be considered viable in isolation (Smith (3) CB 4.10.1 p16).

150. He said loss of Greater Glider populations in timber production forests would in turn threaten the viability of Greater Glider populations in CAR reserves and National Parks by isolating them from one another and leaving them vulnerable to extinction after major wildfire events such as the 2009 fire (Smith (3) CB 4.10.1 p16).

151. 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 (Smith (3) CB 4.10.1 p16 at [Q4]).

152. Smith said there is some empirical 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.

153. He said 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 (Smith (3) 4.10.1 p17).

154. He said 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 (Smith (3) CB 4.10.1 p17 at [Q5]).

155. Smith said 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. He said that current harvesting systems in Victoria have not taken this risk into account and 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 (Smith (3) 4.10.1 p18 at [Q5]).

156. Fourth, forestry operations in the logged and scheduled coupes have and are likely to substantially interfere with the recovery of Greater Glider.

157. Despite a decision by the Minister on 3 May 2016 that a recovery plan for Greater Glider was required because "existing mechanisms are not adequate" (CB 6.21 p1), no such plan has yet been prepared. This is contrary to s 273(1) of the Act that requires such a plan within 3 years of the decision. There is no evidence any such extension has been granted.

158. However, a Draft Greater Glider Recovery Plan dated October 2016 has been prepared and was in evidence in the proceeding (CB 4.10.4.3). Dr Davey recognised the document as the public version of the current draft of the Recovery Plan and was not aware of another version (T497.15-31).

159. The objectives of the Draft Recovery Plan (CB 4.10.4.3 p6) are to:

> *Increase the numbers of greater gliders in the wild and reverse the long-term declining population trend.*
>
> *Enhance the condition of habitat across the greater glider's range to ensure ecologically functional wild populations that, with limited species-specific management, have a high likelihood of persistence in nature.*

160. Smith said that forestry operations in the logged and scheduled coupes are contrary to the objectives and 6 strategies considered necessary to meet the Draft Plan's objectives, as follows (Smith (3) CB 4.10 p14; 4.10.4.3 p6):

    1. *Identify, protect and maintain all habitat critical to survival*
    2. *Maintain high quality habitat for the Greater Glider throughout its distribution, including hollow-bearing trees, preferred food species, adequate patch sizes and habitat connectivity*

3. *Identify and implement appropriate levels of patch retention, tree retention, and logging rotations in hardwood production*

4. *Implement appropriate fire management strategies which maintain habitat for the Greater Glider*

5. *Maintain adequate habitat connectivity at a landscape scale to allow for distributional shifts under future climate change*

6. *Increase understanding of the extent of impacts of owl hyper-predation on the Greater Glider and investigate possible mitigation strategies*

161. Smith said that there are known effective measures for implementing strategies 1-4 and strategy 5 probably requires expansion, but current management systems have not been shown to satisfy any of the above strategies (Smith (3) CB 4.10 p14).

162. Smith said that to enable recovery the following is needed:

(a) Conduct pre-logging surveys for Greater Gliders and habitat trees, protect known records by 100-200m buffers

(b) Buffer all remaining large living habitat trees by 50-200m (50m in Mixed, 200m in Ash)

(c) Recruit future habitat trees to a minimum 6+/ha

(d) Selective logging limited to 15-25% basal removal in Mixed Species forest

(e) Regenerate by soil disturbance and low intensity burning

(f) Small gap harvesting in uniform age stands (Ash)

(g) Protect broad riparian corridors minimum 100m, 50m on minor drainage

(h) Protect minimum 33% old growth and 33% mature forest on each coupe

(i) protect in unlogged reserves all Mixed Species forest with more than 1 large living habitat per hectare in the CH RFA Area

(j) Protect all remaining 1939 Ash with one or more living or dead habitat per hectare and within 60m of such habitat.

(Smith (1) CB 4.2.1 p20-21, 43-44)

163. Davey said the objectives of the Recovery Plan are unlikely to change (T499.1-.4).

164. Davey was asked whether he agreed or accepted that forestry operations in the logged and scheduled coupes are inconsistent with these objectives. He responded that "there would be issues, I would suspect" (TS 499.6-8). Davey accepted that VicForests practices would need to be adjusted once the Recovery Plan is finalised, and that VicForests will need to change its practices to comply, as necessary, with that plan (Davey (2) CB 5.4.1 at [191]; T497.8-13).

165. VicForests did not, and does not propose in the scheduled coupes, to conduct its forestry operations in the manner described by Smith and summarised at paragraph 162 above.

166. The Applicant submits that the Court should find that the content of the Draft Recovery Plan together with Smith's evidence is the best available evidence of the species requirements' for recovery, and that the forestry operations in the logged and scheduled coupes have and are likely to substantially interfere with recovery on that basis, and therefore cause serious or irreversible damage to the Greater Glider.

167. Smith described the impact on the Greater Glider by reason of forestry operations in each and every coupe as significant or made comments to the effect that the impact is significant (Smith (1) CB 4.2.1 Appendix 1).

168. Davey agreed that the impact of forestry operations on the Greater Glider was severe in the cases of some coupes, assessed on an individual basis, excluding context, and severe in the cases of others when coupes were assessed collectively and in context (T504-506, CB 5.1.1, pdf page 172 at [291], Table 17, pdf p 118, 169).

g. Impact on species at a coupe level

169. It will be said against the Applicant that it cannot establish that forestry operations in an individual coupe will cause the damage/have the impact described above.

170. The Applicant's case has been pleaded in respect of all logged and scheduled coupes, as well as all logged or all scheduled coupes, as well as any combination of coupes, as well as at the level of each coupe.

171. Where an individual coupe is concerned, the fact that only a relatively small number of individual Gliders will be killed at a coupe level is not to the point. What is significant is the nature of the habitat that will be permanently destroyed and the effect of this on the Greater Glider. In this respect, the Applicant refers to the evidence of Smith at Appendix 1 of his First Report, where, on the basis of visual inspection of each coupe in the

proceeding, he describes the habitat in the coupes to include very or extremely rare, critically important, critical habitat, critical resource, refuge areas, highly suitable, unusually high suitability, necessary to preserve and recruit old growth.

172. Thus, the evidence establishes logging at the coupe level will seriously and potentially irreversibly damage the environment.

173. That damage/impact only increases with the aggregation of coupes (particularly coupe groups) because the area of habitat that is destroyed is greater as is the number of individuals and because the fragmentation of remaining populations is greater.

174. Annexure 1 to these submissions provides references to the evidence concerning Greater Glider on a per-coupe basis, namely:

    a. TRP designation;

    b. Greater Glider detections and dates of reports;

    c. Harvesting commence and completion dates;

    d. Content of the coupe plan relevant to Greater Glider (if any);

    e. Paul's observations

    f. Smith's observation of habitat

    g. Smith's opinion regarding impact

    h. Davey's opinion regarding impact on a per coupe and coupe group basis

    i. Description of relevant agreed maps

h. Does the CAR Reserve System mean that past and proposed forestry operations do not and will not damage or significantly impact the Greater Glider?

175. Davey's opinion that forestry operations would not damage or significantly impact the Greater Glider was largely premised on the assumption that CAR Reserve system, including parks, SPZs and other Code prescriptions, provided sufficient protection to the Greater Glider (Davey (1) 5.1.1 at [264i-vii], [266]).

176. However the distribution and abundance of Greater Gliders in national parks is largely unknown (T472.13-.16), and the forest in the reserve and park system is not sufficient to protect the Greater Glider from the impacts of high intensity forestry operations.

177. Smith said the current reserve system in the Central Highlands is not comprehensive,

adequate and representative because it does not contain adequate areas of uneven-age old growth and mature forest and does not connect the limited areas it does have with corridors (Smith (1) CB 4.2.1 at p26). He said while there is some protection of unlogged forests in streams and drainage lines under the Code, it is insufficient and does not satisfy a wildlife corridor system of appropriate widths to facilitate animal movement between patches of forest of varying ages and stages of development and contribute to a linked system of reserves. Smith said during his field work he observed evidence that some mandatory buffers had been cleared and logged. (Smith (1) CB 4.2.1 p18 at [Q4gii(c)]; p34 at [f], p49 at [Q28d], Appendix 1 pp 79, 81)

178. He said halting the decline and initiating the recovery of Greater Glider would require protection of 200m wide corridors along all major drainage lines and minimum 80m corridors on minor drainage lines (over distances not more than 400m) connecting retained habitat which includes all remaining uneven aged old growth habitat because so little is 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 (Smith (1) CB 4.2.1 p20-21 at [Q4gv]).

179. Smith said SPZ are typically small in size, discontinuous and isolated by roads and surrounded by an extensive matrix of unsuitable habitat. He said 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). He said 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 (Smith (3) CB 4.10, p4 at [1e]).

180. Smith said Davey relied on an assumption that the SPZs and streamside buffers will provide sufficient habitat in perpetuity to prevent significant impacts on Greater Gliders in logged forest, but there was no evidence to support that assumption (Smith (3) CB 4.10, p7 at [3]). Smith said Davey claimed that there has been satisfactory policy and planning systems implemented in the Central Highlands such that forestry operations have not interfered with the recovery of Greater Gliders. No proof that current policies and systems are effective has been given. He said he is not aware of any scientific monitoring data which shows that current systems and policies have either maintained or

improved glider numbers. He said available scientific assessments, detailed in his first report, indicate that the Glider population has declined, which demonstrates that the current forest management systems have failed to implement broader policy objectives to sustain glider populations throughout their natural range (Smith (3) CB 4.10.1 p21 at [Q14]).

181. Davey's opinion to the contrary should be rejected for the following reasons.

182. The CAR Reserve System was not designed to protect the Greater Glider. As Davey said in cross examination:

    a. the June 1997 Comprehensive Regional Assessment Report (CB 12.58 and Davey (1), CB 5.1.1 p32-33 at [81] to [84]) was concerned to identify and was established having regard to rare and endangered species and biodiversity and a number of other values as well (T476.27 to 40);

    b. the Greater Glider was not considered vulnerable and was not listed when the CAR Reserve system was designed (T476.44 to 48);

    c. thus whilst the CAR system had a focus on rare and endangered species and old growth and ecosystem types and a focus on the range of biodiversity values, it was not intended to be and did not in fact identify or set aside particular vegetation classes so as to provide suitable habitat for the Greater Glider (T477.1 to 16);

    d. he agreed with Smith that the distribution and abundance of Greater Gliders in national parks is largely unknown (T472.13-.16).

183. The Greater Glider has declined in population by an average of 8.8 percent per year in the Central Highlands, as recorded in the Conservation Advice, notwithstanding the existence of the CAR reserve system (T477.17 to 40). This indicates that the CAR Reserve System has not been effective to protect the Greater Glider. In this respect, in cross-examination Davey accepted in cross-examination that decline and that he could not dispute the decline, contrary to the position taken in this earlier written report (T477.18 - T478.44).

184. As Davey said, there has not been particularly good or accurate monitoring of national parks and reserves since the 1998 RFA was signed (Davey (1), CB pdf, page 103 at [233]). He accepted that the consequence is that there is an apparent gap in the knowledge

as to how well or otherwise the CAR system is functioning (T479.6 to 10).

185. In his First Report (CB 5.1.1 pdf p 106 [231]), Davey said there was a specified number of hectares in the CAR reserve system with modelled Class 1 habitat. In cross examination, he accepted that, if the modelling of class 1 habitat is inaccurate and unreliable, which he accepted to be the case, then there is difficulty about drawing conclusions from it. He had previously made statements in his First Report based on the facts as he understood them at that time and not taking into account that he now accepts that the modelled habitat reliability is questionable (T479.5-45).

186. Assessing significant impact in his First Report, Davey relied upon linear SPZs, stream buffers and the connectivity of retained forests. In cross-examination, he accepted that, to establish impact or otherwise, requires a high level of understanding of the actual habitat that is within the SPZs and that "we don't have any of that information" (T480.5-32). As far as Davey is aware, there has not been any inspections of the corridors to determine whether or not suitable habitat is present (T480.35-44).

187. In assessing impact, Davey looked to the imagery that applied to the SPZs and national parks and judged whether there were suitable greater glider habitats found in those and proceeded on an assumption that, based on SPZs and retained forests, there was an interconnected corridor network available or which would be available for greater gliders (T476.1-14).

188. Further, the fact that, in his reports, Davey sought to dispute the decline in Greater Glider populations, which he later conceded in cross examination was the case, is important for assessing his evidence as to impact. Because, in his reports, Davey did not clearly accept that the species was in decline and instead sought to point to unidentified "stable" populations of Greater Glider (Davey (2) 5.4.1 at [88]), his assessment of impact could not have been made in the correct "context". Namely, the decline founding its listing, the particularly severe declines in the Central Highlands, and the cause of those declines being loss of habitat including due to forestry operations. Davey's failure to consider the correct context in this regard is also apparent on the face of his reports, which make no mention of the basis for the species' listing or the threats operating upon it as having been considered in the course of, or properly informing, his assessment of impact. The evidence concerning decline of the species is dealt with at [390] – [412] below.

189. Given these matters, there is no basis on which the Court can be satisfied that the

Reserves, SPZ and existing prescriptions will prevent the forestry operations in issue in this proceeding from having a serious or irreversible impact on the Greater Glider.

190. For VicForests to have made good its case about the Reserve System providing adequate protection, in the face of the accepted evidence of decline, it would have been necessary for *VicForests* to prove with evidence (for example, field surveys and monitoring) that the Greater Glider was indeed present in a sufficient number in the Reserves, SPZs and Code exclusions to protect the survival of the species in the Central Highlands. That is, *VicForests* would have to make out a positive case to rebut the existing and accepted evidence of population decline of the species recorded in its entire range as described in the Conservation Advice. VicForests has failed, indeed, not even attempted, to undertake proof of these matters.

i. How should the court resolve disputes between Smith and Davey in relation to the impact of forestry operations

191. Where Smith and Davey differ, the Court should prefer the evidence of Smith.

192. Smith is clearly an expert in the field. His Curriculum Vitae speaks to his extensive experience in the field and his research work is referred to and relied upon in scientific literature before the Court, including the Conservation Advice.

193. In terms of the rigour of his reports before the Court, Smith visited each of the coupes the subject of the proceeding. It was evident from the cross-examination of Smith that he had carefully inspected (including by counting tree stems) each and every coupe and made careful notes of his inspection of each of the coupes and scheduled coupes (T446.30-34, T447.12-15 & 26-34, T448.19-23, 29-31 & 34-35).

194. Davey by contrast does not have the same record of scientific publications as Smith.

195. Davey's approach in his written work to determining the impact of forestry operations in the logged and scheduled coupes on the Greater Glider was far less comprehensive and less satisfactory than that of Smith.

196. Most importantly, for the purposes of the proceeding, Davey did not visit the coupes except for the coupes visited on the view. In cross-examination he agreed that ideally, a visual inspection of the coupes was better than a desktop assessment (T 474.l2-16).

197. Davey said that when determining Greater Glider populations in the CH RFA, he used the 21 Leadbeater's possum LMUs as a proxy for his approach to those populations

(T467.15 to 19). He transferred those LMUs, which were geographically mapped, as Greater Glider populations as shown at Davey (1), tab 25 (CB 5.1.1.25, T467.15 to 42). Davey's approach was to treat each one of the 21 LMUs as a population of greater gliders for the purposes of his approach to the significant impact question, treating each as regional populations (Davey (1) at [241], pdf, page 110 and T468.1 to 9). He assumed that the 21 population groups for Leadbeater's possums corresponded to an equivalent 21 populations of Greater Gliders (T468.35-38; T470.2-5).

198. This approach was fundamentally flawed. As Davey agreed with Smith: Leadbeater's Possums and Greater Gliders have different habitat and dietary requirements (T470.1 to 12).

199. Further, Davey's desktop assessment was conducted on the basis of assumptions that, as the evidence has disclosed, have turned out not to be valid assumptions. These include:

    a. Basing his opinion on a desk top assessment using maps as to forest type and forest classification which he accepted in cross-examination may be inaccurate (T473.24-T474.16);

    b. Basing his opinion on plotting the 21 imputed Greater Glider populations against the class 1 habitat maps, which he agreed with Smith were of questionable reliability (Davey (1) CB 5.1.1, exhibit "25" CB 5.1.1.25(a)-(c), T/s 470.13 to 19);

    c. Assuming that VicForests was acting in compliance with the mandatory provisions of the Code (Davey (1), CB 5.1.1, pdf page 88). That is clearly not the case so far as 2.2.2.8 is concerned; Davey said that what is needed for compliance with that mandatory provision is a map of wildlife corridors in the Central Highlands. Such a map would identify appropriate habitat to facilitate animal movement and, in particular, movement for the greater glider. Such information is necessary to work out how forestry operations in one coupe or nearby or adjacent coupes are going to impact upon what otherwise might be the movement of the greater glider through corridors. As far as Davey is aware, VicForests do not have such a map (T481.14 to 45), and Davey conceded in cross-examination that he did not know whether such mandatory criteria had or had not been met ("and that's because – I actually was not knowledgeable whether that Vic Forests had mapped them, in terms of wildlife corridors": T517.5 to 21). Smith's on-

ground observations were that it was clearly not the case in respect of habitat tree retention either (Smith (1) CB 4.2.1 p48; Appendix 1 to his report: see pp 52-58, 76);

d. assuming there had been an appropriate consideration of management for those coupes as part of the planning process. It was Davey's understanding that VicForests had, as part of a planning exercise, done reconnaissance surveys in relation to the coupes in issue in the proceeding and that, after that, appropriate surveys had been undertaken, in conjunction with the preparation of coupe plan (T517.46 to 518.25). The evidence in the case demonstrated that VicForests did not survey for Greater Gliders in any of the logged or scheduled coupes.

200. In the course of the trial, on occasions, Davey appeared to be looking for reasons to dispute that coupes subject of the proceeding and which Smith has inspected contained critical habitat. That is, to the point of ignoring the fact of actual sightings when responding to questions about specific coupes (T482 l34 – T486 l29, and see [212] below). For example, regarding Flute coupe, he first said it could be critical habitat depending on the extent of that habitat, then he said he could not provide an opinion, and then said he didn't think it was critical habitat). Ultimately, he accepted that some of the coupes could be critical habitat but he could not answer without further information, he would need to look at the habitat, and he agreed that an inspection of the coupes would assist in order to form an opinion as to whether an area constitutes critical habitat (T485.31-486.11; 486.13-29). Smith conducted precisely the assessment Davey referred to and Smith's evidence should be preferred for that reason.

3. Management/prescription decisions made by VicForests

201. In conducting forestry operations VicForests also makes a range of decisions as to how to detect and manage the presence of the Greater Glider in coupes to be harvested. These decisions include:

a. VicForests Precautionary Approach to Biodiversity Management of January 2014" (Doc 3.4.45);

b. "Pre-Harvest Biodiversity Instruction" of June 2016 (CB 2.1.34);

c. The Interim Greater Glider Strategy (CB 2.1.33);

d. Coupe Reconnaissance Instructions of July 2016 (CB 3.4.37);

e. "TRP - Process for Preparation and Approval" (CB 3.4.13 p294-296)

f. Giant Tree Protection policy' (Paul (2) CB 3.4 at [114], [116-117]; Paul (3) CB 3.5; CB 3.5.96).

g. High Conservation Values document of 2017 (CB 3.6.120; and 8 March 2019 version at 4.12.2.3);

h. Harvesting and Systems Regeneration Document (8 Mar 2019 version at CB 4.11.2.3; 31 May 2019 version discovered on 2 June 2019 at 11.81; further 31 May 2019 version discovered subsequently at 12.2).

202. For the reasons set out at [233]-[360] below, VicForests failed to comply with cl 2.2.2.2 when making these decisions.

4. Questions asked by the Court

203. The Court asked the parties to address a number of questions and their relevance to the issues in the proceeding. Those questions are addressed here.

a. Habitat critical to the survival of Greater Glider

204. The Court asked the parties to address the experts' differences of opinion concerning critical habitat and what difference it makes. The Applicant submits that the phrase "critical habitat", and the way that it is defined in the Significant Impact Guidelines, may assist the Court to understand the habitat that is important to the Greater Glider but does not constrain the Court in reaching a conclusion in relation to serious or irreversible damage or significant impact. 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.

205. That said, the debate between the experts as to the question of critical impact is summarized here for the Court's convenience.

206. Habitat critical to the survival of a species is relevantly explained in the EPBC Guidelines as including (CB 4.2.2.14 p13):

> *… areas necessary for*
>
> - *activities such as foraging, breeding, roosting, or dispersal*

- *for the long-term maintenance of the species…*
- *to maintain genetic diversity and long term evolutionary development, or*
- *for the reintroduction of populations or recovery of the species.*

207. Davey accepted this was a reasonable definition for use for the purposes of significant impact.

208. Applying that definition of critical habitat, Smith and Davey agreed that areas necessary for Greater Glider foraging, breeding, roosting and dispersal constitute:

    a. areas with tree hollows in large old living and dead trees (essential for roosting),

    b. areas with abundant large tree stems >40 cm diameter at breast height (essential for feeding) and

    c. fire refuges and corridors (essential for dispersal and re-colonization after wildfire). These are best located in riparian zones and existing Ash forests with any living old growth stems (at densities of 1/ha or more) that have survived past wildfires.

    (Smith (1) CB 4.2.1 p18 at [Q4gii]; Davey (2) CB 5.4.1 at [80]).

209. Smith said in the Central Highlands habitat critical to the survival of Greater Glider comprised 'old growth remnants' and connecting corridors between them. He said 'old growth remnants' include all habitat areas in the Central Highlands that have abundant or scattered large old living trees that have survived fires for the past 120 + years, which he described as 'refuge habitats'. He said specifically, this includes:

    a. All remaining (not previously clearfelled) areas of high quality (>35m site height at maturity) Mixed Species forests with one or more living large old trees with hollows per hectare.

    b. All areas of Mixed Species and Ash forests within a network of connecting corridors between protected areas, including all riparian zones to a width of 40-100m on either side of drainage lines and water courses.

    c. All remaining areas of Ash forests more than 40 years of age with one or more living large old trees with hollows per hectare and uneven aged Ash.

d. All remaining living large old trees with hollows, and all forest within 200m radius of such trees in Ash forest and 50m radius of such trees in Mixed Species forest.

(Smith (1) 4.2.1 p18; Smith (4) 4.12.1 p16-17)

210. Smith said such habitat is declining across the Central Highlands, primarily due to forestry operations (Smith (1) 4.2.1 p14-15, p22 at [Q4l], p23 at [Q5b], pp23-28, p30, p37 at [Q12]). Habitat decline was found to be the key cause of the species decline in the Conservation Advice and the Scientific Advisory Committee (**SAC**) final recommendation on listing, with which Smith generally agreed (Conservation Advice 6.18 p3-4; SAC Final recommendation on listing CB 6.20 p2-3; Smith (1) 4.2.1 at p22 at [5a] and p28 at [7a]). Smith explained that the age structure in Ash forests in the Central Highlands is now over-represented by young regrowth forest (62%) due to fire and past timber harvesting, with old growth Ash now at a record low of 3% whereas historically old growth dominated. It is in this context that Smith said that all remaining areas of uneven age and old growth Ash are critically important. (Smith 4.2.1 pp20-21, 26-29, 58, 93, 98)

211. Davey said in relation to the Central Highland "[m]y understanding is that, in the Central Highlands, we haven't actually got information to identify the extent and quality of critical habitat (T484.7-10). Davey considered that critical habitat could occur, even though it was not on the register (T484.42-43). Flute coupe was where Smith and Davey counted 8 to 10 habitat trees. Davey said that such habitat was definitely "high quality habitat" (T484.44 - 485.3). He considered the habitat to be at the high end of "suitable habitat", of which he considered critical habitat was a subset but could not provide an opinion as to whether or not the habitat in Flute coupe was critical habitat, believing that it would not meet the definition of critical habitat for which he considered a high bar needed to be adopted (T485.10-21).

212. Asked about Turducken, a coupe mentioned at CB 4.2.1 (pdf p 106), with a density of 16 habitat trees per hectare, Davey said he would actually have to look at the habitat in order to determine whether or not such habitat was "critical habitat" (T485.26 to 45). "That's because you could actually have a lot of habitat trees but you don't necessarily have the bio mass to support glider populations" (T486.9 to 11). Critical habitat takes into account the productivity of the site, the habitat trees that are available and whether

they would actually act as a refuge area in fire events. In his opinion, a range of issues need to be factored into the consideration of whether high quality habitat constitutes critical habitat (T486.18-23). Pressed in relation to Smyth Creek, with 16 habitat trees per hectare combined with evidence of actual sightings, Dr Davey responded that it really depends on the productivity of the site, you can have a lot of habitat trees but you don't necessarily have the biomass to support the glider population (T486.1-11). This response ignored the actual sightings that Dr Davey was expressly taken to in the question posed.

213. It was put to Davey that, in order to form an opinion about whether an area constituted critical habitat it was necessary to inspect the coupe. He agreed that a field visit would certainly improve that assessment of both the number of habitat trees and enable consideration of the relationship between the habitat trees and what Davey said was important, which is the forest and the context in which the habitat trees are found (T486.13-29)

214. Smith's coupe-by-coupe assessments, informed by both ground surveys and desktop assessments, addressed precisely these questions (Smith (1) 4.2.1 Appendixes 1 & 2).

215. Smith said that in his reports he was working to the definition of critical habitat as habitat that is the minimum subset of habitat, resources or conditions needed to ensure species persistence over the long term (T429.21-23).

216. Woinarski said it is important not to minimalise or take a very narrow perspective of what critical habitat is, particularly for the Leadbeater's Possum, as its survival is contingent on its habitat, he said 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. While he was referring to Leadbeater's Possum, the same principle applies to Greater Glider – which is also a species threatened primarily by habitat loss, rather than predation or other issues (Conservation Advice 6.18 p3-4; SAC Final recommendation on listing CB 6.20 p2-3; Draft Recovery Plan ; Smith (1) 4.2.1 p14-15, p22 at [5a] and p28 at [7a], p22 at [Q4l], p23 at [Q5b], p23-28, p30, p37 at [Q12]).

217. Because habitat loss is the key threat to the Greater Glider, addressing that threat requires maintaining and improving habitat.

a. The Conservation Advice states that the primary conservation actions include "protect and retain hollow-bearing trees, ***suitable*** habitat and habitat connectivity" [emphasis added] (CB 6.18 p9). Smith agrees (Smith (1) 4.2.1 p22).

b. The objective of the Draft Recovery Plan is to '*Enhance the condition of habitat across the greater glider's range …"* (CB 4.10.4.3 p6). Smith's opinions were consistent with this and he reiterated that protection and recruitment of habitat is necessary for the species' long-term survival (Smith (1) 4.2.1 at p21, p22-23, p28-29, p39 at [Q13e], p44-45 at [Q21-22b]).

218. In those circumstances, the difference between "suitable" habitat and habitat "critical" to the survival of Greater Glider is semantic, and the two can be viewed as 'largely synonymous' as Dr Smith accepted (T429).

219. Smith's identification of critical habitat is consistent broadly with the approach in the Draft Recovery Plan, which was to look to forest patches of at least a certain number of hectares containing at least a certain number of hollow-bearing trees per hectare (Smith (2) CB 4.10.4.3 p6 at [1.2]). Davey said this was the current draft, and he had attended a workshop concerning it at which there was discussion of the issues around critical habitat and that it would broaden out to include some of the habitats found in Queensland, not only Montane forests which includes Ash and Mixed Species in the Central Highlands. (T498.7-40; 4.10.4.3 p14).

220. The Court should accept Smith's evidence as the best available evidence as to what constitutes critical habitat, particularly in circumstances where it is broadly consistent with the approach in the draft Recovery Plan, and where Davey said he could not answer whether particular coupes constituted critical habitat and a field assessment would assist – which he had not conducted. There is uncertainty as to the location and extent of those areas across the species range – but what is known is that all coupes the subject of the proceeding contain it.

221. In the alternative, there is uncertainty as to how critical habitat is to be defined and a real risk that the habitat in the coupes comprise critical habitat which will be eliminated by VicForests intensive harvesting methods.

a. Smith proposed a definition of 1 hollow-bearing tree per ha, while the Draft Recovery Plan proposed a certain number of hollow-bearing trees per hectare but the precise figure had not been determined (4.10.4.3 p10). The coupes in fact

contain on average 6 habitats per hectare but range up to 12 per hectare and 2 coupes contained 16 per hectare (Smith (1) CB 4.2.1 p53 at [30c-d], p106 Appendix 2; Davey (2) CB 5.4.1 at [107]).

b. Smith also identified that several coupes are refuge areas (Smith (1) 4.2.1: Nolan's Gully [p58 at [7], p93], Big River coupes [p79], Cambarville coupes [p81], Hermitage Creek [p83], Loch coupes [p85], Mount Despair [p89], Noojee [p95], Starlings Gap [p99]).

c. Others include and are located within 100m of hollow-bearing Ash trees, uneven age or old growth Ash (Smith (1) 4.2.1: Baw Baw p77; Beech Creek p78; Coles Creek p82; Matlock p87; Nolan's Gully p93; South Noojee p98; Sylvia and Kalatha Creek p101-102; Torbreck River p103).

b. Relationship between timber harvesting and 2009 fires

222. The trial judge asked what the relevance of the 2009 fires is and how they may factor in to the precautionary principle or significant impact aspect of the proceeding (T806.21-26).

223. Despite Paul refusing to recognise the 2009 fires as an event that "may" have been a cause in decline in the habitat and populations of the Greater Glider in the CH RFA (Paul T 192.28-40; CB 11.7 p18-19 at [54]), the scientific evidence is all one way. The Applicant submits 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. The basis on which this conclusion may be reached is as follows.

224. Smith said, speaking generally, 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 (Smith (1) CB 4.2.1 p 42).

225. Smith said the 2009 fires appear to have burnt about 36% of the Central Highlands area with variable intensity (Lumsden et al 2013) and any Greater Gliders in forest subject to intense fire in which trees were all killed are likely to have died (Smith (1) CB 4.2.1 at

p42 at [Q19]). Davey noted and did not expressly disagree with this statement (Davey (2) CB 5.4.1 at [67]).

226. Smith said that, in respect of the 2009 fires, the time to recovery for Greater Gliders would depend on the type of forest burnt, the intensity of the fire and the adequacy and proximity of unburnt refuges and corridors.

    a. In Mixed Species forests recovery may be rapid (about 10 years) because the dominant tree species are generally not killed by intense wildfire and recover rapidly by re-sprouting (Smith (1) CB 4.2.1 p8-9);

    b. In Ash forests (with habitat trees) recovery will be slower, > 35 years in forests (eg burnt old growth and uneven aged forest in National Parks and protected areas) (Smith (1) CB 4.2.1 at p42 at [Q19]). Davey agreed with this statement (Davey (2) CB 5.4.1 at [67]);

    c. in Ash forests (without habitat trees) recovery of Greater Gliders would be > 120 years, and negligible or non-existent in clearfelled coupes under current management practices (Smith (1) CB 4.2.1 at p42 at [Q19]). Davey said recovery in burnt clearfell coupes without retained habitat trees would be similar to burnt regrowth stands without habitat trees (> 120 years) when hollows start to develop (Milledge et al. 1991, p. 54) rather than “negligible or non-existent” (Davey (2) CB 5.4 at [68]).

2. However Smith said that on their own wildfires do not appear to represent a threat to Greater Glider habitat but that the threat arises when VicForests does not reduce harvesting to take account of the fact that habitat has been decreased and clearfells the remaining unburnt mature and old growth forests at a high rate and over an extensive area such that insufficient mature and old growth forest remains to provide a buffer against future fires (Smith (1) CB 4.2.1 at p27-28, p42 at [Q19]).

227. Smith said based on the extent of recent harvesting shown in the Agreed logging history maps (CB 7.1D, 7.2D, 7.3D) timber harvesting has and continues to occur at a rate and scale that is not ecologically sustainable and is inconsistent with requirements of the Code (Smith (1) CB 4.2.1 at pp42 at [Q19]). Davey noted and did not expressly disagree with these statements, but elsewhere in his second report disagreed that harvesting is occurring at a rate that is not ecologically sustainable (Davey (2) CB 5.4.1 at [67]).

228. Smith also said that timber harvesting disrupts 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 (Smith (1) CB 4.2.1 p27-28, p42 at [Q19].

229. In his written report, Davey said that the 2009 fires would improve Greater Glider habitat and 'offset' for losses from logging (Davey (2) CB 5.4.1 p30 at [67]). Davey gave no reasons or references in support of this opinion. It should be rejected for at least two reasons:

    a. The statement is inconsistent with, or at least highly qualified by, Davey's subsequent agreement with Smith that recovery of Greater Glider after fire depends upon the type of forest burnt, the intensity of the fire and the adequacy and proximity of unburnt refuges and corridors, may be rapid in Mixed Species forests but slower in Ash forest slower and depended upon presence of habitat trees. Yet Davey gave no such qualification in proffering this opinion about habitat improvement "offsets" in areas impacted by the 2009 fires for losses caused by timber harvesting;

    b. The statement is illogical. The 2009 fires caused an immediate loss of Greater Glider habitat in the Central Highlands. Logging practices prior to and since have also caused a loss of Greater Glider habitat in the Central Highlands. The fact that as expected some forests affected by the 2009 fires (particularly lower-severity burn and mixed species forests) are now recovering cannot be sensibly characterised as "compensating" for or "reducing" the effect of habitat decline caused by logging. The recovery of such areas now is simply a characteristic of the duration of loss of habitat caused by the 2009 fires, not a net "improvement".

c. Use of scientific literature adduced for other purposes

230. The trial judge asked what use she may make of scientific studies and literature that was adduced for purposes other than its contents (T708 ll16-20). An example of this material is the Tyndale-Biscoe article at CB 11.34.

231. At the technical level of admissibility, the Applicant submits that to the extent that such material would otherwise constitute inadmissible hearsay or opinion evidence, those rules have no operation once the evidence is admitted for a separate purpose (see ss 60(1) and s 77 of the *Evidence Act 1995* (Cth)). The Applicant therefore submits that the Court may rely on scientific literature adduced into evidence in that way in the same manner as

any other expert material adduced in the proceeding, although it is of course for the Court to determine what weight should be given to such material. However, the Applicant submits that the Tyndale-Biscoe chapter, which was relied on by Mr McBride to inform himself in relation to the Greater Glider, having regard to the reliance upon that same work by the experts, can and should be attributed substantial weight by the Court.

232. In terms of the weight that may be attributed to scientific literature, the Applicant submits that where experts for both parties (and VicForests' own employees, such as Mr McBride (CB 3.3 p13 at [28])) referred to and relied on specific pieces of scientific literature, the Court may take it that there was agreement as to the validity and significance of this material and may rely on it for the purpose of reaching any necessary conclusion in this case. Reports of such scientific research as were referred to by the experts, constitute first hand hearsay. For example, reports concerning scientific research by others referenced in Tyndale-Biscoe's publication. There is no application by either party to exclude reliance by the Court on such statements. Before the *Evidence Act*, it was well established that experts are entitled to rely upon reputable articles, publications and materials produced by others in the field in which they have expertise. Nothing in the *Evidence Act* changes the position. The opinions are admissible, even though the articles and publications are hearsay. The weight to be attributed to such opinions is a matter for the Court (*Bodney v Bennell* (2008) 167 FCR 84 at [92] per Finn, Sundberg and Mansfield JJ). The Applicant submits that the experts agreed in this respect in respect of the work done by:

a. Lindenmayer (Davey: T477.42-478.10; Woinarski T534.11-21) , noting all experts accepted the validity of Lindenmayer's monitoring data, Davey & Baker disputed that those findings were representative of the Central Highlands, this is issue is addressed at paragraphs 630 - 648 below;

b. Tyndale Biscoe (Davey: T493.11-21; Smith (1) CB 4.2.1 pp 8, 35, 49; Woinarski (3) CB 4.11.1 at [31]). It was the evidence of Davey that the learnings of Tyndale Biscoe and Smith certainly can be applied (TS 493.20-.21);

c. Kavanagh and Wheeler (Davey: T514.24 – T515 l16; Smith (1) CB 4.2.1 p8);

d. Lumsden (Smith: T397.23-41, 399.45-400.4, 400.44-401.4, 456.7-14; Davey: 478.12-20).

iv. In making those decisions, VicForests did not carefully evaluate management options or properly assessed the risk weighted consequences of various options to, where practicable, avoid serious or irreversible damage to the Greater Glider

233. In selecting the coupes for harvesting, designating the method to be used in the coupe, and making various management decisions as to how to manage the presence of the Glider and conduct forestry operations, VicForests failed to comply with cl 2.2.2.2 in respect of the Greater Glider.

1. VicForests failure to recognise and to consider the threat to the Greater Glider

234. At an institutional level, VicForests refuses to accept and acknowledge the factual premises that underpin the listing of the Greater Glider, including the declining population in the central Highlands:

235. Mr Paul was cross-examined as to VicForests' agreement or disagreement with a number of facts that were proposed for agreement by the Applicant in proceeding, and the content of VicForests' proposal that was put in response to the Applicant. Mr Paul said he and VicForests' in-house counsel were consulted about these proposed facts (T188.42-45).

236. Mr Paul said VicForests did not agree that:

a. the causes of Greater Glider decline in the Central Highlands include forestry operations;

b. the causes of Greater glider decline in the Central Highlands *may* include forestry operations;

c. Greater Glider population decline may be caused by forestry operations (T189.7-191.4).

237. Mr Paul said VicForests does not accept that a cause of the Greater Glider population decline in the Central Highlands *may* include:

a. ongoing clear-felling of old growth mixed species forests;

b. extensive wildfires in ash forests and mixed species forests in 2009;

c. 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

d. increased risk of predation by owls and quolls as the number of habitat trees declines, and as habitat trees are left as exposed isolated stems above a regrowth canopy;

e. over-representation of younger age classes in Ash forests (T192.28-40; CB 11.7 p18-19 at [54]).

238. This position demonstrated that VicForests does not accept that the traditional forestry operation methods may be a cause of Greater Glider decline. If VicForests does not accept the potential for that damage, they cannot properly evaluate or assess options to avoid that damage. That attitude will also inform any approach to the new methods.

239. The position regarding the 2009 fires is also inconsistent with the opinion of VicForests' own expert, Davey, that fire frequency and intensity are an important determinant of the presence of Greater Glider, that the species is generally not present in forest where fire has burnt tree crowns, and that recovery/recolonisation depends upon the type of forest burnt, the intensity of the fire and the adequacy and proximity of unburnt refuges and corridors, in Mixed Species forests recovery may be rapid (about 10 years) and in Ash forest slower (greater than 35 years) depending upon presence of habitat trees (Davey (2) 5.4.1 at [55], [68]). VicForests refuses to accept and act on this scientific advice.

240. Mr Paul also said that VicForests does not accept that, as stated in the Conservation Advice:

a. 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;

b. the overall rate of population decline of the Greater Glider across the country over a 22 years period exceeds 30% (T191.9-32).

241. He was asked what part of the fact that over the period 1997-2010, the Greater Glider population in the Central Highlands declined by an average of 8.8 percent per year, which extrapolates to a decline of 87% over 22 years, was not true or accurate and responded that he did not have detail on that. He said he also would not have the detail. (T191.36-39). This demonstrated that VicForests does not accept the Conservation Advice as accurate.

242. Mr Paul said that VicForests does not accept:

a. the proposition that using the best available data as to Greater Glider distribution in Victoria there is a concentration of records in the Central Highlands east of Melbourne in the Errinun a Plateau region of East Gippsland, a minor concentration in the Strathbogie Ranges north of Central Highlands, and scattered records elsewhere (T191.45-192.8);

b. that populations of Greater Glider in the Central Highlands RFA area are located at or near the limits of the species distributional change (T192.10-15). That position also contradicted the evidence of VicForests' own expert, Davey (T470.37-471.7; T524.39-525.12; Davey (1) CB 5.1.1 pp112-113 at [249).

243. He agreed that when VicForests is thinking about applying the precautionary principle, it is doing so from the premise that the propositions referred to in the preceding paragraphs are not true but said that VicForests would gather information to support it. (T192.21-25)

244. As to Greater Glider characteristics, Paul said he did not know why VicForests had not agreed to the proposed fact that Greater Glider may frequently change their nest sites. He said VicForests does not accept that Greater Glider's low fecundity makes the species especially vulnerable to predation, and slow to recover after disturbance events, or that it has relatively low persistence in forest fragments or disperses poorly across vegetation that is not native forest (T188.40-T194.26). The latter two facts are stated in the Conservation Advice (CB 6.18 p2).

245. Paul accepted that VicForests approach to the precautionary principle was informed by the views set out above. He accepted that if a person is seeking to apply the precautionary principle, the starting point is to understand what the person's own appreciation and view of the vulnerability or otherwise of the species is. It was put to Mr Paul that amongst the matters that he was taken to in cross-examination regarding proposed agreed facts concerning the vulnerability of the species are particular aspects of fertility, and distribution, that VicForests simply do not accept. Paul said VicForests may not accept that specific detail, but it accepts fertility is an issue that should be considered (T194.11-26).

246. Without an acceptance that the species is in the condition that founds its listing as vulnerable, and without an acceptance as to the causes that have brought about that circumstance, even if it were otherwise bona fide minded to do so at all levels of its

organisation, it is simply not possible for VicForests to carefully evaluate or assess the effects of selecting the relevant coupes for harvesting or the effect of designating a specific silvicultural method to each coupe in order to avoid damage or impact the existence of or potential for which it does not accept.

2. No baseline information to inform any decisions

247. VicForests has no accurate baseline information that could form the basis of careful evaluation and proper assessment of management options in relation to the selection of coupes for harvesting or the designation of silvicultural methods for each coupe.

a. No reliable mapping in the Central Highlands that maps Greater Glider presence or habitat.

248. The Greater Glider High Quality Class 1 habitat model, on which VicForests relies to predict Greater Glider presence, and by reference to which it proposes to implement any discretionary prescriptions in the Greater Glider Interim Strategy (Strategy), is unreliable and inaccurate due to lack of suitable map layers for modelling and prediction (Smith (1) CB 4.2.1 p10; Davey (2) 5.4.1 at [64]). At present there are no reliable mapped layers for critical Greater Glider resources such as habitat trees and uneven aged forest structure.

249. When the deficiencies in Class 1 habitat modelling agreed upon by the experts were put to Mr Paul, his response was to say that it was not data that VicForests created but it was data created by DWELP, utilized by VicForests. No matter who was responsible for the unreliable and inadequate habitat modelling, the fact is such unreliable and inaccurate mapping is the "key" habitat mapping relied upon by VicForests to identify Greater Glider habitat – indeed, no VicForests witness identified any other mapping relied upon for this purpose (Paul, T218.25-.36).

250. Neither model is sufficiently accurate or reliable for conservation planning and management purposes. There is no apparent correlation between the predictions of either model, or between the predictions of either model and the occurrence of Greater Glider in the scheduled and logged coupes (Smith (1) CB 4.2.1 p35). If any reliance was placed on the models for management purposes most of the records shown on the Agreed Maps would have been missed.

251. VicForests' own forest classification mapping, 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 inaccurate and unreliable:

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.

252. Cross examined concerning the accuracy of data on the Cenga system, Mr Paul accepted that the Central Highlands forests is highly variable as to type (T217.35-.42). He also accepted that the VicForests mapping system has problems but did not have any data to say how unreliable or how inaccurate the modelling is (T202.1-.12). He accepted the Bunnings' criticism (CB 11.30) that landscape planning by VicForests was in a "formative state" (T203.30-204.8). However, contrary to the expert evidence, Mr Paul refused to accept that the Cenga system and mapping information available to VicForests was "grossly inadequate and deficient", instead saying "[w]e would have a lot more maps than [have] been utilized here" (T204.29-.33).

253. The Court simply cannot act on such asserted evidence. Whilst Mr Paul was at pains to say that VicForests had other more detailed maps in answer to criticisms of its mapping by Smith (T203.20-.29), no such maps were produced in evidence or identified in re-examination. Mr Paul "potentially" accepted that Smith may be correct in relation to map series 3E being inadequate when mapping forests as single aged class where the norm was for mixed species forests of uneven age. His evidence was that it "might be the case

sometimes" that single class maps wrongly classify uneven aged forests as 1939 regrowth forests (Paul, T203.5-.10). In the face of his other evidence that he had no data to say how unreliable or how inaccurate such mapping was, the Court must proceed clearly on the basis of the expert evidence regarding mapping.

254. Accurate mapping is critical to the application of silvicultural systems and conservation of biodiversity. The fact is that the Cenga system failed abysmally in relation to habitat identification and modelling relevant to the coupes in issue in the proceeding. It failed to identify any Greater Glider habitat in any of the 56 coupes in issue where the Greater Glider was actually found in significant concentrations (T202.10-.18). Not only is the Cenga system inadequate and entirely deficient in identifying Greater Glider habitat, there is also a failure to consistently record the results of harvest which means that an evaluation of forest conditions surrounding a proposed coupe is also problematic. In the case of the logged coupes in issue in the proceeding, only 13 of 25 were the subject of post harvest maps (T206.26-.46 and T207.5).

255. The errors in forest classification are significant because mixed species uneven age forests with abundant or scattered large, old trees are extremely important for the Greater Glider. This habitat is described by Smith as being habitat critical to the survival of the Greater Glider (Smith (1) CB 4.2.1 p 18, and individual coupe assessments at Appendix 1). Indeed Smith said that failure of VicForests to correctly map the age and structure of forests in the Central Highlands is likely to be a key factor exacerbating the decline of old growth habitat for both the Greater Glider and Leadbeater's Possum in Victoria (Smith (1) CB 4.2.1 at p9 at [Q1] and p40 at [Q14 b] and [Q14d]; Smith (1) CB 4.2.1 Appendix 1 at pp68-69, 71-72, 74, 76, 79, 81, 83, 85, 87, 89, 93, 95, 97, 98, 99, 101, 103).

256. More generally – there is no available accurate mapping of:

    a. old growth mixed species forests in the Central Highlands (Smith (1), CB 4.2.1 p 41);

    b. the Greater Glider's critical habitat resources – hollow-bearing trees and uneven aged forest structure (Smith (1) CB 4.2.1 p35);

    c. critical habitat for Greater Glider (Smith (1) 4.2.1 p19, Davey CB 5.4.1 at [44]);

    d. habitat or Greater Glider occurrence in the Reserve systems which would enable an understanding of the extent if at all that they provide connectivity and

therefore wildlife corridors between coupes (Smith (3) CB 4.10.1 p10; Davey (1) CB 5.1.1 p139; T481.14-44; 517.13-21);

e. tree hollows, owl predation history or forest age structure in the Central Highlands (Smith (1) CB 4.2.1 p10 at [Q1]; Davey (2) 5.2.1 at [51-52]);

f. refuge areas of high Greater Glider persistence in the face of known threats (logging, fire, predation, climate change), which are an important habitat category to be identified and have not been identified in most regions of the species range. Current distribution and population size are not known in most areas (Smith (1) CB 4.2.1 p 21 at [Q4h-Q4i]; Davey (1) CB 5.4.1 at [44]).

257. There are methods of mapping that are more reliable. Smith said that mapping Ash and Mixed Species forests in the Central Highlands with mature and senescent forest canopies evidenced by taller, wider and more uneven tree crowns on aerial photographs would be a good start to understanding the distribution of Greater Glider habitat in the Central Highlands (Smith (1) p37 at Q10; see also Davey (2) at [66]). This pattern contrasts strongly the uniform, low, narrow, tightly packed tree crowns evident in uniform aged young regrowth which is generally unsuitable for Greater Gliders (Smith (1) CB 4.2.1 p10). Thus it is not necessarily the case that reliable mapping is unachievable, or overly resource intensive.

258. Because there is no reliable mapping for the Central Highlands in relation to the Greater Glider and /or Greater Glider habitat, it is only possible to be certain whether Greater Gliders occur on coupes by undertaking ground surveys (Smith (1) CB 4.2.1 p9).

259. To the extent the Department has information relevant to Greater Glider habitat, Department databases and VicForests' databases are not integrated (T207.41-.48). Although a 2018 review of the Department (11.21, pdf, p 14) recommended a system of shared data, the evidence at trial was that no such work was yet in progress (T208.1-.20).

b. VicForests has no system for surveying for or monitoring the presence of the Greater Glider in the Central Highlands.

260. The VicForests' precautionary approach document of 2014 (CB 3.4.45) sets out VicForests' general approach (p9) which includes a desktop assessment, a coupe transect (which involves field work) and, if suitable habitat is located, the carrying out of a targeted survey (Paul, T205.6-.30).

261. The coupe reconnaissance instructions of December 2016 (CB 3.4.37) identify five steps, which are reproduced in Paul (2) (CB 3.4 at pdf, p 79-80). It is only where Greater Glider Class 1 habitat is mapped that there may be a field assessment process involving the Greater Glider habitat. This will still not trigger a survey for Greater Gliders themselves.

262. As the evidence in the case shows, in each of the coupes where there were significant Greater Glider detections, the coupe reconnaissance process that preceded the TRP entirely failed to trigger the carrying out of field surveys (Paul, T211.22-.45).

263. VicForests has no system that provides for the carrying out of surveys for Greater Gliders at all, even where there has been a report by third parties of the presence of the Greater Glider. A report by a third party is treated, in VicForests' procedures, as "alleged detection report" (CB 2.1.34 p5).

264. "Alleged detections" do not act as the trigger for the carrying out surveys. In the present case, multiple detections in 56 coupes reported to VicForests, on no occasion led to the carrying out of a survey by VicForests, notwithstanding that VicForests accepts those detections as accurate, both as to numbers and locations (Paul, T210.4-.35 and exhibit 11C). VicForests has no policy or other procedural document which provides any guidance as to how it ought determine whether there will be serious or irreversible damage to the Greater Glider, whether following a sighting or otherwise, and no document which provides or requires for the carrying out of surveys in the case of reported sightings (Paul, T219.28-.40).

265. 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).

266. The evidence of VicForests' proposed reliance on DEWLP surveys was entirely unsatisfactory. The topic was not addressed in any of the affidavit evidence filed on behalf of VicForests. In oral evidence, Mr Paul said, for the first time, that the Department had a program that aims to cover 80% of coupes VicForests "plans" to log (Paul, T205.25-.32), then, that the Department "**are**" surveying 80 of coupes (Paul, T214.10-.14). Mr Paul confirmed that the Court was meant to understand that this 80% of survey of all coupes by the Department was currently occurring (Paul, T269.1-.4). To say that such a statement was not accurate evidence was a charitable interpretation of Mr Paul's responses (Paul, T269.5).

267. The evidence given by Mr Paul was incorrect.

268. What the Department website shows (CB 12.4) is that the Department is "working towards 80%" and that 80% is the ultimate aim for the Department (Paul, T269.25-.45). What the evidence shows is that the Department's program, as at June 2019, has got off to a "flying start" (CB 12.4 and Paul, T271.5-.10) but the program is, in reality, an embryonic one only (c/f Paul, T271.36-.40) and is in the process of being reviewed by the Department (T268.14 – T272.7; printout of DELWP website page titled "Forest Protection Survey Program" CB 12.4).

269. 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).

270. Further and in any case, the Department's own website (CB 12.4) makes abundantly clear that the Department's program is not intended to replace the need for VicForests to undertake its own assessment of biodiversity values before harvesting coupes (Paul, T270.16-.25, CB 12.4).

271. Mr Paul was obliged to accept that the Department had not surveyed any of the coupes in issue in the proceeding (T205.33-.39).

272. If the Department were to be relied upon, it would have been necessary for VicForests to provide contemporary information about what is happing in its forests to the Department (CB 11.19, p35, Paul, T273.35-.45). The 2018 Departmental review by Rozen and others (CB 11.19), being the independent review of timber harvesting regulations, reported that VicForests was not as open with its coupe logging schedules as it should be (CB 11.19 p35). If the Department were to be made responsible for surveys, this would require a very significant change from the present position where, as reported and agreed to by Paul, the Department has little interaction in the day-to-day operation of live coupes (Paul, T274.25-.35). The evidence, as a whole, concerning potential involvement of the Department reflect the facts as reported by the independent review, that VicForests does not have a clear understanding of the Department's role, including its role as regulator (CB 11.19 p37).

273. Mr Paul accepted that VicForests Biodiversity Survey Instruction does not require Greater Glider surveys in the Central Highlands. However, Mr Paul said notwithstanding that position, VicForests might survey for Greater Gliders in any given coupe, if the coupe is identified as having a "higher overall risk rating". He also said that Greater Gliders observed during threatened species surveys (targeted at other species) are recorded and reported, following which VicForests would consider implementation of the Greater Glider Conservation Strategy (Paul (1) CB 3.2 [58-61], [67]; Paul (2) CB 3.4 at [240]; T215.38-47).

274. Mr Paul gave no evidence in any of his five affidavits that VicForests had conducted a targeted survey for Greater Gliders in any logged or scheduled coupe the subject of the proceeding. Mr Paul gave no evidence of Greater Gliders recorded incidentally by VicForests during threatened species surveys targeted at other species in any coupe the subject of the proceeding. Neither Mr Paul nor Mr McBride gave any evidence that the Interim Greater Glider Strategy (**Strategy**) was implemented on the basis of Greater Glider detections reported by third parties in any coupe subject of the proceeding. This is not surprising, given the Strategy on its terms is not triggered upon detection of Greater Gliders, rather it is based solely on habitat modelling.

275. In cross-examination, Mr Paul was asked if it was the case that there had not been a survey in any of the coupes in issue in the proceeding for the Greater Glider, he responded that "I can't remember one, but I would like to check. We have done surveys for Greater Glider from time to time" (T206.14-21). Pressed, in respect of his evidence, that "we

have done greater glider surveys from time to time" (T206.20-.21), he could not remember or identify any such coupes and, certainly, that was not the case for any of the coupes in issue in the proceeding.

276. On this basis the Court should find that despite VicForests' statement that Greater Glider surveys may be undertaken on the basis of an overall high risk rating and information received from third parties, on the facts, in the logged coupes:

    a. reports were made of Greater Gliders in or bordering eleven of the logged coupes;

    b. all of the logged coupes contained abundant hollow-bearing trees and high quality habitat for Greater Glider, described as 'critical and important' by Smith (Smith (1) CB 4.2.1 Appendix 1 pp 68, 71, 74, 76, 79, 81, 83, 85, 87, 89, 95);

    c. VicForests did not identify a single of those coupes as requiring a survey for Greater Gliders and did not, in fact, survey any one of them;

    d. VicForests' approach will be the same in the scheduled coupes.

277. Even at Castella Quarry coupe, VicForests' demonstration site for its new adaptive systems, VicForests had conducted no survey for Greater Glider before commencing forestry operations, notwithstanding the reports of significant densities of Greater Gliders in that coupe in early December 2018, well prior to commencement of harvesting. It did not survey for the Greater Glider until 8 May 2019, six months after the roadworks were put in and after actual logging operations had commenced in the coupe, and then not as a complete survey of the coupe, but simply a two hour exercise that revealed five Greater Gliders (CB 11.74 and 11.75), after the reports from Mr McKenzie and Ms Forster had documented detections of eleven Greater Gliders within or adjacent to the coupe on 4-5 December 2018, one Greater Glider within the coupe on 6-7 December 2018 and six Greater Gliders within the coupe on 7-8 December 2018 (CB 2.12 pp15-17; CB 2.13 pp6-7), noting Mr McKenzie and Ms Forster's evidence was uncontradicted).

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).

279. Smith said current silvicultural management systems in the Central Highlands do not appear to include any adequate or effective survey programs for monitoring and evaluating the impacts of timber harvesting on Greater Gliders (Smith (4) CB 4.12.1 p12) That evidence is accurate.

280. Smith said in relation to the adequacy of baseline information, that the current management systems rely primarily on desktop assessments (including an unreliable Greater Glider habitat model) and day walk coupe transects for threatened species conservation planning and management. This approach does not provide adequate baseline information for adaptive management because: it does not include assessment and mapping of Greater Glider habitat on each coupe (based on forest structure and habitat tree density); it does not require Greater Glider surveys in habitat where they could or are likely to occur to validate habitat mapping; it has no procedures for assessing the importance of impacts on Greater Glider populations where they are found to occur; and it has no alternative silvicultural methods for effective mitigation of logging impacts on important Glider populations where they occur (Smith (4) 4.12.1 p5 at [1a]). Once again, the Court should accept as accurate and act on that evidence.

281. There was no evidence that VicForests intended to make changes to its procedure for selecting coupes for targeted surveys set out in the Pre-Harvest Biodiversity Survey Instruction. To the contrary, the evidence showed that VicForests intended to continue to rely on that document for planning in the future, because the May 2019 version of the HCV document stated that the Pre-Harvest Survey Instruction set out VicForests procedure for targeted surveys (Draft HCV Document 8 Mar 2019 CB 4.12.2.3 p22). VicForests Defence stated that forestry operations in the scheduled coupes would be subject to the HCV Document (CB 1.14 at [6.3(c)(v)(A)]).

282. Given VicForests has not sought and does not propose to accurately predict or determine the presence of the Greater Glider or Greater Glider habitat, it is impossible for VicForests to claim that it carefully assessed management options and properly assessed the risk-weighted consequences of those options when contemplating and determining the coupes to be harvested, or the silviculture method and prescriptions to be applied in those coupes. It simply does not have a sufficient (or any) baseline of reliable information to begin this task and no effective systems in place for Greater Glider surveys.

3. Interim Greater Glider Strategy is of no conservation value

283. The only systemic management option presently applied by VicForests in the making of decisions that may damage the Greater Glider is the Strategy (CB 2.1.33)). The essence of the Strategy is that, where a model developed by the Arthur Rylah Institute predicts Class 1 High Quality Greater Glider Habitat (of multiple classes in the model) and where a visual inspection of that area confirms 15 large live hollow bearing trees in mixed species forest within 3ha, VicForests "will endeavour to retain within coupes additional live, large hollow-bearing trees that occur within 75m of retained habitat" (CB 2.1.33, pdf p 7).

284. One of the key problems with the Strategy is that it only triggers an application of the precautionary principle if Class 1 habitat is determined to be present in a coupe. There is no trigger and no guidance given or action required if Greater Gliders are actually detected (Paul, T221.18-.25). Because the habitat identification system is a "fail", even if the strategy were otherwise an effective approach to the precautionary principle, which it is not, the Strategy also is doomed to fail.

285. Mr McBride, Manager, Biodiversity Conservation and Research at VicForests, was the person primarily responsible for drafting the Strategy (CB 3.3 at [25-50]). Mr McBride, who appeared to be an honest and credible witness, agreed with multiple criticisms of the Strategy put to him in cross-examination:

    a. He accepted that given that the Strategy was based on a habitat prediction model that was completely unreliable and inaccurate, it was hard to determine its usefulness (T377.47);

    b. He agreed that the Strategy was inconsistent with:

        i. His own personal recommendation, based on scientific literature tha**t** he has read, that feed trees be retained within close proximity to habitat trees because of the Greater Glider's limited ability to disperse (T380.38-40);

        ii. The scientific literature which was that Greater Gliders are unable to move into and occupy strange habitat and agreed that the decision to depart from this literature had no scientific basis (T381.9-12).

c. He agreed that the distance that a Greater Glider could glide was a relevant consideration, but that it had not been factored in any formal manner into the Strategy (T366.43 - T367.15, T379.29-30).

d. He agreed that the Strategy did not protect habitat in the same manner as an SPZ, but instead provided for it to be destroyed subject to a discretion on the part of foresters to retain trees within 75m of retained habitat such that the value of the retained habitat was diminished (T378.39-T380.30).

e. He agreed that the word "endeavour" was vague (T383.5).

f. He accepted that, because of the discretionary nature of the prescriptions in the Strategy, it was possible that no extra trees had been retained pursuant to the Strategy since the Strategy was adopted (T381.25-28).

g. He agreed that the Strategy, which isolates habitat trees from retained vegetation by to 75m, did not account for owl predation on Greater Gliders (T379.38);

h. He agreed that the Strategy, insofar as it failed to survey for Glider presence, and failed to document or monitor habitat conservation, was inconsistent with his 25 years of experience of successful conservation management in the USA (T381.31-36).

i. He agreed that if VicForests were serious about protecting the Greater Glider, the Strategy would have provided for the Strategy to be triggered upon detection of a Greater Glider (T381.38-40).

j. He accepted that if VicForests were serious about applying and testing the Strategy, it would have incorporated recommendations made by its employees to make the prescriptions in the Strategy mandatory and to specify a number of trees to be retained (which were not incorporated) (T384.43-46, T385.1).

286. Mr McBride was not the only employee to criticize the Strategy. Mr Deon Kriek and Ms Maria Cardozo, both employees of VicForests, criticised the Strategy during the drafting process. Their comments are recorded in CB 11.8 and 11.15 and speak for themselves – they were not disputed in any manner by VicForests. However it may be noted that those criticisms generally fell into two major categories: that the prescriptions in the Strategy were vague and were not mandatory. None of those criticisms were addressed in the Strategy – the final version fails to specify a number of trees to be protected and does not

make the prescription mandatory. When asked why those recommendations were not implemented, Mr McBride said it was not his decision to make (T384.37-41).

287. 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).

288. Smith emphasised that the Strategy only says VicForests will endeavour to retain additional trees. He said the strategy will have negligible ameliorative benefit for protecting and preventing the decline in numbers of Greater Gliders in timber production forests because the model is wholly unreliable and the only ameliorative measure with any benefit in the Strategy is the use of low intensity single tree silviculture to be carried out in the Strathbogie Ranges, but which is not to apply in the Central Highlands. He said that strategy was on the right track but required more detailed description to ensure that it is implemented effectively (Smith (1) CB 4.2.1 p61-62)

289. The Court should find as a result that the Strategy has no conservation value so far as the Central Highlands RFA is concerned and does not represent careful assessment of management options or a proper assessment of the risk weighted consequences of management options to where possible avoid a threat of serious or irreversible damage to the Greater Glider.

290. Indeed, the Strategy does nothing to increase the protection to the Greater Glider in the Central Highlands beyond the existing habitat tree prescriptions in the Management Standards at clauses 4.1.1.1 and 4.1.4.1 (CB 6.10 p32-33). It is a document of absolutely

no conservation value. For completeness, the only content specific to Greater Glider management included on some (albeit few) of the coupe plans for logged coupes in which Greater Gliders were reported was to 'Prioritise the largest diameter trees with large visible hollows for retention as habitat trees where possible/where they exist' (See Annexure 1). Again this is goes no further than the existing habitat tree prescription at cl 4.1.4.1 of the Management Standards.

291. The persons who could explain why VicForests decided to implement an Interim Greater Glider strategy and why recommendations as to its content made by VicForests' staff, including Dr Cardozo, were not called (T372.31-32).

4. VicForests' other internal documents do not provide for consideration of Greater Glider

292. The evidence establishes that none of the policy or procedural documents produced by VicForests since 2004, a sample of which are listed in Paul (2) at [189] (CB 3.4, pdf, p 80) provide any instructions or guidance as to how VicForests staff and contractors should go about identifying, let alone "carefully" evaluating management options having regard to the status of the Greater Glider (Paul, T303.33-.44).

293. The "VicForests Precautionary Approach to Biodiversity Management of January 2014" (Doc 3.4.45) does not address what must be done for a species for which there is no action statement – the Greater Glider (Paul, T 217.23-.34). It says nothing specific regarding Greater Gliders or what if any careful evaluation should be undertaken when Greater Gliders are detected (Paul, T303.11-.16).

294. VicForests' "Pre-Harvest Biodiversity Instruction" of June 2016 (CB 2.1.34) has no content which is specific to the Greater Glider (current as of May/June 2019 (T 209-210.36)). That decision, made about 7 weeks after the species' listing as vulnerable under the Act, did not include a requirement to survey for Greater Gliders in the CH RFA Area. The consequence of this document is that VicForests' planning is not informed by the presence or absence of Greater Gliders in coupes to be harvested.

295. 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.

296. Mr Paul conceded that VicForests conservation biologist has no involvement in the TRP process (T184-185).

297. As to the VicForests' Management for High Conservation Values document of 2017 (4.12.2.3), Mr Paul had not considered the document against the precautionary principle and was "not sure" whether VicForests considered it relevant (Paul, T196.25-.45).

298. VicForests sought to rely on its additional 'Giant Tree Protection policy' (Paul (2) CB 3.4 at [114], [116-117]; Paul (3) CB 3.5; CB 3.5.96). Smith said if the policy does have any benefit for Leadbeater's Possum and Greater Glider, they would be minimal because these types of trees tend to be solitary and there is not necessarily any restriction on clearfelling all the vegetation around them and leaving them isolated. He said he visited some of these trees and regarded them really as being scenic tourism resources, not ecological resources. He said they are simply too scarce to be of great value in a planning sense as an ecological resource (T423.40-424.4).

299. In summary, no document was produced which showed any assessment of how forestry operations should be conducted in any of the logged coupes on account of the presence of the Greater Glider or Greater Glider habitat (Paul, T 286.41-287.25). VicForests does

not even possess a dedicated checklist, whether as part of the Interim Strategy or otherwise. Whilst there was evidence that, sometimes, on the ground methods did not match those designated on the coupe plan, Mont Blanc was an example of such change. However, that change was to adopt a more intensive method of harvesting than that shown on the coupe plan (Paul, T286.32-267.35).

300. The evidence concerning the logged coupes, summarized in the table 11.26 and agreed by Mr Paul to be accurate (with the exception of the area around Hogsmead, where there was an incorrect plan provided, T285.1-.20) shows that all of the logged coupes were logged using the old high intensity methods. Those methods were used in the logged coupes even though Greater Glider detections were reported prior to logging (Paul, T286.5-.20). The mooted single tree retention method was not used in any of the logged coupes (Paul, T293.40-.43) and consideration was simply not given to a one third system as proposed by Smith for use in Ash forests (Paul, T293.45-294.6). The same is the case for the less intensive methods used in New South Wales. The use of the old methods on the logged coupes and the failure to even engage, let alone carefully evaluate options on the logged coupes, makes out the failure to comply with the precautionary principle in respect of each of those coupes (c/f Paul, T293.5-.21).

301. As reported in his written reports, Davey considered that, from his perspective, the planning framework that was used in both the logged coupes and scheduled coupes at the time they were actually planned, had adequately considered the precautionary principle (T520.1-25). He expressed that opinion because some of the coupes, coupe plans and documents he saw referred to finding the identification of greater gliders in particular coupes. He made an assumption that VicForests had found the Greater Gliders – he was mistaken. He continued in his oral evidence:

> Basically, the records of greater gliders in coupes, if they're actually identified, there needs to be consideration of how they have been managed. … I don't believe if there's a system failure in that context, there would actually a failure of applying the precautionary principle (T520.33-521.14)

302. It was Dr Davey's view that surveys for Greater Gliders should occur in all coupes as part of reconnaissance planning (Davey (2) 5.4.1 at [330]). Yet, VicForests plainly does not do so and has no proposal to do so.

303. For completeness, it is noted that there is of course no prescription for Greater Glider in

the Central Highlands. There is a prescription for Greater Glider in East Gippsland, which states "[e]stablish a SPZ of approximately 100 ha of suitable habitat where verified records report more than 2 individuals per hectare, more than 10 individuals per km or more than 15 individuals per hour of spotlighting, or where substantial populations are located in isolated or unusual habitat" (Planning Standards CB 6.11 p43). This prescription is sourced from the East Gippsland FMP dated December 1995, which states "Arboreal mammals. For each of the following occurrences, approximately 100 ha of suitable habitat will be included in the SPZ: … Greater Glider … >2 per ha, >10 per km, or >15 per hour of spotlighting…" (CB 6.16, p40).

5. VicForests' past and proposed silvicultural methods were not produced as a result of careful assessment and consideration of management options to avoid damage to the Greater Glider/do not constitute adaptive management

304. The impact of the traditional methods of clearfell, seed tree retention and regrowth retention are addressed above at paragraphs [69 - 87] and [107 - 200].

305. It cannot be contended that the traditional methods were developed with the precautionary principle in mind, and indeed VicForests has not sought to do so. It has not sought to defend past logging, this being purely on the basis that it contends that relief is only available in respect of prospective conduct (Respondent's Opening Submissions CB 1.18 at [156– 205]).

306. The commitment to shift to new systems (Paul (4) CB 3.6 at [52-119]) is indeed an admission that the past silvicultural systems required reform to arrest the catastrophic effect of those systems on the environment, including the Greater Glider.

307. However the new systems are, as established above at [69]-[105], not relevantly different to the old systems.

308. Despite the proposed "adaptive new systems" being the cornerstone of its defence, the new methods are methods which VicForests admits were not developed with Greater Gliders in mind (Paul, T 301.43-.48), but instead, with a different objective in mind, FSC certification (Paul, T 305.29-.31). There is no evidence that those systems have been developed with regard to whether they will reduce, where practicable, the effect of forestry operations on the Greater Glider. Rather those systems have been developed in order to seek to obtain the economic benefit of FSC certification, (T523.21); an objective that is quite separate from devising silviculture systems with the characteristics and

requirements of the Greater Glider in mind (T523.33).

309. Questioned about the different drivers for the proposed adaptive measures Dr Davey expressed the opinion that the objective of obtaining FSC certification is quite a different objective than devising silviculture systems with the characteristics and requirements of the greater glider in mind "[m]y opinion is that … they are quite separate, yes" (T523.30 to 35) .

310. Given VicForests has no baseline information about Greater Gliders and has not monitored Greater Glider populations where forestry operations have taken place, it has no way to know whether their proposed new silvicultural systems will be in any way effective in preserving Greater Glider populations or whether and when it needs to adjust those systems if thresholds are met (such as continuing decline). So much was acknowledged by VicForests' own experts and by Mr McBride.

    a. Baker said that he did not consider the new silviculture systems to be truly adaptive because adaptive management requires a learning process through which a range of different approaches are simultaneously trialled, the outcomes of the different approaches are monitored and the systems are altered based on those outcomes. Baker said that the new silviculture systems proposed by VicForests merely involved switching their whole approach to silviculture from one method to another, less intensive, model without appropriate experimentation to assess its effectiveness (T651.27 – T653.29, T655.44 – T656.41).

    b. Davey agreed that in order to determine what method might be appropriate for a particular coupe, the starting point is a requirement for sound mapping of habitat, including of the reserves. He said that the mapping of reserves and appropriate information that is reliable and relatively complete would be required, including the carrying out of surveys. He said that he believed that, given the paucity of knowledge of Greater Gliders in the Central Highlands, pre-harvest surveys should be conducted for the purpose of Greater Glider (T523.1-12).

    c. Davey accepted that the new systems documents are formulated apparently and expressly with a view of seeking to obtain certification, and that the objective of obtaining FSC certification is quite a different objective than devising silviculture systems with the characteristics and requirements of the Greater Glider in mind (T523.19-34).

311. The new systems documents included “test sites” dating back to the 2000s and 2013, but the document does not describe anything about what information was obtained before the test sites were harvested and how they have been monitored since they were harvested.

312. If VicForests were genuinely looking for more appropriate and adaptive silvicultural methods with the vulnerable status of the Greater Glider in mind, they would have given consideration to implementing the approaches advocated by Dr Smith or would have looked at the less intensive methods of forestry operations employed in NSW, in respect of which there is evidence or research supporting the conclusion that such methods could maintain Greater Glider populations.

313. Mr McBride, the Biodiversity Conservation and Research Officer at VicForests, in fact said that the Castella Quarry should not be defined as a “test site” but as an “implementation site” (T387.1-2). This indicates that VicForests is not testing the new systems at Castella Quarry but purporting to implement fully formed systems. This may explain why no surveys were done prior to the commencement of harvesting in Castella Quarry – it is not intended to further inform the new systems to be adopted. Indeed McBride said that there would be no way to determine by November or December of this year whether the systems currently being trialled in the Castella Quarry site would have been effective in preserving Greater Glider populations in that area (T387.4-7).

314. Smith said that both current and proposed Draft HCV and HRS silvicultural management practices pose a real threat of serious and irreversible damage to the Greater Glider and its habitat in the Central Highlands. He 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) CB 4.12.1 p14). None of the new systems satisfies the criteria for consideration as “adaptive management” due to lack of baseline information (from pre-and post-logging surveys), lack of clear and enforceable objectives, absence of monitoring systems and data, lack of targets and thresholds for Greater Glider density and abundance at either the coupe or regional levels, absence of validated (proven) effective remedial silvicultural actions, absence of targets and triggers for remedial action, and total absence of actions to remedy past adverse effects including widespread loss and reduction of habitat trees and the extensive and disproportionate loss of uneven-and old growth Ash forest stands (Smith (4) 4.12.1 p28).

315. Smith said the new systems offer no improvement over current systems in terms of the adequacy of baseline information and have little relevance to assessment and mitigation of timber harvesting impacts on individual threatened species listed under the EPBC Act. He said the proposed new systems reflected a broad planning approach based on the FSC national Standard, using limited criteria which may be relevant to statewide planning for locating National Parks and CAR reserves but has little or no merit for management of individual threatened species at the coupe level (Smith (4) CB 4.12.1 pp5-6 at [Q1a]).

316. Smith said the Draft proposed changes 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 including because:

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 (Smith (4) CB 4.12.1 p7 at Q1 b/d).

317. Smith said that VicForests proposal to survey habitat trees within coupes and use this information to determine which silvicultural harvesting systems will apply is misguided because:

a. it does not take into account the presence of other critical habitat components for threatened species such as forest age and structure, Acacia (wattle) cover, corridor linkages, and importance as a fire refuge;

b. it does not take into account the actual occurrence or abundance of threatened species on coupes as determined by pre-harvest survey;

c. it is likely to result in the progressive conversion of all remaining Ash forests to uniform aged tree crops with no hollows over time as older habitat trees are progressively eliminated for health and safety criteria and no recruitment trees are provided (Smith (4) CB 4.12.1 pp8-9).

318. Smith said in order to address logging impacts on threatened species the approach needs to mandate a wide range of additional planning and management actions and measures at the coupe level including the following:

a. provide an interconnected corridor and reserve network linking all reserves and logging coupes in the Central Highlands;

b. pre-logging surveys of all coupes to map the habitat (including habitat trees), distribution and abundance of threatened species on individual coupes;

c. reviewing, updating and specifying alternative ecologically sustainable silvicultural harvesting and regeneration procedures necessary to maintain and restore Greater Glider habitat and populations within logged coupes over the long term;

d. designing and implementing pre and post harvest Greater Glider monitoring surveys, and setting targets and standards for adaptive management feedback;

e. planning the broadscale implementation of a habitat tree recruitment, restoration and recovery (including chainsaw hollow creation in regrowth Ash trees) operation in previously logged forests where this critical resource has been significantly reduced or eliminated by past forestry operations.

319. Turning to the ‘show coupe’ for the new systems: Castella Quarry. The Castella Quarry view and evidence shows that not only forestry operations but also roading and ancillary operations impact on the number of hollow bearing trees. Castella quarry was said to be the first coupe properly trialled what VicForests is proposing to use, in principle, for FSC certified coupes (Paul, T200.3-.4). The evidence was that Mr McBride was heavily involved in coupe planning (Paul, T/s 278.6-.10). Roading operations began prior to

December 2014 (Paul, T295.25-.45). The contractor was instructed to save habitat trees when carrying out roading operations. However, habitat trees were removed by the contractor for roading purposes (Paul, T296.1-.35). VicForests itself carried out no coupe wide survey for the detection of Greater Gliders until 8 May 2019. That limited survey took place several months after forestry operations were underway in the coupe (Paul, T297.2-.45 and document 11.74). The fact of the survey 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. The author of the VicForests' survey, Mr Ryan, recommended a subsequent survey be carried out (11.74), particularly concerning the lower section of the coupe where he reported there to be good habitat and healthy populations. VicForests did not carry out the subsequent surveys (Paul, T298.5-.24) and, as shown on the view, the area near the southern landing of the site was clear felled.

320. Castella Quarry comprised areas of ash at its higher elevations and mixed species in the mid to lower sections. The evidence of McKenzie was that he and Ms Forster detected more than 10 Greater Gliders per kilometre in this coupe (2.12, pdf, p 7 and Paul, T277.7-.20). Such densities, if in East Gippsland, would have required a 100 ha exclusion zone (Paul, T277.20-.21). The evidence was that VicForests determined it could harvest and "retain a significant amount of habitat for the glider on the site" (Paul, T283.25-.45). Mr Paul could not say who was responsible for "carefully evaluating management options" for this experimental coupe (Paul, T277.22-.48), however, there is no evidence that an *East Gippsland* exclusion zone approach was even considered. What was clear was that the retained timber, as shown on the plan (12.7) and inspected on the view was poor quality timber and it was accepted by Mr Paul that it was the quality of the timber that drove its retention, a financial viability issue, rather than Greater Glider habitat considerations (Paul, T302.8-.34).

321. Thus, even in the trial "show coupe", there was no evidence of actual engagement with the precautionary principle, no systematic attempt to preserve habitat trees and habitats suitable for the Greater Glider. There was a clear disconnect between recommendations for preservation of Greater Glider habitat, recommendations for further surveys and timber harvesting operations on the ground.

6. Adaptive measures are available but not employed by VicForests

322. It is perfectly possible to conduct forestry operations in a manner that does not eliminate

all Greater Gliders either temporarily or permanently from the logged area. As Dr Smith has said in his first report (CB 4.2.1 p 29):

> Studies in NSW and QLD have shown that low intensity selective harvesting operations that remove less than 15% (dry forest) to 33% (wet forest) of tree basal area within logging coupes and retain unlogged connecting corridors in riparian buffers maintain Greater Glider abundance close to pre-harvesting levels. Low intensity harvesting is now standard practice in NSW (uneven aged forests).

323. Smith also proposed that an alternative to low intensity selective harvesting in regrowth Ash forests is "small gap clearfelling", which requires one third of the coupe to grow to maturity on a 100 year rotation, and one third to old growth, retention in patches >4ha and additional to areas retained for other purposes, targeted pre-logging surveys to identify and protect the best Greater Glider habitat in the coupe, protection of connecting corridors between patches and adjacent reserves, retained habitat trees in the clearfelled area 50-100m apart and protected from fire, and all uneven age Ash forest protected by 100m minimum buffers around all individual Ash trees greater than 80 years (all remaining surviving trees that regenerated prior to the 1939 fires) (Smith (1) 4.2.1 p32 at [e], p34, p43-44; Smith (4) p15, p18)).

324. However, he said that while there had been an opportunity to implement these modified clearfelling methods in Ash forests in order to conserve both Greater Glider and Leadbeater's Possum, that opportunity had been largely eliminated by past overharvesting. He said so little 1939 regrowth Mountain Ash remains that cessation of most 1939 Ash clearfelling is now essential to achieve one third old growth protection, and restore balanced age structure to provide sufficient uneven-aged and old growth Ash forest in the future for the long term conservation of Leadbeater's Possum and Greater Glider (Smith (4) p17; Smith (1) p21, p22 at [4], p27-28, T404.21-24).

325. Dr Smith said that even small-gap cluster harvesting in Ash and 15-35% basal removal single tree selection in Mixed Species forests would still impact Greater Gliders at the coupe scale in the short term, causing a decline in population size approximately proportional to the level of harvesting intensity, that is a reduction in coupe population sizes of up to 50% followed by some recovery as forests regrow prior to subsequent harvesting cycles. Consistent with this opinion, the Draft Recovery Plan said that a 1998 study (Kavanagh & Webb) found that populations of greater gliders had not recovered 8

years after logging in sites retaining 62%, 52% and 21% of the original tree basal area (Smith CB 4.10.4.3 p15).

326. He said in order to mitigate long term risks it will be necessary to prepare and map a precautionary wildlife corridor system located in the best possible habitat (determined from aerial photography and ground truthing) that links all coupes (and unlogged protected areas within coupes) with one another and with regional reserves. (Such a map is required, in any case, by clause 2.2.2.8 of the Code.)

327. Like Dr Smith, Dr Davey considered that the harvesting of the scheduled coupes could be done in ways that would meet objectives in item 1.4 of the recovery strategies but it would depend upon the silviculture regimes and the suitability of the habitat that would be involved and on surveys first being carried out (T499.10-25).

328. In order to determine what adaptive method might be appropriate, Dr Davey agreed that, basically, the mapping of the reserves and that the availability of appropriate information that is reliable and relatively complete would be required. He had indicated in his report and believed that the paucity of knowledge of greater gliders in the Central Highlands means that pre-harvest surveys should be continued for the purpose of greater gliders (T523.1-14).

7. Disconnect between VicForests' environmental policies and VicForests' practice

329. There are four key problems with the adaptive measures. First, the proposed measures themselves described above at [69- 105]. Consideration of options developed for an unrelated or different purpose that have not been tested to determine whether they confer any benefit on the Greater Glider (such as Regrowth Retention Harvesting which has only been tested in the United States of America and Tasmania (where, despite Mr Paul being ignorant of the facts Greater Gliders are not found (TS 315.5-.10)) fails to engage, at a very basic level, with the precautionary principle. Second, without guidelines and criteria based upon the characteristics and habitat requirements of the Greater Glider available to guide the choice of adaptive method, assuming for these purposes that baseline habitat information was available, which it is not, no matter how effective specified methods might be in theory, there is no proper basis upon which to actually assess suitability and to "carefully" evaluation options. Third, the harvesting options are not, in truth, "adaptive". As noted above, draft proposed systems at items 1.1 and 1.2 equate to historic methods, clear fell, seed tree retention and RRH. Item 1.4

has no potential application to any of the scheduled coupes and item 1.3, at 40% gross retention, even if applied, retains only 15% of forest in addition to 25% typically taken up by SPZ zones (Paul T319.1-6) and as such is indistinguishable from proposed items 1.1 and 1.2.

330. Even if VicForests new silvicultural systems were effective in conserving Greater Glider populations, the Court can have no confidence that those systems will in fact be implemented in the field. This is evident from the following which was established at trial.

331. VicForests is culturally committed to conducting forestry operations without regard to their impact on threatened species.

332. Whilst VicForests has its own Conservation Biologist (chart, 3.4.9) not only was she not called (Paul, T183-184), she has no role in preparation of the TRP or net coupe areas and no role in deciding whether forestry operations in individual coupes are commenced, ceased or altered (Paul, T184-185).

333. Likewise, the cross examination of Mr Paul, based on the responses to the proposed Statement of Agreed Facts (CB 11.7) demonstrated VicForests' failure to agree to and accept both scientific evidence and common sense concerning the Greater Glider including:

    a. the population decline of the Greater Glider from 1997 to 2010, an average decline of 8.8% per annum in the Central Highlands RFA, as reported in the conservation advice (Paul, T191.9-32);

    b. the population decline of 30% across the country over a 22 year period, also as per the conservation advice (see doc 11.7 at [47]);

    c. that causes of population decline in the CHRFA <u>may</u> include: forestry operations; ongoing clear felling of mixed species forests; extensive wildfires in the ash forests and mixed species forests in 2009 (doc 11.7 at [54], Paul, T192.28-40; CB 11.7 p18-19 at [54]) and compare the specific evidence of Smith and Davey as to the impact of the 2009 fires).

334. It is VicForests' position that Greater Glider detections cannot be permitted to affect forestry operations (T382 ll5-12). As written in an undated letter from VicForests to DEWLP (CB 11.78):

> *A critical component of this [Interim Greater Glider] 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.*

335. The Applicant submits that this passage reflects VicForests' approach to the conservation of the Greater Glider – VicForests does not take the presence of the Glider into account when planning or conducting forestry operations. It therefore does not carefully or properly assess how forestry operations will affect the Greater Glider or modify those operations accordingly.

336. It is also VicForests' practice to take a very limited view of what is possible to protect flora and fauna. This was made clear in the email from Lachlan Wilson (CB 11.80) where Lachlan Wilson identified VicForests' interpretation of what was "possible" in the context of the requirement to protect mature Tree Geebung from disturbance "where possible". It is evident from that email that is was not considered possible to protect mature Tree Geebung where those trees were within the harvest unit. The Applicant submits that VicForests takes the same approach to the application of the precautionary principle – any measure that interferes with harvesting is not considered "possible".

337. Further, it was clear from McBride's evidence that although VicForests does employ people who understand how at least to commence to give effect to the precautionary principle, their advice is not taken (T384.38-40). This was evident from the email correspondence from Deon Kriek and Maria Cardozo which commented on and recommended changed to the Draft Interim Greater Glider Strategy, where none of those comments were incorporated into the final Draft of the Interim Strategy (CB 11.8 and 11.15). The people who were responsible for the decision not to implement any of those recommendations were not called by VicForests.

338. The evidence also revealed that there is a disconnect between what VicForests says it will do and what it in fact does on the ground.

339. This is no mere assertion by the Applicant. This was a conclusion reached by an

independent audit of VicForests in 2014. This audit was in the context of VicForests' attempts to seek FSC certification.

340. VicForests first attempted to obtain such certification in 2007 (2018/2019 board paper, 11.2 p2, Paul, T197.15-.18). VicForests failed in its first attempt in 2007, failed the 2013/2014 FSC audit (CB 11.22) and more recently, in 2017/2018, once again failed to obtain certification. In 2014 the auditors recommended VicForests explore alternative harvest prescriptions to more effectively demonstrate its silviculture and other management practices are appropriate for forestry ecosystem function, structure and diversity (at pdf, pps 20, 25 and 26). It appears nothing was done for the next 4 to 5 years.

341. The 2014 auditor also reported a significant gap between identified performance and the requirement of the applicable forests stewardship standards (CB 11.22 p25). The 2017/2018 audit (CB 3.6.122) similarly found a gap between intent and implementation (p17, 19 and 20), observing that, after 25 days in the field, operations personnel in the region essentially had no awareness of the HCV strategy or their roles in it. The 2018 audit reported (CB 3.6.122 p19):

> Even aged management prescriptions in clear fell burning employed by VicForests are, in fact, adversely impacting high conservation values such as old growth and habitat for species such as Leadbeater's and Greater Gliders (Paul, T196).

342. The disconnect is identified in VicForests' own internal review as at November 2017, which reported that VicForests did not have adequate data or observations to be certain that conservation values are being effected by VicForests' forest management processes (CB 3.6.120 p41); reported in the May 2018 FSC Controlled Wood Audit, which found a considerable gap between design intent and the implementation of VicForests' HCV strategy (CB 3.6.122 at pdf p 19); found that the staff in the field didn't understand or weren't aware of that documentation and their role in implementing it (CB 3.6.122 p31); found major nonconformity with the Code and with the department's requirements (CB 3.6.122 pp16-17).

343. That disconnect was again apparent in statements in the 2018 annual report by VicForests (CB 11.20) which identified timber harvesting as one of the major threats impacting the Greater Glider (pdf, p 18) and was contrasted with the evidence of Mr Paul who denied the existence of timber harvesting as a major threat impacting the Greater Glider (T190.6

– 191.3). The disconnect between public statements such as those in the annual reports and events on the ground were the subject of detailed reporting and criticism in the May 2018 FSC global audit report (CB 3.6.122).

344. There was further evidence at trial establishing that that disconnect continues to the present day.

a. Mr Paul, in cross-examination:

i. Conceded that in the case of the Greendale evaluation site there was a disconnect between what was happening on the ground, and what was documented by VicForests (T306.36 – T308.43);

ii. Conceded that there is also a disconnect on occasion between the system for harvest shown in the coupe plan and the system of harvesting that is ultimately used on the ground (T287 .29-33, T333.44-45),

iii. accepted Table 11.27, which lists all proposed methods on both the 2017 and the 2019 TRP for the scheduled coupes, to be accurate, (with the exception of one incorrectly identified plan, Paul, T285.21-.48), and which demonstrates that VicForests continues to intend to conduct forestry operations in the scheduled coupes by traditional methods. The TRP documents are publications by the Board of VicForests published in the Victorian Government Gazette. VicForests was not obliged by law to specify harvest methods in the gazetted TRP. It chose to do so in 2017 and to repeat the same descriptions in all relevant cases in the April 2019 gazettal.

iv. Accepted that, consistent with the TRP and experience of the logged coupes, 18 coupes the subject of forestry operations in the CH RFA since August 2018, being coupes where Greater Gliders or Leadbeater's Possums were detected, were all the subject of forestry operations using high intensity traditional methods (Paul, T321.10-.48). This evidence and the evidence of the logged coupes and the content of the TRP demonstrates a significant gap between the case that VicForests has sought to present at trial and what actually occurs on the ground. To describe the gap between the case sought to be advanced and the facts on ground as a "significant exaggeration" as was put to Mr Paul (T324.34-.38), is an understatement.

b. McBride, Manager of Biodiversity Conservation and Research for VicForests:

i. said in his affidavit evidence and in cross-examination that it was his practice to regularly make recommendations that where a Greater Glider was detected within the harvest unit of coupe that the habitat tree and feed trees should be protected (CB 3.3 at [23-24], p11-12 and at [59], p21-22; T369.14-15);

ii. said his recommendations were ordinarily implemented (T369.17), and he knew this because VicForests has a policy and compliance section that ensures compliance and because he personally goes out to harvested coupes to evaluate what has been retained (T369.19-24);

iii. however only one example of a recommendation was substantiated in his affidavit evidence with evidence of an email to that effect (CB 3.3 p11-12 at [23]) and in cross-examination McBride conceded that it was evident from the coupe plan that his recommendation was not implemented (T372.1). The only other evidence of McBride making a recommendation was in relation to Kenya which recommendation can be seen in the coupe diary to that coupe (Paul (2) CB 3.4 p126, Diary entry dated 7 July 2017). However that diary entry was made months after logging started (logging commenced 1 May 2017: Paul (2) CB 3.4 p68-69), and Smith observed very poor habitat tree retention (Smith (1) CB 4.2.1 p68) so it appears that that recommendation was not implemented either. Thus the sole evidence of VicForests' discretionary efforts to protect the Greater Glider is of two recommendations being made and failing to be implemented;

iv. there was a disconnect between recommendations made in the office to protect the Greater Glider and the development of coupe plans that would designate how a coupe would in fact be harvested (T372.5-10);

v. he could not explain how, in the version of the latest systems document provided on 4 June 2019, a 5 year planning cycle, with an expectation that the "new systems" would indicatively account for the 70% of total harvested areas on an annual basis by 2022 had been changed to an expectation that 75% of total harvested area would be accounted for on an annual basis by 2020 (CB 12.2; Paul, T304.21-.39; McBride, T385.18-

386.46). There is simply no prospect of 75% of total harvested area being accounted for in accordance with the "new systems" based on the evidence of what is occurring on the ground, as presented at trial, unless in fact, as the evidence shows, those new systems continue to be the "high intensity methods", as designated on the TRP.

c. In cross-examination, Baker conceded that what was documented by VicForests in the Draft HCV documents regarding no longer using high intensity burns, was at odds with his own observation at an East Gippsland site (T652 l40-43).

d. The evidence of Smith revealed multiple instances of discrepancies between what was in VicForests documents and what occurred on the ground. One example is the inaccuracy of VicForests forest mapping, discussed at [251] above. Another example is logging having occurred in modelled stream exclusions, discussed at [177] above. A third example is insufficient retained trees on coupes, and failure to select old trees for retention, despite coupe plans specifying that trees are to be retained as per requirements in the Code as discussed at [129] above (See coupe plans for example for Flicka coupe 8.1 p4, the equivalent is in the relevant coupe plan for each other coupe in which Smith makes this finding, refer to Annexure A Coupe Table).

e. A further example is Woinarski's observation of "retained patches" being impacted by encroachment and burn such that their persistence was patchy, as outlined at [79] above. Two further examples are the felling of habitat trees marked and mapped for retention at Castella Coupe (refer [96] and [319] above) and the harvesting of Mont Blanc by clearfelling despite the coupe plan directing regrowth retention harvesting (refer [299] above).

f. The VicForests Harvesting and Regeneration Systems produced to the Applicant on 2 June 2019 (CB 11.81 p11) says that it will be ready to implement its new systems by 2022. However the witnesses called by VicForests were unable to explain how it was that the timeframe within which the new systems would be implemented had two years shaved off it in the iteration of the 2019 Systems document sent to the Applicant on 4 June 2019 (CB 12.2, p11, T386.24-43). The persons who could have explained the reason for the shortening of the time frame (Bruce McTavish, Marie Lawrence, Anne Urie) were not called (T386.33-38). The Court should infer that

the reason that the timeline was shortened was to improve the appearance of VicForests' operations. However shaving two years off the process without explanation does precisely the opposite – it demonstrates that VicForests proposed systems are premised on little more than empty promises with no scientific foundation.

8. Best evidence of what VicForests will in fact do in the coupes is the evidence of what they have been doing in other coupes not the subject of the injunction

345. The Applicant submits that the best evidence of what VicForests would have done in the coupes the subject of the proceeding had no injunction been in place, and will do if that injunction is lifted, is what has occurred in 10 coupes which are not the subject of this proceeding but were the subject of the tendency application:

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. De Ja Vu (312-011-0015);

i. Teamwork (462-506-0017);

j. Jumping Jack Flash (347-520-0008).

346. Additional 8 coupes in respect of which discovery was only provided by Respondent shortly before commencement of trial:

a. Pamir (457-508-0005);

b. Twisting (298-502-0002);

c. Tropical (462-506-0003);

d. Floater (300-501-0003);

e. Flow Zone (307-503-0003);

f. Impala (288-518-0006);

g. Ivanhoe (288-519-0002);

h. Bayern Munich (312-509-0007).

347. In respect of these 18 coupes, the Applicant relies on the evidence summarised in the table at **Annexure C** (**ancillary coupe table**), including references to:

a. Affidavit of Jake Ross McKenzie of 24 March 2019 and annexures JRM170 to 209;

b. Affidavit of Hayley Forster of 24 March 2019 and annexure HSF1;

c. Affidavit of Andrew Lincoln of 25 March 2019 and annexures ASL12 to 16; and

d. Coupe plans stating the silviculture systems applied to the coupes.

348. The affidavits of McKenzie, Forster and Lincoln contain evidence of what the deponents have observed and found in coupes outside of those that are logged or scheduled coupes in the proceeding, but still in the Central Highlands Region. The affidavits, broadly, contain evidence of detections of the Greater Glider and/or Leadbeater's Possum, the reporting of those detections to the Department and/or Respondent, the response of the department to those detections, the observations of witnesses of the state of any logging in the coupes prior and post detection and reporting. This evidence was not challenged by the Respondent in cross-examination.

349. The Coupe Plans also contain evidence of Leadbeater's Possum and Greater Glider detections in or surrounding the ancillary coupes and demonstrate that VicForests has continued to apply only clear-felling, seed tree retention and regrowth retention harvesting to coupes in which Leadbeater's Possum or Greater glider have been detected.

350. The Applicant relies on the evidence in respect of the ancillary coupes to demonstrate the conduct of VicForests 'on the ground' in its timber harvesting operations in the Central Highlands Region between August 2018 and May 2019.

351. More specifically, it demonstrates that 'on the ground' 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 geebungs, which are a flora species expressly in issue in this proceeding.

352. This evidence is particularly probative in considering the following contentions of the Respondent, made through the evidence of Mr Paul:

a. that VicForests, as a matter of policy, intends to shift from the predominant use of the three existing systems of timber harvesting to a more adaptive suite of silvicultural systems and regeneration treatment (described as less intensive methods of timber harvesting);

b. that VicForests will be reviewing its methods of timber harvesting across the board including in the scheduled coupes and, so, it contends there is no basis on which the court could make findings and nor could the applicant establish what is likely to happen in terms of timber harvesting in those coupes; and

c. it is therefore not possible for the applicant to prove how timber harvesting in the scheduled coupes in issue in this proceeding will be undertaken and, therefore, not possible to prove whether VicForests will fail to apply the precautionary principle in its forestry operations in the scheduled coupes as it is required to do by cl 2.2.2.2 of the *Code of Practice for Timber Production* 2014.

353. The evidence in respect of the 18 ancillary coupes concerns the way the Respondent conducts its timber harvesting operations in the Central Highlands region. The evidence is demonstrative of the Respondent's application of cl 2.2.2.2 beyond the subject coupes. The evidence shows that, despite the evidence of Mr Paul about the matters at paragraph [352(a) and (b)], VicForests does not in any real sense apply cl 2.2.2.2 to its forestry operations on the ground.

354. It is evident from the methods that have been employed in those coupes that, despite the development of the 2016 HCV documents, and the 2019 HCV and Systems documents that suggest that new silvicultural methods will be applied, 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.

355. Put otherwise, the court is faced with:

a. the broad contentions of the Respondent, through the evidence of Mr Paul, as to what VicForests *intends* to do in the future; and

b. the specific evidence, by way of the evidence about the 18 ancillary coupes, as to what that Respondent has *actually* been doing across the Central Highlands Region between November 2017 and May 2019.

356. The Applicant contends that the latter ought be relied on by the Court in its fact-finding task as to what is likely to happen in the foreseeable future in terms of VicForests' timber harvesting operations in the scheduled coupes. That is, that VicForests does not, and will not, in any real sense apply cl 2.2.2.2 to its forestry operations on the ground, despite:

a. the evidence of Mr Paul that from 1 July 2019 VicForests plans there will be a generally applicable shift in its timber harvesting methods to these new adaptive silvicultural methods;

b. the contents of any relevant policies and documentation.

357. Any assertion that the Respondent will apply the new methods in a manner consistent with cl 2.2.2.2 in the scheduled coupes, ought be given minimal, if any, weight.

358. Despite the development of the 2016 HCV documents, and the 2019 HCV and Systems documents that suggest that new silvicultural methods will be applied (albeit that the Applicant contends that they do not in fact constitute new systems), VicForests has been continuing to use traditional clearfell, seed tree and regrowth retention harvesting on the ground.

9. VicForests will not use least intensive methods in scheduled coupes and would not undertake not to use clearfell, seed tree retention or regrowth retention harvesting in the scheduled coupes

359. As established at paragraphs [69-105] above, the new systems are essentially the old systems in emperor's clothing and Paul would not undertake to the Court that those methods would not be used in the scheduled coupes. What Paul did say is that, single tree selection, which is the only method that comes close to the reduction in intensity that may preserve Greater Glider populations (T325.5 – T326.11), will not be used in any of the scheduled coupes, because they do not have the requisite number of hollow bearing trees to qualify (T326 ll12-18, T315.22 – T316 l8).

10. Conclusion on whether cl 2.2.2.2 has been complied with

360. In light of the eight circumstances outlined above, the Applicant submits that VicForests has entirely failed to comply with cl 2.2.2.2 in respect of the Greater Glider. It must be emphasized that this is not a case where there has been some attempt to comply with cl 2.2.2.2. It is a case where there has been no real attempt at compliance. For this reason, the Applicant submits that in respect of the failure to comply with cl 2.2.2.2, this is neither a difficult nor a finely balanced case. That the s 38 exemption is lost in respect of each of the logged and the scheduled coupes is crystal clear.

v. VicForests' Defence

361. VicForests' written defence is entirely premised on attempts to either shield its operations from scrutiny or a refusal to accept and address the uncontested evidence about the impact of forestry operations on the Greater Glider.

1. Insufficiently advanced plans

362. VicForests submits that there are no sufficiently advanced plans for the scheduled coupes to enable the Court to resolve the question of whether timber harvesting may constitute a serious or irreversible threat to the Greater Glider.

363. This is VicForests main argument and it is premised on *MyEnvironment v VicForests* [2012] VSC 91.

364. However VicForests' headline argument must fail because the conclusion on which it relies was no more than a conclusion about evidence in that case that has no relevance to this case. This is evident from the following.

365. In *MyEnvironment*, the Applicant sought to restrain forestry operations in three coupes in Toolangi (see [13]), relevantly on the basis that those coupes comprised or contains Zone 1A habitat for the Leadbeater's possum (see [16]).

366. Logging had commenced in one coupe (Gun Barrel) and was intended to be commenced in two other coupes (Freddo and South Col).

367. VicForests disputed that Gun Barrel contained any Zone 1A and said that it did not intend to log any parts of the other two coupes that contained Zone 1A (Freddo and South Col) (see [17]).

368. The Judge accepted that there was an obligation to protect Zone 1A habitat in the coupes

(see [251]). However his Honour held that the evidence did not establish Zone 1A in the Gun Barrel coupe (see [254], [257]). His Honour then said in respect of the scheduled coupes at [258]-[259]:

> *… whilst they have been identified for timber harvesting pursuant to a TRP, they have yet to be the subject of finalised coupe management plans. I accept the submission of VicForests that it cannot yet be concluded that VicForests intends to log zone 1A habitat in these coupes. Mr Spencer [Director, Planning, VicForests], freely conceded both on the view and in evidence that these coupes may contain zone 1A habitat. Mr Ryan's [Forest Scientist, VicForests] evidence supported the same view.*

369. VicForests' defence states that it will not log areas that are classified zone 1A under the FMP and there is no proper basis for concluding that it proposes to act contrary to this expressed intention.

370. Thus, insofar as the Applicant's case failed in *MyEnvironment* because of uncertainty, that was in circumstances where:

    a. The allegation was that VicForests would log Zone 1A habitat;

    b. It was not established that there was Zone 1A habitat in the coupe where VicForests had commenced logging;

    c. There was no evidential basis on which the judge could conclude that it was likely that VicForests would fail to identify and protect Zone 1A habitat in Freddo and South Col.

371. The circumstances of this case are very different:

    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.

d. VicForests amended the TRP in April 2019 and did not change any of the proposed silvicultural methods designated for each of the scheduled coupes;

e. Although VicForests has circulated Draft documents proposing new silvicultural systems:

    i. These documents are in their infancy and are not sufficiently developed to be implemented (which is supported by the fact that they were not included in the amended TRP);

    ii. The proposed new systems include clearfelling as System 1;

    iii. The balance of the proposed systems (2-4) are not articulated with sufficient specificity to require harvesting any less intense that the traditional methods, and do not reduce the intensity of harvesting to a degree that would prevent those systems from posing a threat of serious or irreversible damage or having a significant impact on the Greater Glider or Leadbeater's Possum.

372. The conclusion about uncertainty in *MyEnvironment* was a conclusion drawn from the evidence in that case. In this case, where the evidence is very different, that conclusion has no application. The fact that coupe plans are not finalised for the scheduled coupes is of no significance when VicForests proposes to use the methods designated in the TRP and the contextual evidence supports that intention. Indeed the failure of VicForests to finalise the coupe plans for the scheduled coupes defeats its own case – the only evidence of the method that will be used in those coupes is the method designated on the TRP as the method that "will be used" to harvest the scheduled coupes. Further, as explained at paragraphs [376 - 377], the coupe plans will be finalised consistent with VicForests pre-existing decisions not to survey for or protect Greater Gliders and their habitat where they occur. There is little uncertainty in that regard.

373. Certainly, at times, "uncertainty" was generated by VicForests own' refusal to disclose material. However, that failure to give timely and appropriate disclosure of relevant

documents has no impact on the ability of the Court, after trial, to evaluate VicForests' actual and proposed "actions".

374. Whilst ostensibly developing new adaptive measures, the defences filed by VicForests in June 2018, September 2018, October 2018 and on 20 January 2019 (11.29) said nothing about the proposals or intention of VicForests to either develop or use "adaptive new methods". Mr Paul and VicForests did not discover any documents relating to these processes or related to either renewed or previous attempts to obtain FSC certification until annexed to Paul (2) in February 2019 (Paul, T186-27-187.8).

375. Leaving to one side that the proposed "adaptive new methods" are indistinguishable from the old high intensity methods, although in its February 2019 defence (CB 1.14 at [6.3(c)(iii)]) VicForests pleads that it has "determined to shift" from its old methods:

    a. no board paper was produced in which the board determined to proceed with the proposed new methods, methods identified in a 2018 board paper (CB 11.2) as first requiring to be evaluated on a cost benefit basis, following which a decision would be made to "go/no go" (board paper, 11.2 and Paul, T197.10-198.24, .35-.36, .43-.46);

    b. the absence of any board paper or board decision as at May/June 2019 confirming that VicForests had decided, at a board level, to press "go" is telling compared to the defence;

    c. the 24 April 2019 TRP (6.8A) is a board approved document in which the traditional methods of clear fell, seed tree retention and RRH are the only nominated harvesting methods (Paul, T199.7-.22).

376. VicForests seeks to rely on uncertainty as to how it will finalise its coupe plans for the scheduled coupes, and which are only finalised upon entry of the contractor into the coupe to commence harvesting (Paul (1) CB 3.2 at [43]). It seeks to argue that it is only when finalising the coupe plan that the precautionary principle is to be applied, or that compliance with it can be assessed. However, there is in fact little uncertainty in that regard. The coupe plans will be finalised in a manner consequential upon VicForests earlier decisions constituted by the Strategy and Survey instruction as to what the triggers for greater glider prescriptions are (class 1 habitat and not detections of the species), what the content of those prescriptions are (it may retain additional habitat trees), and whether to conduct Greater Glider surveys (it decided such surveys are not required).

377. The finalisation of the coupe plan is not a decision made in a vacuum. It is an output of the decisions made earlier, having regard to present information. The present information is unequivocal. Despite the deficiencies of VicForests' own systems the undisputed facts are that Greater Gliders have been detected in substantial numbers in all scheduled coupes and are likely to use all or most of the coupes, that is so despite and almost none of the scheduled coupes being identified by VicForests' mapping systems or otherwise as containing class 1 habitat. This will not trigger application of any prescription for Greater Glider in the coupe plan, due to VicForests' earlier decisions.

2. Nett area available for harvest

378. VicForests submits that the net area available for harvest in the scheduled coupes represents a small area. However where that habitat is critical habitat for the Greater Glider, and where there are no reliable or robust studies of populations of the Greater Glider, the fact that the net area to be harvested is small by reference to irrelevant frames of reference such as the public land estate and the CH RFA is of no significance.

379. Smith's evidence was that net area considerations did not alter his opinion as to significance of impacts. Smith reviewed Mr Paul's evidence as to the total area of land in the logged and scheduled coupes as a proportion of the total land area in the CH RFA Area, and the total area of parks, reserves and SPZ in the CH RFA Area, and concluded that it did not alter his opinion as to:

    a. The sensitivity, value and quality of the coupes;

    b. Whether in context the forestry operations in the scheduled coupes were likely to have a measurable impact on, or threaten, the greater glider

    c. The likely nature, duration, intensity and extent of the impact in the coupe in terms of the Greater glider species, local population and individual members

    d. Whether the impacts are likely to be irreversible

    e. Whether important populations of Greater Glider are likely to be impacted, and any decrease in such population size, area of occupancy, fragmentation and disruption of breeding cycle

    f. Whether critical habitat is likely to be adversely affected

    g. Whether the forestry operations are likely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent the species is likely to

decline

h. Whether the forestry operation is likely to interfere with recovery of the species, the nature of the likely interference, its importance, intensity, duration and magnitude

i. The habitat value of the forest in the coupes for the Greater Glider, current hollow-bearing trees and potential for recruitment of hollow-bearing trees

(Smith (3) CB 4.10.1 p21 at [Q14])

380. Smith said we currently do not know the extent of Greater Glider habitat within Protected Areas and we do not know how dependent the survival of Greater Gliders within existing limited and fragmented Protected Areas will be on the survival and persistence of Greater Gliders in the surrounding matrix of logged (timber production) forest and fragmented SPZs (T 399.23-25; 400.22-31).

3. Greater Glider High Quality Class 1 habitat model

381. VicForests continues to place reliance on the Greater Glider High Quality Class 1 habitat model. In circumstances where both Smith and Davey were of the opinion that this model was wholly inaccurate and unreliable (Smith (1) CB 4.2.1 p10 at [Q2c], p47 at [Q24], p57-58 at [Q35-37]; Davey (2) at [65]; T470.12-15)), such reliance by VicForests smacks of desperation.

4. Populations of Greater Glider in Victoria, New South Wales and Queensland

382. VicForests also continues to place reliance on the fact that populations of Greater Glider are found in other parts of Victoria, New South Wales and Queensland. There are a number of problems with this submission.

383. First, VicForests misstates what is required to engage the precautionary principle. VicForests states that "it cannot seriously be suggested that any timber harvesting that occurs within the net area in the Scheduled coupes would be accompanied by substantial uncertainty as to the survival of the species" (VF Opening Submissions pdf p 28 [83]). The test is not, however, "substantial uncertainty as to the survival of the species". The test is whether there is a threat of serious *or* irreversible threat of damage to the environment. VicForests' proposes test would postulate a higher threshold than that set by the statute, that is, the test that the Applicant is required to meet.

384. Second, VicForests fails to account for the fact that the Central Highlands population of Greater Glider is at the limit of the species distributional range and is therefore important for genetic diversity which is important for long-term conservation of the species (Smith (1) CB 4.2.1 p19 at [Q4giii]; Davey (1) CB 5.1.1 pp112-113 at [249]).

385. Third, VicForests assumes that populations of Greater Gliders outside the Central Highlands are substantial and robust, contrary to the information in the Conservation Advice which record that such populations are declining or have disappeared altogether (CB 6.18 p5-6);

386. Fourth, VicForests misunderstands the nature of the threat to be limited to the destruction of individual Gliders. The impact of forestry operations on the Greater Glider is much more complex, as to which see [106] – [140] above.

5. Presumed compliance with the law

387. VicForests submits that any timber harvesting operations will comply with, and must be presumed to comply with, the prevailing regulatory regime. However there is no such presumption as a matter of law. If that were the case, an injunction under s 475 could never be sought in respect of proposed conduct. That would be clearly contrary to the text of s 475.

388. Whether VicForests will comply with the prevailing regulatory regime is a question of fact to be determined on the balance of probabilities on the basis of the evidence in this case. There is no presumption that displaces that task.

6. Dispute in relation to decline of species/sufficiency of CAR Reserve System

389. VicForests submits that the existing regime, with the CAR Reserve System, is sufficient to protect the Greater Glider from the effects of forestry operations.

390. Underlying this, at the report stage, was in part a dispute between the experts as to whether the species was truly in decline. That dispute, and the reasons that the evidence of the Applicant should be preferred, may be summarised as follows.

391. Smith said that the Greater Glider had been well surveyed in the Central Highlands. He described 5 survey series between 1983 and 2014 as follows:

a. In 1983-84 arboreal mammals were surveyed at 32 sites by stag watching and Greater Gliders were detected at 32% of sites (Smith et al 1985, 1989);

b. In 1987-89 Lindenmayer et al (1990) surveyed a further 120 sites in the Central Highlands using similar methodology and reported similar occupancy of 30%;

c. In 1989 Milledge et al (1991) surveyed Greater Gliders by spotlighting at 130 sites across regrowth to old growth gradient, and Greater Gliders were detected at 37% of sites;

d. Lindenmayer and Sato (2018) monitored Greater Gliders at 156 sites in the Central Highlands from 1996-2015 and reported decline in the proportion of occupied sites from around 60% in 1996 to around 10% after 2009, or a rate of decline of 8.8% per annum;

e. Lumsden et al (2013) surveyed Greater Gliders at 200 random sites in the Central Highlands and detected them at 32 (16%) of sites.

392. Smith said 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 declines 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 Greater Glider as vulnerable under EPBC Act. He said this pattern of decline was consistent with an initial increase in the suitability of 1939 regrowth Ash Forest for Greater Gliders as these forest increased in age from 44-79 years, 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 and particularly the loss of trees with hollows during those operations;

b. ongoing natural decay and collapse of dead trees with hollows in 1939 Ash;

c. ongoing clearfelling of mixed species forests described as uneven aged old growth by Smith, but which were incorrectly mapped as 1939 regrowth by VicForests;

d. 2009 wildfires;

e. increased isolation and fragmentation of remnant habitat caused by excessive logging of remnant old Ash and Mixed Species forests in gullies and riparian zones and failure to maintain substantive corridors between remnant old growth and uneven aged habitats;

f. Potential loss of habitat in hotter and drier forests at lower elevation and on exposed aspects due to hotter and drier conditions than normal over recent years (Lumsden 2013) (Smith (1) CB 4.2.1 pp14-15).

393. The Conservation Advice found a population decline exceeding 30% over a 22 year (three generation) period and that indeed it may far exceed 30%. Declines in the Central Highlands were found to be far in excess of this rate, being 8.8 percent per year which extrapolated over the 22 year period relevant to the assessment is 87 percent (Conservation Advice 6.18 p5). It is notable that the criteria for listing as critically endangered is an 80% decline over the relevant period. That is, the Greater Glider population decline in the Central Highlands is occurring at a rate that founds listing as Critically Endangered.

394. The Conservation Advice found that over all the population of Greater Glider is declining due to due to habitat loss, fragmentation, extensive fire and some forestry practices (Conservation Advice 6.18 p3-5). Smith and Davey agreed that forestry practices in Victoria were more intensive than in NSW or Queensland, and the differences in forest management practices were substantial (Smith (1) CB 4.2.1 p30-31; Davey (2) CB 5.4.1 at [323]). Accordingly, it is precisely the operations in the Central Highlands which are those causing the species decline. Smith was in general agreement with the stated facts and conclusions in the Conservation Advice (Smith (1) 4.2.1 p22 at [5a]).

395. The SAC final recommendation on listing also found population declines likely to result in extinction caused by 5 threats operating on the species habitat including forestry operations, and also raised owl hyper-predation (CB 6.18 p3). Smith agreed (4.2.1 p30 at [q7a]). The Draft Recovery Plan again reiterated that "[t]he abundance of the greater glider has declined as a result of habitat loss, habitat fragmentation, extensive fire and some forestry practices (Recovery Plan 4.10.4.3 p14)

396. Davey does not engage with the issue of the cause of the species decline. His written report disputed part of Smith's report that said decline are cause by "excessive and extensive clearfelling and over-harvesting of Ash forest and Mixed Species forests on short rotations at rates that are not ecologically sustainable. This overharvesting is driven by contractual and legislative supply agreements with industry that commit a greater volume of timber (mostly pulpwood) than is available to harvest without

causing significant environmental damage". However his dispute was with Smith's characterisation of harvesting rates as unsustainable (Davey (2) at 12-18). Davey did not dispute that forestry operations are a cause of decline of Greater Glider or explain any other basis for the species decline.

397. In cross-examination, it was put to Smith 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. Smith said he was not aware of any surveys which have identified stable large populations which are not in decline and would need the Respondent to point him to that reference. (T400.6-12) The Respondent did not produce any such evidence throughout the proceeding and the proposition that was put is inconsistent with the evidence, first, that clause 2.2.2.8 has not been complied with by VicForests, second, that there have not been Greater Glider surveys of CAR reserves and national parks.

398. It was also put to Smith that absent fire or predation, there's no reason why the population of Greater Gliders within the reserve system should be vulnerable in any way. Smith said he did not 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 climate change, cooling or warming, it is necessary 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. He said it is a risk to rely totally on a fragmented reserve system for conservation. (T400.22-31)

399. It was also put to Smith that if the Conservation Advice did not take into account the populations of the Greater Glider within the reserve system, that would make it difficult to infer a total rate of decline of the Greater Glider in Victoria. Smith said if the surveys that he relied upon, which are those of Lumsden, a previous survey by Lindenmayer and all those previous surveys (he said there was about five that he mentioned, including his own), just surveyed State forests and did not include any national parks, he would say that it is possible that there is some bias in the estimate of decline which may mean that it has been either higher or lower than it is claimed to have been, but he would still expect the general trend of decline to be robust overall

(TS 400.33-400.42).

400. Smith said he looked up the question he was asked about Lumsden's data in 2014 where she randomly surveyed 200 sites, and that data was across the whole Central Highlands, it included the national parks and the timber production forests and it was random, which means it was unbiased. He therefore considered it the best data set to rely on for current distribution (TS 456.7-13). The 2013 publication of Lumsden explicitly states that of the 200 sites surveyed for Greater Glider in the Central Highlands, 118 were in State forest and 82 were in Parks and Reserve (CB 12.61, pdf p37).

401. In his report, Davey took issue with the evidence supporting the finding of Greater Glider population decline referred to by Smith and in the Conservation Advice.

402. Davey disagreed that the Greater Glider had been well-surveyed in the Central Highlands and said there is a lack of evidence that shows national parks located in the Central Highlands have been comprehensively surveyed (Davey (2) CB 5.4.1 p31 at [70]).

403. Davey said that Lindenmayer's study of 156 sites in the Central Highlands since 1996 was a long-term monitoring study rather than a survey (Davey (2) CB 5.4.1 at [74]). This statement appeared to be directed to disagreement with Smith's statement that Greater Gliders had been "well-surveyed". Davey did not dispute the findings of Lindenmayer's work or that it evidenced a clear population decline, he simply said he understood it was confined largely to Mountain Ash but could not find reference for the distribution of the 156 sites in terms of forest type, stand age and management category (Davey (2) CB 5.4.1 at [72],[74]). He did not explain what distinguished "monitoring" from "surveying", nor did he suggest that monitoring might be any less reliable than surveying for the purpose of identifying population trends.

404. The Applicant submits that, to the contrary, it would be logical to assume that a long-term monitoring study would be more precise at identifying population trends and changes than periodic surveys by different researchers, at different sites, using different techniques.

405. Davey said the basis of evidence used to justify the eligibility of listing in the Conservation Advice is relatively poor and the advice states "*There are no robust estimates of population size or population trends of the greater glider across its total*

distribution. However, 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". He said the Conservation Advice does not mention in its evidence the known regions and sites where Greater Gliders populations are relatively stable and not in decline many of which are now in the reserve system and the exclusion of those makes it difficult to infer a total rate of decline across the geographical distribution of the Greater Glider. (Davey (2) CB 5.4.1 at [87-88])

406. However, Davey did not himself identify any evidence, surveys or literature whatsoever in support of the proposition that there are "known regions and sites" where populations are stable and not in decline. Nor did he identify or indicate where any such sites or regions were. This general assertion in relation to such a fundamental question and without any plausible basis, means that Davey's evidence cannot be relied upon as to this issue.

407. It was put to Davey in cross-examination that the most comprehensive monitoring program for Greater Gliders is in the Central Highlands was Lindenmayer's 2009 work which has been monitored annually since 1997, and over the period 1997-2010, the Greater Glider declined by an average of 8.8 % per year, a rate that, if extrapolated over the 22-year period relevant to the Conservation Advice assessment, is 87%. Davey said that was in the Conservation Advice and he accepted that. (TS 477.27-477-40)

408. It was further put to Davey that if there had been that decline between 1997, being the date of the Comprehensive Regional Assessment, and 2010, that the CAR Reserve system and national parks has certainly not been effective to arrest or prevent a decline at an average of 8.8 % per year in the population. Davey said on the basis of Lindenmayer's statistics, he acknowledged that is what Lindenmayer said and it was repeated in the Conservation Advice. He did not dispute Lindenmayer's statement, but said his understanding was that Lindenmayer's sites are predominantly mountain ash and not other forest types. He said the CAR Reserve system hasn't been adequately monitored. (TS 477.42-478.10)

409. It was suggested to Davey in cross-examination that notwithstanding that Davey's report referred to 84% of Victoria's native forests being in protected areas managed for conservation of biological diversity, that setting aside of native forest has not been

effective to arrest the decline in the Greater Glider population in the Central Highlands RFA area. Davey said based on the information that Lindenmayer has, he has indicated there's a decline which Davey cannot dispute. (TS 478.36-44) The reference to 84% of Victoria's native forest being in protected areas in Davey's report in fact included within the 84% areas that are subject to timber harvesting, it stated "*…These protected areas are multiple-use public native forests used for timber harvesting that are also regulated and managed for conservation of biodiversity*". (Davey (1) p55 at [134]). Davey's report stated that 56% of total native forest in Victoria was in the CAR reserve system (being land protected from forestry operations), with 43% in dedicated formal reserves, 10% in informal reserves and 3% protected by prescription (Davey (1) p55 at [135]).

410. Davey accepted Lumsden's statement that based on the information Lumsden collected during her study in 2013 a striking result from the surveys was the scarcity of the Greater Glider, which was, until recently, common across the Central Highland. (TS 478.12-20)

411. Davey was not forthright in his responses to the questions concerning population decline. Rather than clearly answer whether he agreed with the conclusions of the studies put to him, he unhelpfully repeated that the authors of the documents referred to had made those statements and was vague as to whether he agreed with the conclusions or not. Overall, he did not dispute the findings of decline that he was taken to in cross-examination and his answers might be understood as agreeing with the findings themselves, at least for Lindenmayer and Lumsden's studies.

412. In balancing the evidence in respect of the species decline, the Court ought to conclude that the best available evidence (namely the studies referred to by Smith and in the Conservation Advice) establishes that the species is in decline with particularly severe declines in the Central Highlands, and there is no evidence contradicting those findings. No weight ought to be placed on the statements that:

a. There are stable populations which were not considered in assessing decline in the Conservation Advice or by Smith, given no evidence whatsoever was put before the Court as to these purported stable populations and Smith expressly said he was not aware of any such studies.

b. The surveys that found the decline of the species did not account for populations in national parks – again no evidence was put before the Court that that was the case, there were mere intimations that it might have been the case, and Lumsden's study expressly states it not to have been the case (TS 456.9-13).

7. Deeming provision

413. VicForests contends that if cl 2.2.2.2 is engaged, then cl 1.3.1.1 of the Management Standards deems actions undertaken in accordance with those standards to comply with the Code.

414. The Applicant adopts the submissions of the Secretary as summarised by VicForests in closing submissions in proceeding (*Fauna and Flora Research Collective Inc v Secretary to the Department of Environment Land Water and Planning & Anor* SCI 2017 04392) (T784 l40 – T787.39). The Applicant submits that the leading provisions in the Management Standards are 1.2.1.1 and 1.2.1.3, such that the Code prevails over the Management Standards.

415. In addition to those submissions on this point, the Applicant submits that, for the following reasons, the construction for which VicForests contends would be invalid and for that reason the Secretary and the Applicant's construction should be preferred.

416. The Code is a legislative instrument made pursuant to s 31(1) of the *Conservation, Forests and Lands Act 1987* (Vic) (**CFL Act**). That sub-section provides that:

> (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.

417. The Management Standards are incorporated into the Code pursuant to s 31(2) of the Conservation Forests and Lands Act. That sub-section provides that:

> (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.

418. Section 31(2) thus allows for the Code to incorporate external standards and rules in the application of the Code. To provide a simple example, Standards Australia has estimated that over 2400 of its standards are given mandatory effect through legislation and regulations (see D Stewart, "Private Standards as Delegated Legislation" in *Public Law in the Age of Statutes: Essays in Honour of Dennis Pearce* (2015) Ch 5).

419. But the text of s 31(2) does not contemplate or permit the incorporation of material that reaches back into the Code and dis-applies provisions of the Code. Indeed the Code can only be varied in accordance with the process set out in Part 5 of the CFL Act.

420. This is not just a matter of the construction of the text of s 31(2) (and Part 5). It is also a reflection of the fundamental principle that a stream cannot rise higher than its source. Just as regulations cannot vary or depart from positive provisions made by an Act (*Morton v Union Steamship Co of New Zealand Ltd* (1951) 83 CLR 402 at 410 cited in *Plaintiff M47/2012 v D-G of Security* (2012) 251 CLR 1 at [174] (Hayne J)), material incorporated pursuant to a provision such as s 31(2) cannot vary or depart from positive provisions of a Code made under s 31(1).

421. The fact that VicForests' construction would be invalid is a reason to prefer the Applicant's (and the Secretary's) construction of cl 1.3.1.1. If the Court reached the view that the only possible construction of cl 1.3.1.1 is that contended for by VicForests, the Court would have to decline to give effect to that provision on the basis that it was beyond power.

8. "Legislative outcomes"

422. VicForests submits that the precautionary principle cannot be used to achieve legislative outcomes – i.e. effectively that it cannot be used to protect the Greater Glider in circumstances where there is no prescription protecting the Greater Glider.

423. VicForests' submission appears to be that the precautionary principle is already accounted for in the "framework of regulation which has itself been derived from a strategic planning process which has taken account of principles of environmentally sustainable development and provided for significant conservation reserves".

424. However this appears to be a submission that cl 2.2.2.2 should be given no effect because it is already provided for in the existing regulatory framework. The effect of

this submission is to give cl 2.2.2.2 no operation. It is well established that a construction that would render a provision nugatory should not be preferred.

425. The Applicant submits that all it is seeking to do is give effect to cl 2.2.2.2 of the Code.

426. Clause 2.2.2.2 is part of the existing regulatory framework and must be given effect in its terms. The fact that the scheme in which it is found provides for the balancing of competing interests does not provide a basis to read cl 2.2.2.2 out of existence. Indeed as Gleeson CJ said in *Carr v Western Australia* [citation] at [6], where a purpose reflects a compromise between competing interests, the better guide to the intention of the legislation is to be found in the text.

427. In any event, cl 2.2.2.2 is, in its own terms, to borrow a phrase used elsewhere in the law, reasonably appropriate and adapted to accommodating multiple interests, providing as it does that management options should be assessed, *where practicable*, to avoid serious or irreversible damage to the environment. Thus cl 2.2.2.2 is consistent with the scheme of which it is part but not subsumed by it.

428. Further, cl 2.2.2.2 has important work to do in respect of a species such as the Greater Glider which has been listed but has not yet been the subject of a finalised action statement or recovery plan. There are no prescriptions for the Greater Glider in the Central Highlands. Clause 2.2.2.2 serves an important purpose in this context to provide protection to a species in respect of whom the system has not yet created a prescription despite the listing of the species.

9. Absence of references to evidence in VicForests' defence

429. It is notable that VicForests has focused their submissions largely on legal questions, not on the evidence.

430. It is notable because VicForests has no good answer to the evidence in this case. The evidence of their experts as set out in the written reports is directly contrary to the Conservation Advice for the Greater Glider, the contents of which was accepted by both Smith and conceded as correct by Davey in cross-examination (Smith (1) CB 4.2.1 p22; T477 l18 – T478 l20).

431. VicForests do not even accept that the Greater Glider is threatened or in decline.

432. In opening, VicForests commenced with repeated references to provisions of the RFA

that state that it is important to balance competing goals of conservation and economic interests. Those submissions go nowhere for multiple reasons.

433. First, they are policy statements that do not inform the construction of the provisions of the Code in issue.

434. Second, even if relevant, they are in the Applicant's favour. Those documents state that the Commonwealth intends to accredit State regimes. General policy statements cannot alter those express terms which must be given priority.

435. Third, VicForests led absolutely no evidence as to economic impacts or directed to issues of economic viability. These matters are within the knowledge of VicForests as is apparent from the 2017 and 2018 annual reports that include the VicForests financial statements which are in evidence. It can be safely inferred that any such evidence would not have advanced VicForests' case.

436. Fourth, these matters were all dealt with in the s 38 Reasons, where her Honour considered this material and concluded that a breach of the code would result in the loss of the exemption under s 38. While the scope of the loss of the exemption must be explored, that is a pure question of statutory construction. Policy documents do not assist in this process, in fact they detract from it. Construing legislation is not a political process.

437. By reference to the CH RFA, **and contrary to the evidence,** VicForests submits that the CAR reserve system is sufficient to protect the Greater Glider. However this submission should be rejected for the reasons set out at [175]-[190] above. In short, the submission that the CAR Reserve System is sufficient to protect Greater Gliders does not survive a moment's look at the evidence, which is that, since the creation of the CAR Reserve system in 1997, the Greater Glider has suffered a population decline so stark as to warrant it being listed as vulnerable under the EPBC Act, with declines even more severe in the Central Highlands in particular.

438. The Applicant make a number of further points in anticipation of what may be said against it.

439. First, the Applicant does not advocate a zero risk approach. Smith said that his proposed measures, if implemented, were not intended to eliminate all risks to the Greater Glider as some losses might still occur (T402.19-25). Instead, the Applicant contends simply that VicForests must carefully and properly assess management

options to, where practical, avoid a risk of serious or irreversible damage to the Greater Glider.

440. Second, Smith's proposed measures do not go further than the Conservation Advice, and the taking of, at a minimum, measures consistent with the Conservation Advice is highly persuasive as to what is 'proportionate' to the threat posed by forestry operations, given it is an advice prepared by the Commonwealth Threatened Species Scientific Committee and approved by the Minister.

441. The Conservation Advice states that management actions required are 'Protect and retain hollow-bearing trees, suitable habitat and habitat connectivity', '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', and 'Constrain clearing in forests with significant subpopulations, to retain hollow-bearing trees and suitable habitat. Smith repeats the same actions, and sets out the specific measures and detail required to implement those actions (ie he applies them to the Central Highlands context). For example, he says protect hollow-bearing trees by specified buffers, protect uneven age and old growth forests being critical habitat, and maintain specified width corridors in riparian zones and along roads [Smith 4.2.1 p43-44]). (Conservation Advice 6.18 p9-10).

442. It is plain that VicForests has not, and does not propose to, apply protective measures consistent with the Conservation Advice, given:

a. Both Mr Paul and Davey accept there is no mapped system of wildlife corridors;

b. VicForests has no specified rotation length for Mixed Species and its rotation length for Ash is too short to allow hollow development;

c. None of the new methods require retention of habitat trees at specified densities above the Code (which levels have, thus far, failed to prevent the species decline);

d. VicForests does not survey coupes for Greater Gliders or their habitat, and so is not able to protect suitable patches of Greater Glider habitat or important sub-populations in each coupe;

e. VicForests has no accurate mapping of Greater Glider habitat and does not even consider the available information or advice of its own conservation biologists

when determining the size and location of its coupes upon preparing the TRP (including to determine if certain locations should be protected in patches as suitable habitat or for important subpopulations rather than included in coupe boundaries).

443. Third, it is the *recovery* of the species not only *prevention of its decline* that is important when one turns to consider:

a. whether protective measures are proportionate to the threat (the fifth of the 5-step test for precautionary principle); and

b. significant impact.

444. The Operational Goal in the Code to which the Precautionary Principle is aligned is "'[b]iological diversity and the ecological characteristics of native flora and fauna within forests are ***maintained***" [emphasis added]. In circumstances where forestry operations are recognised as a threat causing declines of the species so severe as to warrant its listing both by the Commonwealth Threatened Species Scientific Committee (in the Conservation Advice, CB 6.18 p3) and the Victorian Scientific Advisory Committee (CB 6.20 p3), and with which experts in the proceeding agree (Smith 4.2.1 p22 at [Q5a] and p30 at [7a], *maintenance* of the species requires its *recovery* from the point following the decline found to warrant its listing, not mere stagnation at the parlous state it is in having been found to have severely declined – even more so in the Central Highlands than elsewhere. Accordingly, measures that are proportionate to the threat are those that will facilitate its recovery.

445. Subsection 3(2)(e)(i) of the EPBC Act provides that

> In order to achieve its objects the Act enhances Australia's capacity to ensure the conservation of its biodiversity by including provisions to … protect native species (and in particular prevent the extinction, and promote the recovery, of threatened species)...

446. Section 18 of the Act is one such provision and must be read consistently with this purpose. That is, *promotion of recovery*, not only *prevention of extinction* is one of the purposes of the prohibition on the taking of an action that has, will or is likely to have a significant impact (absent assessment and approval). Accordingly, the term 'significant impact', includes those impacts which will interfere with a species recovery, not only those that will cause further decline. The EPBC guidelines are

consistent with this approach.

447. Smith gave evidence as to what is necessary for the recovery of the Greater Glider. He said this includes 100-200m buffers on known Greater Glider records, 50-200m buffers on living hollow-bearing trees, and a moratorium on further harvesting in 1939 Ash until the goal of 33% old growth is achieved (TS 404.21-42; 412.7-9; Smith (1) pp43-44; the specific matters are further dealt with at paragraph 162 above.

448. As expected, those requirements go further than what might staunch or slow the species decline, such as only:

a. 33% basal removal single tree selection in Mixed Species forests, with an effective wildlife corridor system; and

b. 33% basal removal small gap cluster harvesting in regrowth Ash with protection of all uneven aged Ash by 100-200m buffers on hollow-bearing trees.

449. Given the objects of the Act, the Applicant submits that significant impact is made out where forestry operations are likely to interfere with the matters Smith set out as requirements for the recovery of the species, and those set out in the Draft Recovery Plan, not only where those operations fail to apply what is necessary to staunch or slow the species decline, though it is plain that VicForests past and proposed forestry operations do not even apply the latter.

vi. If Osborn J test is correct, the test is nevertheless satisfied on the evidence

450. If the Court concludes that the five-step test identified by Osborn J in *Environment East Gippsland* is the correct test, the Applicant submits that that test is easily satisfied by the evidence in this case. That five-step test is identified at [212] of *Environment east Gippsland* as follows:

> *(a) is there a real threat of serious or irreversible damage to the environment?*
>
> *(b) is it attended by a lack of full scientific certainty (in the sense of material uncertainty)?*
>
> *(c) if yes to (a) and (b), has VicForests demonstrated the threat is negligible?*
>
> *(d) is the threat able to be addressed by adaptive management?*
>
> *(e) is the measure alleged to be required proportionate to the threat in issue?*

451. There is a threat of serious or irreversible damage to the environment, as described

above at paragraphs [106] – [200].

452. There is scientific uncertainty in relation to that threat. As Osborn J identified at [198] of *Environment East Gippsland*, the uncertainty can be in relation to the extent to which the species is present. In the present case the same uncertainty exists in relation to the Greater Glider. It is difficult to provide a reliable total population estimate of Greater Gliders in the Central Highlands due to inadequacy of models and comprehensive surveys (Davey (2) CB 5.4.1 at [78]; Smith (1) CB 4.2.1 p37 at [Q11]). There are "no robust estimates of population size or population trends of the Greater Glider across its total distribution. However, 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" (Conservation Advice for the Greater Glider CB 6.18, pdf p 5). There is accordingly substantial uncertainty in relation to the number remaining in the wild. That is so regardless of that fact that it was estimated in 2014 that the number of mature individuals in the wild was greater than 100 000 (Conservation Advice, pdf p 8). As the Conservation Advice states elsewhere:

a. this estimate is not supported by robust studies and studies have found that the Greater Glider is not present in areas where it was thought to be present (Conservation Advice pdf pp 6-7);

b. even if the figure of 100,000 was correct, the rates of decline around the country (Conservation Advice, pdf pp 6-7) would mean that by 2019 that number would have substantially reduced.

453. At present there is also lack of detailed information about the spread of genetic variation in Greater Glider populations. Smith observed that in the absence of this information, genetic diversity is best conserved by protecting populations throughout their geographic range and especially at the extremes of ecological gradients such as elevation, rainfall and temperature, and by connecting (where possible) these extreme populations to one another along continuous corridors or gradients of protected habitat, especially those in the least fire prone areas. Greater Gliders in the Central Highlands are at the edge of their distributional range (Smith (1) CB 4.2.1 p19 at [Q4giii]).

454. Further, the potential adverse effect of timber harvesting on increased owl predation is not well understood. Cycles of owl predation and the strategies owls apply to

targeting higher density populations of Greater Glider are not well understood. Smith said that the potential impacts of warming and drying climate cycles are not well understood. There needs to be better understanding of the impacts of hot dry weather patterns and droughts have on Greater Glider populations and the response of Greater Glider populations after droughts in the range of habitats found across the distribution of Greater Gliders. (Smith (1) CB 4.2.1 p29 at [5e]); Davey (2) CB 5.4.1 at [85])

455. There is also, as described above at paragraphs [247] – [250], no reliable mapping of Greater Glider habitat and VicForests' own forest maps are also unreliable and inaccurate as discussed above at paragraphs [251] – [253].

456. There is further substantial uncertainty as to the location and extent of habitat critical to the survival of Greater Glider (refer [211] above) and important populations (refer [452] – [453] above).

457. VicForests, by its 2018 Annual Report (11.20, pdf, p 18) admits "[t]imber harvesting was identified as one of the major threats impacting the species, yet it was also highlighted that there are major gaps in knowledge surrounding species population trends, distribution and habitat suitability".

458. The uncertainty in relation to the remaining populations of Greater Glider, the spread of genetic variation within the population, Greater Glider habitat and forest mapping feeds into the nature of the threat posed by forestry operations – if the total number of Greater Gliders in the wild were known, their genetic diversity were known and their habitat was known, the threat caused by logging in the logged and scheduled coupes could be assessed with more certainty. However because those matters are not known, the threat caused by logging in the logged and scheduled coupes is attended by substantial uncertainty, albeit it is known that it is a threat of serious or irreversible damage to Greater Gliders (and indeed the broader environment to the extent that the Greater Glider is a keystone food source for larger predators (Smith (1) CB 4.2.1 p7).

459. With all of these unknowns in relation to Greater Glider populations and habitat, it cannot be said that there is no uncertainty in relation to the damage that was done in the logged coupes and that will be done to the species if forestry operations proceed in the scheduled coupes.

460. It would be for VicForests to establish that the threat to the Greater Glider was negligible. The Applicant will address this in reply if VicForests so contends.

461. The threat to the Greater Glider is able to be addressed by adaptive management. The Applicant's submissions in this respect are set out at [100–103], [322-328] above.

462. These measures are proportionate to the threat in issue.

463. The threat posed by forestry operations to the Greater Glider was stated in the Conservation Advice to be "catastrophic" (CB 6.18 p3) . Smith was in general agreement with the stated facts and conclusions in the Conservation Advice (Smith (1) 4.2.1 p22 at [5a]). Davey did not express any view as to the threats operating on the species stated in the Conservation Advice but sought to dispute the evidence of its decline used to justify its listing (Davey (2) 5.4.1 at [87-88]). Davey's evidence seeking to refute the species decline should be rejected for the reasons at [389] – [412] above. The evidence in the Conservation Advice as agreed by Smith concerning the scale of the threat posed by forestry operations should be accepted by the Court, including given no contrary evidence was put forward.

464. 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).

465. The measures proposed by the Applicant are practical, see Smith at [100-103]. In cross-examination, Smith said that protection of all 1939 Ash was practical (T412.7-.9). There was no evidence led by VicForests that this was not the case.

466. Smith's findings of the requirement to protect all hollow-bearing trees by buffers in Ash forest is consistent with the 2019 Conservation Advice for Leadbeater's Possum (CB 11.103), which states that "Retain and protect, with appropriate buffers, all live and dead trees that are either large (>150 cm DBH) or hollow-bearing (where >80 cm DBH) in montane Ash forests within the distribution of Leadbeater's Possum.". The Applicant submits that this consistency demonstrates that the proposed measure is both 'practical' – in the sense that it can readily be applied on the ground, and it is 'proportionate' – given that its application would be nothing additional (and so no extra burden) to what is recommended for the protection of Leadbeater's Possum by

the most current Conservation Advice (which must now be considered by VicForests at all stages of planning under s 2.2.2.3 of the Code).

467. It is not the Applicant's case that forestry operations must cease altogether. It must be recalled that the Applicant has brought these proceedings in respect of just 66 coupes from a TRP that lists thousands of coupes, more than 1000 of which are within the CH RFA Area alone. The measures proposed by the Applicant – refraining from harvesting some of those coupes and surveys and buffers or lower intensity harvesting in others – are moderate and proportionate to the threat to the Greater Glider and competing interests of VicForests.

468. It is important to note that it has been no part of the case for VicForests to plead reliance upon, to lead evidence as to, or to argue that economic considerations and issues as to financial viability are relevant considerations when "carefully evaluating" options in respect of the Greater Glider in respect of any or all of the logged and scheduled coupes. Again this is perhaps unsurprising given that the case only concerns 66 out of over 1000 coupes.

D. Failures to comply with cl 2.2.2.4 (identify and manage biodiversity values)

i. Tree Geebung

469. In addition to the failure to comply with cl 2.2.2.2 of the Code, the Applicant also alleges breach of a number of other provisions of the Code in respect only of certain logged coupes. Annexure 1 to the Applicant's outline of opening submissions lists the Code breaches alleged for each coupe.

470. One code provision in respect of which the Applicant alleges a number of breaches is cl 2.2.2.4 of the Code. That clause provides that:

> *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.*

471. One biodiversity value listed in the Management Standards is Tree Geebung

(*Persoonia arborea*) (CB 6.10 p94).

472. Cl 4.3 of the Management Standards requires VicForests to apply management actions for rare and threatened flora identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 14 (Rare of threatened flora prescriptions) (Cb 6.10 p36). Table 14 states for Tree Geebung (*Persoonia arborea*): Protect mature individuals from disturbance where possible (6.10 p94).

473. VicForests is required to identify Tree Geebungs during planning and prior to harvesting, to address risks to those Tree Geebungs by planning the coupe applying management actions that protect the mature individuals where possible, and to then harvest the coupe protecting those individuals. The obligation at cl 2.2.2.4 requires that the relevant identification and planning occur prior to commencing harvesting *in the relevant coupe*. That is necessary not only as a matter of logic, but also because the coupe plan must specify all operational requirements and be prepared prior to the commencement of each timber harvesting operation: the Code p 36 and Cl 2.3.1.2.

474. The evidence shows that 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. The Applicant submits the failure to both identify Tree Geebung during coupe planning prior to commencing harvesting, and to plan the coupe to protect the mature individuals, constituted forestry operations (management of trees) contrary to the Code, resulting in loss of exemption for forestry operations in that coupe, being a coupe planned/managed contrary to the Code. The damage caused to the mature Tree Geebungs during harvesting was a further and separate breach founding loss of exemption.

475. On 2 February 2018, VicForests commenced harvesting in Noojee Skerry's Reach coupe (Paul (2) CB 3.4 at [161]);

476. The Coupe Plan for Skerry's Reach coupe is dated 31 January 2018 (CB 8.17). It does not record any mature Tree Geebung identified within the coupe, nor any management action applied to mature Tree Geebung. It states that "Tree Geebung record from 1994 present within 200m of south western corner of coupe" and "if Tree Geebung is found within coupe protect mature individuals where possible" (p22).

477. During the night on 6 to 7 February 2018, Mr McKenzie conducted a survey in parts of the northern and easterly areas of the coupe outside the two Leadbeater's Possum buffers in that coupe, during which he recorded 10 small trees that he identified as Tree Geebungs (Persoona arborea) in both the logged and unlogged parts of the coupe. He observed that two of the Tree Geebungs in the logged part of the coupe were damaged and another was destroyed. He said the two damaged Tree Geebungs had limbs that were snapped or broken off and the destroyed Tree Geebung had been uprooted. He filmed and photographed those 3 damaged or destroyed Tree Geebungs and recorded their location by GPS waypoint. He photographed one of the intact Tree Geebungs in the unlogged part of the coupe. (McKenzie (1) CB 2.3 at [234-237]).

478. At 7am on 7 February 2018, Mr McKenzie reported the Tree Geebung detections to VicForests and DELWP, including a map, photographs and GPS coordinates. The Tree Geebungs Mr McKenzie recorded on this date were named with waypoints commencing "DDD" and the photographs were placed in sub-folders matching their waypoint names, which were provided to DELWP and VicForests with the report and were in evidence. Mr McBride received the report on that date. (McKenzie (1) CB 2.3 at [238-239]; CB 2.3.73; Paul (2) 3.4 at [427]; McBride 3.3 at [80]).

479. All of VicForests' actions concerning Tree Geebung in the coupe occurred after Mr McKenzie's unchallenged observations, records and reports of damaged individuals on 6-7 February 2019. Mr McBride said that coupe diary entries were made as follows:

a. on 8 February 2018, stating "*Marked Tree Geebung in coupe with 3 pink tapes, trees to be protected where possible and cleared around"*;

b. on 16 February 2018, stating "*Checked on habitat tree and Tree Geebung, good selection of habitat trees. geebung, good selection of suitable habitat trees, and Tree Geebung have been harvested around with no damage at this point'*;

c. on 9 March 2018, stating *"All going well. Walked finished snig tracks and check Tree Geebung + habitat trees. All good"*;

d. on 13 March 2018, stating "*Have finished falling today. DWELP inspection of Tree Geebung*";

e. on 15 March 2018, stating *"Walked coupe for clearance. Good rehab of snig tracks and protecting Tree Geebung from harvesting* (McBride CB 3.3 at [71-76])

480. Mr McBride said he went to Skerry's Reach coupe on 13 March 2019 with Wally Notman of the Timber Harvest Compliance Unit at DELWP. He said he spent about 6 hours at the coupe and undertook a visual inspection of the nine Tree Geebungs subject of the report and assessed the allegations made in it. He said he visited every location of retained Tree Geebung in the report within the harvest area and that assessments were made of presence and mitigation measures to maintain Tree Geebung after disturbance. He said two Tree Geebung reported were absent because they had been removed during construction of snig tracks. He said he did not see uprooted Tree Geebung (McBride CB 3.3 at [82-85]).

481. Mr McBride said Mr Notman then prepared a report outlining the findings, which included damage recorded to Tree Geebungs observed, it stated:

> *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 positions have a reasonable prospect of surviving the regeneration burn. The other 2 reported occurrences were removed during landing and snig track construction.*
>
> …
>
> *It is not possible to know how many of these occurrences would have been picked up by VicForests and the harvesting contractor, independently of the third party report.*
>
> (McBride CB 3.3 at [86-88])

482. On 19 March 2018, VicForests completed harvesting in Skerry's Reach coupe (Paul (2) CB 3.4 at [161]).

483. During the night on 26 to 27 March 2018, Mr McKenzie undertook a second survey for Tree Geebungs in the logged part of the coupe. He observed a substantially larger area of the coupe had been logged compared to his observations on 7 February 2018. He saw 5 damaged Tree Geebungs during that survey, including specimens with browning and brittle leaves that appeared to be dying, two Tree Geebungs lying on the ground that had been completely knocked over with logging debris covering or

partly covering them. He saw three Tree Geebungs with broken and snapped off limbs that looked like they were dying. Mr McKenzie filmed, photographed and marked GPS waypoints for the 5 damaged or destroyed Tree Geebungs. The Tree Geebungs Mr Mckenzie recorded on this date were named with waypoints commencing "TTT" and the photographs were placed in sub-folders matching their waypoint names, which were in evidence (McKenzie (1) CB 2.3 at [246-248]; CB 2.3.75). There is no challenge by VicForests to any of this evidence.

484. Mr McKenzie provided the GPS waypoints recording the Tree Geebungs he had detected to Mr Lincoln, who prepared a map depicting their locations within the coupe, and the date and times the detections were made. This map was evidence. (McKenzie (1) 2.3 at [258]; JRM-79 CB 2.3.79; Lincoln (1) CB 2.7 at [54-59]).

485. Mr McBride said he returned to the coupe on 30 May 2018 after the regeneration burn, again with Mr Notman. He said on this occasion he observed one uprooted Tree Geebung. He said he tree did not have mechanical marks on it consistent with mechanical disturbance. He said he saw several Tree Geebung that had been scorched during the regeneration burn (McBride CB 3.3 [89], [91]).

486. Mr Mueck, an expert botanist engaged by the Applicant, was provided with copies of the photographs and videos that Mr McKenzie recorded of the Tree Geebungs in Skerry's Reach coupe during both surveys. He provided opinion as to the species, maturity and any damage to the plants recorded in the photographs and videos. Mr Mueck said:

> *The specimens recorded were Tree Geebung (Persoonia arborea). This species 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 advisory list of rare or threatened plants in Victoria (Mueck (1) CB 4.4.1 p3 at [2], p5-7);*

487. At least 5 of those Tree Geebungs were mature, being those at waypoints DDD03PA, DDD05PA, DDD06PA, DDD12PA, TTT03PA. He described these specimens as "flowering mature plant", "mature plant", "large mature plant" and "mature shrub/small understorey tree". Mr Mueck said the maturity of the other specimens

recorded was uncertain. He said past observations and aging of Tree Geebung indicate that prolific flowering and fruiting in this species is restricted to mature individuals estimated to be in excess of 100 years old. He said larger specimens such as the individual depicted in photos DSC06014 (at DDD06) and DSC06035 (at DDD02) and video 00452 (TTT03) are likely to be over of 400 years old. (Mueck (1) 4.4.1 p3 at [3], p5-7);

488. The photos and videos included a number of plants that had been physically damaged. He said that where plants were damaged, the damage appeared indicative of physical damage caused in association with timber harvesting and some images and video footage are clearly in areas where tree felling has occurred. He described at least 4 of the Mature Tree Geebungs in this manner, being specimens at waypoints DDD03PA, DDD05PA, DDD06 and TTT03. Specifically, he said:

a. DDD03: "foliage appears to be un-naturally in a lateral position" from two photographs and "whole tree/tall shrub which appears to have been pushed over" and "flowering mature plant". Flowering is restricted to individuals estimated to be over 100 years old (Mueck (1) 4.4.1 p3 at [3], p5);

b. DDD05: "Branches broken" and "main branch broken" (Mueck (1) 4.4.1 p5)

c. DDD06: "At least two main branches broken" and "main branch broken". This plant was likely to be over 400 years old. (Mueck (1) 4.4.1 p3 at [3], p6);

d. TTT03: "Some branch damage and damage to the main trunk. Plant appears to be within heavily disturbed area of forest". This plant was likely to be over 400 years old (Mueck (1) 4.4.1 p3 at [3], p7).

489. The map at CB 2.3.79 shows the location of these individuals in the southern part of the coupe. The post-harvest map dated 15 March 2018 at CB 8.17A shows that these locations were harvested.

490. In cross-examination, an email from VicForests seeking DELWP 'policy advice' regarding Tree Geebung was put to Mr Paul. The email from Mr Gunn, said:

> *VicForests have recently received a number of third party reports regarding the presence of tree geebung within planned or active coupes. We would like the department policy advice on our current understanding*

of requirements for the management standards. 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 .... 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. This can be through including trees in extended stream buffers or grouping trees 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's 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. (CB 11.80 p3; T326.33-327.16)

491. Mr Paul said the view expressed in the email was VicForests' interpretation at the moment of compliance with the Tree Geebung policy. He said he believed it would have been the approach that governed what occurred at Skerry's Reach (T 326.33-327.16).

492. It was put to Mr Paul that VicForests took the view that if there were mature tree geebungs in the Noojee coupe in an area that otherwise would be suitable for forestry operations using clear-fell or similar, that it would just go ahead. Mr Paul said that as per VicForests' interpretation, where VicForests identified them and can incorporate them into other buffers and boundaries it would seek to do so. (TS 327.36-45)

493. It was put to Mr Paul that what occurred at Skerry's Reach was exactly as per the email, being that Tree Geebungs were detected within the harvestable area and it was not practical to include them in buffers and boundaries, and as the author says avoiding disturbance is in many cases not possible. Mr Paul said he was not sure and would need to see the details (T327.35- T328.1-3).

494. The Applicant submits that VicForests' approach to what is "possible" is to deem that any mature Tree Geebungs located in the planned harvest and which it determines are not "practical" to include in exclusion areas are not "possible" to protect, so it proceeds with the harvesting knowing that protection of those individuals will not occur. It will avoid mechanical disturbance "where possible" but those individuals will almost certainly be disturbed by fire.

495. The Applicant submits that that approach does not copy with the Management Standards.

496. Whether including a Tree Geebung in an exclusion area is "practical" is a different question to whether it is "possible" to protect it from disturbance. VicForests' approach effectively deems that if the answer to the former is no, the answer to the latter will also be no for those Geebungs in the harvest area. But plainly, it is possible for VicForests to simply buffer mature tree geebungs in the same manner it applies buffers to a range of other values, such as Leadbeater's Possums. Such an approach would simply result in a smaller harvesting unit. That does not mean it is not "possible".

497. It is not surprising that VicForests failed to identify or protect mature Tree Geebung in Skerry's reach given its overall approach to coupe surveys and the stated approach to Tree Geebung in particular. But its conduct is plainly a breach. VicForests did identify that the species may be present in the coupe during its desktop overlay. So much was apparent from the coupe plan. But, instead of this triggering VicForests to send a properly trained person to carefully search for and identify the species (as Mr McKenzie was able to do, at night time), it relied on the logging contractor happening to chance upon mature tree geebung and if it did so, protecting it where possible. That amounts to relying on the bulldozer driver seeing the plant from the machine, having the botanical skill to identify it, and in the same instant driving the machine around it if he thought that was possible. Such an approach cannot be accepted as compliant with the requirement at 2.2.2.4 of the Code. Nor is the approach set out in the email in those circumstances where VicForests does manage to identify the species before harvesting.

498. However, in Skerry's Reach coupe that approach was not even taken, because VicForests did not identify the individual trees in the harvest area before harvesting,

and those individuals were not even protected from the mechanical disturbance stage.

499. VicForests did not identify any, let alone the multiple mature, Tree Geebungs in the relevant coupe prior to harvesting. That is already a breach of the relevant provisions of the Code and Management Standards.

500. The balance of the evidence supports a finding that the Tree Geebungs were damaged in the harvesting operation – they are in the harvesting unit, they are surrounded by logged trees, the damage was significant and consistent with mechanical disturbance. There is no other plausible explanation for the damage and VicForests has not provided one.

501. Further, after harvesting the trees were not protected from the post-harvest burn.

502. VicForests submits that the evidence as a whole does not permit a positive finding as to the maturity of the damaged trees, the practicality of retaining the specimens nor the cause for the disturbance (VFOS [165]-[169].

503. This contention should be rejected given:

a. Both Mr McKenzie and Mr Mueck's evidence was that the cause of disturbance and damage to the Tree Geebungs was the timber harvesting. Both their evidence was accepted.

b. Mr Mueck's evidence as to the specimens' maturity was uncontradicted and was not the subject of cross-examination. His opinion was based on Mr McKenzie's evidence which was uncontradicted and admitted in its entirety. VicForests led no evidence whatsoever as to the maturity of Tree Geebungs subject of Mr McKenzie's report. Mr McBride did not address the topic nor did Mr Notman's report;

c. The evidence was that upon being made aware of the Tree Geebungs, VicForests did mark and retain some of them, by flagging with pink tape. This demonstrates it was practicable to retain Tree Geebungs in the coupe and within the harvest area, once identified. VicForests failed to identify them, and once being made aware of them simply chose which ones to retain and which ones not to.

ii. Zone 1A Habitat

504. The Applicant alleges that there was a failure to identify Zone 1A habitat in Blue Vein coupe prior to harvesting, and a failure to address risks to that Zone 1A with management action consistent with the Management Standards, also contrary to cl

2.2.2.4.

505. The Management Standards require VicForests to apply management actions for rare and threatened fauna identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 13 (Rare and threatened fauna prescriptions): Cl 4.2 (p36).

506. Table 13 states, in relation to Leadbeater's Possum habitat, where evidence of Zone 1A habitat is found in the field follow clause 2.1.1.3 of this document using Table 4 the Planning Standards (p77)

507. Cl 2.1.1.3 states 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 (p23) .

508. Table 4 in the Planning Standards states, in relation to Leadbeater's Possum habitat, "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. Zone 1A" (p39).

509. The term "hollow-bearing tree" is defined in the context of Zone 1A habitat as living mature or senescent trees of Ash eucalypt species containing hollows (Management Standards 6.10 p12). Each of the terms "mature", "senescent", "Ash" and "hollow" are also defined in the Management Standards (CB 6.10).

510. Mature is defined as a growth stage of trees. Mature Ash species have the following characteristics, in order of assessment priority. Note that no single characteristic defines maturity on its own, although the first characteristic (apical dominance) holds the most significant assessment weight:

    a. Lack of clear apical dominance within the upper crown;

    b. Presence of permanent shaping branches with diameters at least one third of the bole diameter at their junction with the bole (clear of collar);

    c. Shaping branches are not related either to the presence of long term natural gap in the canopy, or to an open grown tree position. In the case of a natural gap, such branches often occur only on one side of the tree, and the 'assessment weight'

given to this characteristic may need to be downgraded (i.e. the need for other indicators increases as part of the overall assessment);

d. The shaping branches contribute significantly to lateral crown shape and may be competing with other shaping branches for tree height position, creating a rounded crown appearance (related to (1) above);

e. Apical dominance will also cease at the shaping branch level (having reached maximum length), and can induce secondary (epicormic) branch development along shaping branches;

f. Some branch death (dieback) and breakage is typical, but not a dominant feature. This loss of leaf area (photosynthetic capacity) can also induce secondary (epicormic) growth to replace lost photosynthetic capacity; and

g. Diameters of early mature trees may occur between 90 to 200 cm DBHOB, with typical heights of 50 to 100 m. Diameters of full mature trees may be expected between 150 to 300 cm, with typical heights of 60 to 100 m. This overlap of ranges between trees in different stages indicates why diameter and height are not good indicators of growth stage (CB 6.10 pp13-14).

511. "Crown", "growth stage" and "diameter" are also each defined terms (see p10-11).

512. 'Senescent' is defined as a growth stage of trees. Senescent eucalypts are characterised by dead branches and declining crown leaf area, with the trunk of the tree likely to contain burls and bumps. The top of the tree is invariably broken off with the remaining crown more than 95 % secondary, being composed of branches of epicormic origin. (p18)

513. 'Ash' is defined as Mountain Ash (*Eucalyptus regnans*), Alpine Ash (*Eucalyptus delegatenis*) and Shining Gum (*Eucalyptus nitens*) (p9).

514. 'Hollow' is defined in the context of Zone 1A as cavities formed in the truck or branches of a live or dead tree. They are formed in Ash eucalypt trees through a variety of processes but are generally related to ageing and decay, although physical injury and insect damage may also contribute. They vary in size, both in cavity opening diameter and cavity depth and volume, from small openings of 4 – 8 cm to very large with entrance diameters of 18 – 30 cm or more. Hollows must have an entrance diameter in excess of 4 cm and not have a height in excess of 30 m (p12).

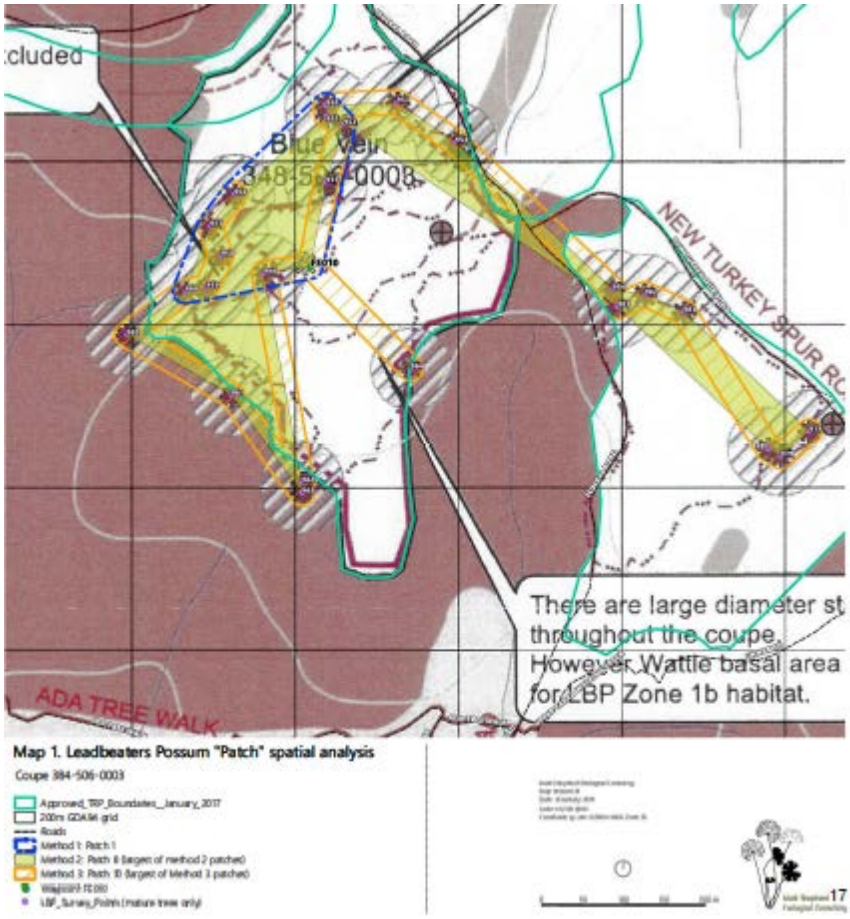
515. In *MyEnvironment*, Osborne J observed "There is also a dispute between the parties as to the word 'patches'. I do not accept that patches are simply a synonym for areas. A patch must be a patch of forest. I do accept, however, that it need not be regular in configuration. It is an ordinary English word and its applicability is a question of fact" ([2012] VSC 91 at [253]).

The Applicant's case

516. Mr Shepherd, a GIS expert and environmental scientist engaged by the Applicant, was provided with the Respondent's map of the red stars (admitted to hollow-bearing trees for the purposes of Zone 1A), the Respondent's spatial data underling those stars, and the waypoint location for FE010. He conducted a spatial analysis of the tree points and identified a number of areas that contained more than 10 trees per 3 hectares, using different approaches to determine the boundary. These approaches included no buffers on perimeter trees, 10m buffers on perimeter trees and 15m buffers on perimeter trees. All approaches resulted in Mr Shepherd finding Zone 1A within Blue Vein inside the net harvest area on VicForests coupe plan operations map, and which included some or all of the northern cohort of trees that VicForests excluded from Zone 1A.

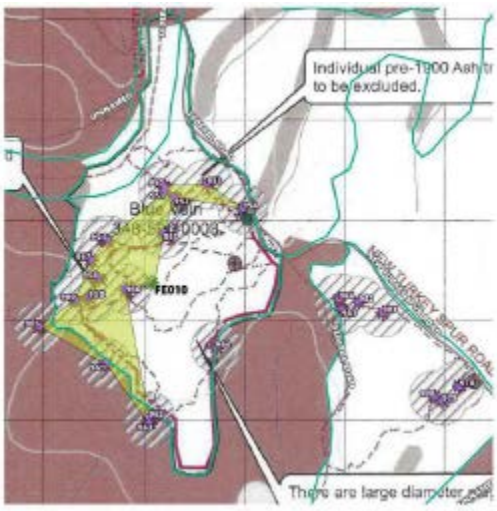
517. Mr Shepherd identified further areas that met the Zone 1A criteria of more than 10 trees per 3 ha and which were in a linear shape. The Applicant submits there is nothing within the ordinary meaning of the term "patch' that precludes linear areas from being found to constitute Zone 1A.

518. Mr Shepherd's patches are as follows (Shepherd (1) 4.6.1 p17):



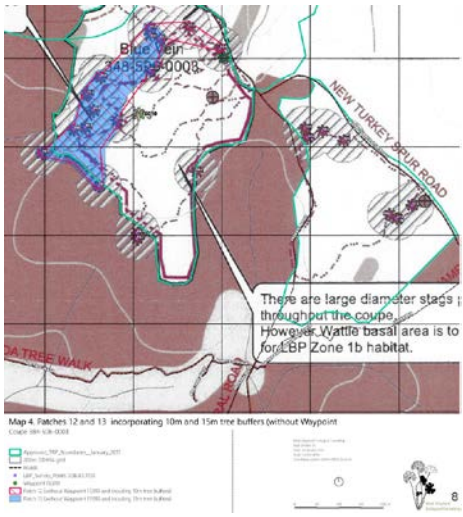
519. Mr Shepherd said a ratio of 3.333 trees per hectare is equivalent to 10 trees per 3 ha. The patch using Method 1 had 15m buffers on perimeter trees, contained 11 trees, was 3.187ha with 3.452 trees per ha. Method 2 had no buffers on perimeter trees, contained 25 trees, was 7.199ha with 3.473 trees per hectare. Method 3 was a 15m wide linear shape including 25 trees, was 6.205 ha with 4.029 trees per hectare. (Shepherd (1) 4.6.1 p16)

520. Mr Shepherd identified alternative, smaller patches using Method 2 (no buffer on perimeter trees), including one which matched closely with the manner in which VicForests had first excluded the Zone 1A in the biodiversity inspection map, but with addition of FE010, as follows Shepherd (1) 4.6.1 p13):



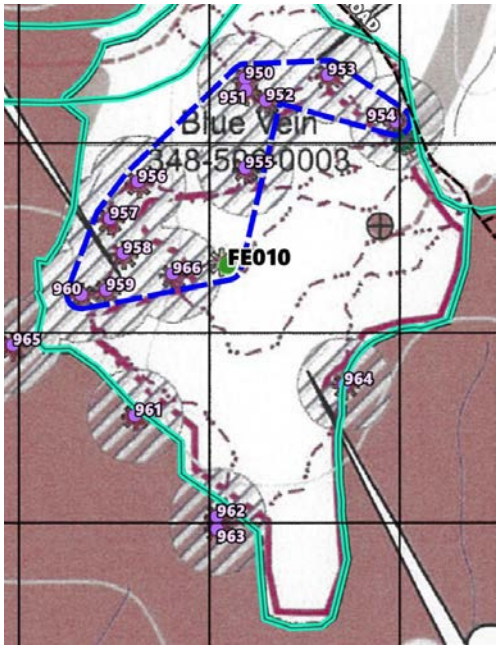
521. This patch contains 17 trees, is 4.544 ha with 3.742 trees per hectare Shepherd (1) 4.6.1 p16).

522. Mr Shepherd identified a further 3 patches, including two that did not rely on tree "FE010" – this demonstrates that it was application of the 100m rule that caused VicForests to fail to identify Zone 1A, putting to one side its misidentification of tree FE010. These patches were as follows:



523. These patches include 14 trees, and the patch with a 10m buffer (red hatching) is 3.895 ha with 3.595 trees/ha, the patch with a 15m buffer (blue shading) is 3.571ha with 3.361 trees/ha (Shepherd (2) CB 4.6.4 p6-8).

524. Mr Shepherd also identified another patch with a 15m buffer on perimeter trees, which contained 13 trees and was 3.891ha, as follows (Shepherd (3) CB 4.6.5 p7-8):



525. The Applicant submits that the Court should find that all areas identified by Mr Shepherd are patches of forest greater than 3ha with more than 10 hollow-bearing trees per 3ha, and each such area is therefore Zone 1A.

VicForests' case

526. VicForests admitted that each tree recorded by a red star on a certain map of Blue Vein coupe annexed to Mr Paul's affidavit was a hollow-bearing tree in the context of Zone 1A habitat a defined in the Management Standards. (Notice to Admit CB 1.9 at [1]; Notice of Dispute CB 1.20 p3; Map at CB 3.4.65, being the map provided to Mr Shepherd)

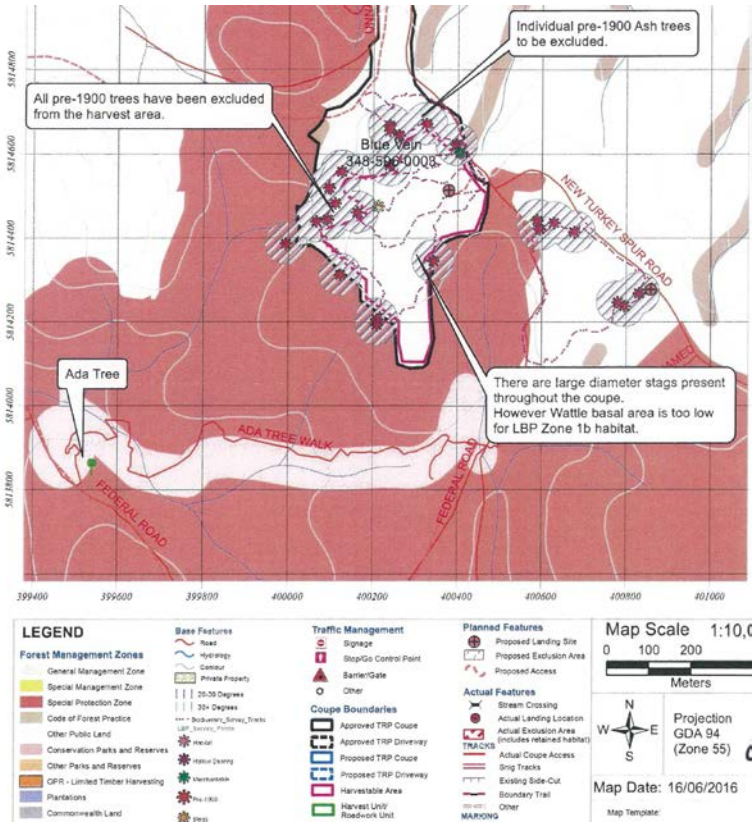
527. The relevant map was prepared by VicForests and attached to a biodiversity field inspection form dated 15-16 June 2016, both of which recorded the findings of its tactical planning officer upon inspection of the coupe for Zone 1A.

528. There were two versions of the form. One version, discovered and put to Mr Paul in cross-examination, stated

> *"An area of Zone 1A Leadbeater's habitat was found within the TRP gross boundary through the Northern half of coupe and along the western edge. (see the attached map for detail). The extent of the Zone 1A was determined, 17 mature/senescent live relevant Ash trees were identified and the LBP Zone 1A area mapped using the Leadbeater*s Possum * Threatened Species Survey Standard. All trees were buffered by 50m to find*

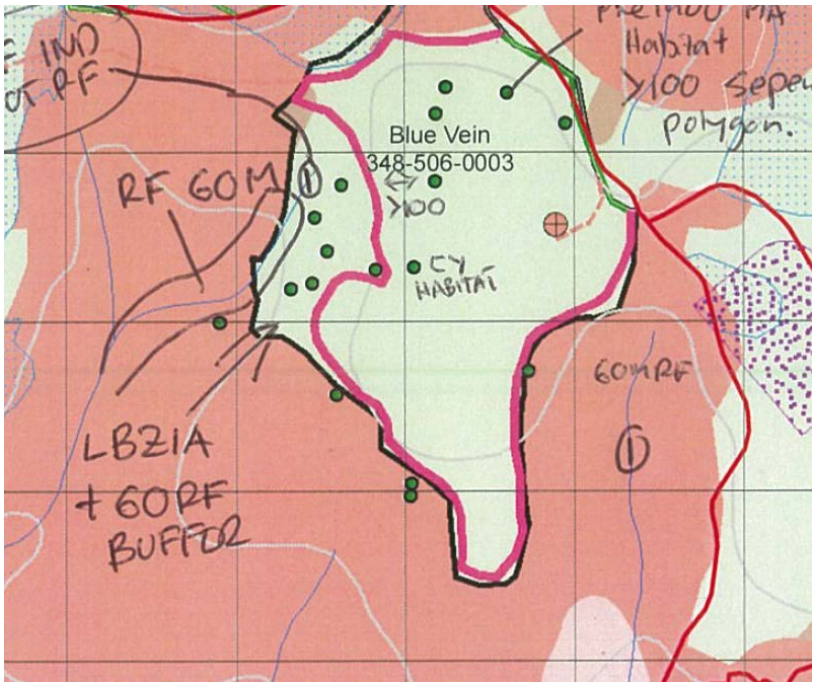
which trees were greater than 100m apart and therefore not linked for the purpose of LBP zone 1 a habitat. There is a group of 6 trees in the north of the coupe that have been mapped as further than 100m from the trees along the western edge of coupe. This gap is only small and could be caused by GPS error so the trees are being grouped together and mapped as LBP Zone 1a Habitat." (CB 11.16 p1)

529. The map was dated 16 June 2016 and attached to the other version of the form, which was annexed to Mr Paul's affidavit (WEP-65 CB 3.4.65). The map depicted red stars in the western and northern areas of the coupe, all of which were mapped as excluded from the nett harvest area bounded by the pink line, as follows,



530. However, the net harvest area was then changed in two subsequent VicForests' maps, to exclude the northern trees from the patch of Zone 1A and place them within an expanded net harvest area. One was a "marking map" dated 17 January 2017. It was put to Mr Paul that this map included a hand- awn notation stating pre-1900 MA Habitat >100m separate polygon, and arrows between tree point marked >100 meters.

Mr Paul Agreed. The Marking map is as follows and shows that the northern trees were excluded from the Zone 1A because they were more than 100m from the eastern trees.



(CB s.8.88 p5)

531. The final coupe plan operations map depicted the net harvest area in the same manner as the marking map (CB 8.6 p29)

532. Mr Paul agreed that what happened was that the person at VicForests defined the area to be protected based on, or certainly by reference to, that additional criteria of greater than 100 metres and that the operations map for the coupe plan proceeded on the basis that because the trees were – in the north were more than 100 metres apart, even though there might have been, as it was initially thought, some GIS uncertainty in any case, they were excluded from the Zone 1A protection. (TS 329.29-38; T330.1-3; 330.18-22)

533. There was also a dispute about whether one additional tree recorded by Mr Lincoln and labelled ‘FE10’, has the relevant characteristics to meet the description of a hollow bearing tree for the purpose of Zone 1A habitat. This tree was at the location recorded on the marking map by the hand-written notation “CY habitat”, and at a location marked by a yellow star on the biodiversity inspection map dated 16 June 2016 (CB 11.23, compare with CB WEP-65 CB 3.4.65 and CB 4.6.5 p8). VicForests disputed that this tree was a hollow-bearing tree for the purposes of Zone 1A, and the Biodiversity Marking Map showed that in its approach to identifying Zone 1A

VicForests did not include that tree. (Notice to Admit CB 1.9 at [2]; Notice of Dispute CB 1.20 p1; Map at CB 3.4.65)

534. Mr Lincoln recorded the tree by photograph, video and GPS waypoint between 18-26 October 2014 and again on 15 January 2019. These videos and photos were in evidence. (Lincoln (1) at [79-85], [91]; DJ-95A CB 9.71; Lincoln (2) CB 2.10 at [3-6]; ASL-6 CB 2.10.6).

535. Nicolle, a eucalypt species expert engaged by the Applicant, was provided with Mr Lincoln's photographs and video, together with the relevant definitions in the Management Standards. He said that the tree was a living Shining Gum, was 'mature' within the definition in the Management Standards and contained hollows. (CB 4.5.1 pp8-9 at [3]-[4]; p32 at [2.2.2]). Nicolle was not required for cross-examination and his evidence was accepted in full. An email from Mr Colquitt of the Timber Harvesting Compliance Unit at DELWP to VicForests was produced at trial which stated that

> *I also note the new information on the species of tree "FE010" being categorised as a shining gum species. I can confirm that DELWP has also analysed samples from this tree taken on 14 February and can confirm that we understand that it is a shining gum. I had initially identified this tree as a grey gum (based on its morphology) and I'm unsure if VF had made this same error. I'm not sure if this impacts VF's current assessment? The tree in question appears to be identified as "CY" in your analysis (cypellocarpa?)* (CB 11.23)

536. Mr Paul accepted that the tree being correctly identified as a shining gum, it is to be counted as a mature and senescing hollow-bearing tree for the purposes of Zone 1A. (TS 331.23-36).

537. It was put to Mr Paul that had the tree FE10 been correctly identified as a shining gum, rather than misidentified as a grey gum, even applying the 100m rule it should have been included in the Zone 1A. Mr Paul said he couldn't tell (TS 331.36-44).

538. Accordingly VicForests failed to comply with the requirement to identify and protect Zone 1A.

539. A further issue that arises in relation to Zone 1A is the strict application of DEWLP's policy that, in order to constitute a patch, each relevant hollow bearing trees must be

within 100m of each other The policy is sourced from the DELWP Leadbeater's Possum survey standard.

540. However the Applicant submits that this 100m policy is not in any instrument and strict adherence to the policy in Blue Vein impermissibly prevented the identification (and therefore protection) of Zone 1A habitat that otherwise satisfied the applicable requirements in the Management Standards.

541. 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.

542. 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.

543. Accordingly, the Applicant submits that VicForests failed to identify the Zone 1A prior to harvesting contrary to 2.2.2.4 of the Code, and then further failed to apply to the Department to establish an SPZ over the Zone 1A consistent with the rule in the planning standards prior to commencing operations, contrary to Cl 4.2 and 2.1.1.3 of the Management Standards. As a consequence, the exemption was lost for forestry operations in Blue Vein coupe.

iii. Leadbeater's possum colony

544. The Applicant alleges that there was a failure to identify Leadbeater's Possum colony in Starlings Gap Hairy Hyde coupe prior to commencing harvesting operations, contrary to Cl 2.2.2.4 of the Code (CB 6.9 p34).

545. Leadbeater's Possum colony is a biodiversity value listed in the Management Standards: CB 6.10 p77 (Appendix 3 Table 13 Rare or threatened fauna and invertebrate prescriptions).

546. The Management Standards require VicForests to apply management actions for rare

and threatened fauna identified within areas affected by timber harvesting operations as outlined in Appendix 3 Table 13 (Rare and threatened fauna prescriptions): Cl 4.2 (CB 6.10 p36).

547. Table 13 states, in relation to Leadbeater's Possum colony, where evidence of this value is found in the field follow clause 2.1.1.3 of this document using Table 4 in the Planning Standards. (CB 6.10 p77)

548. Cl 2.1.1.3 states 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 the Planning Standards. (CB 6.10 p23)

549. Table 4 in the Planning Standards states, in relation to Leadbeater's Possum colony, "Establish a SPZ of 200 m radius centred on each verified Leadbeater's Possum colony." (CB 6.11 p39).

550. VicForests is thus required to identify and protect Leadbeater's Possums colonies prior to commencing harvesting.

551. Mr Paul said VicForests commenced harvesting in Hairy Hyde coupe on 31 May 2016 and temporarily suspended harvesting on 30 June 2016 with the coupe given 'provisional clearance', meaning that harvesting has not yet completed (Paul (2) p68 at [160(f)],[161], [374]).

552. On 2 August 2016, Mr Nisbet, a volunteer with Wildlife of the Central Highlands Inc, detected a Leadbeater's Possum colony in Hairy Hyde coupe, along a logging track approximately 150-200m from the edge of the clearfelled area in the coupe (Nisbet CB 2.4 at [19-22]; Notice to Admit CB 1.9 at [8]; Notice of Dispute 1.10 p3; Paul (2) 3.4 at [373-379]).

553. My Paul said VicForests prepared a context map on 5 August 2016 and a Leadbeater's Possum colony impact map, prepared on 14 February 2017. The context map shows that a small part of the 200m buffer had been logged, and that another Leadbeater's Possum 200m buffer overlaps Hairy Hyde coupe for a detection in the neighbouring coupe, Opposite Fitzies (also subject of the proceeding, and in which Modelled Old Growth forest was logged). Mr Paul said the Leadbeater's Possum colony impact map indicates that the southern edge of the verified colony overlaps the

area already harvested prior to detection by a small margin. (Paul (2) 3.4 [382-384]; WEP-82 CB 3.4.82)

554. VicForests' submission is that the Leadbeater's Possums colony moved in when or after the bulldozers arrived and forestry operations were commenced (i.e. that it is not proven that they were there before the commencement of the harvesting operation (VFOS [177]).

555. The Applicant submits that VicForests' submission is inherently improbable and that its own evidence should be preferred. That is particularly so in circumstances where:

a. there is no evidence that VicForests completed any pre-harvest survey of this coupe for Leadbeater's possum before commencing harvesting. Mr Paul does not refer to any such survey, as he does, for example, for Blue Vein coupe (see Paul (2) CB 3.4 at [343]). In cross-examination, it was put to Mr Paul that VicForests had not conducted a targeted survey for Leadbeater's Possum prior to commencing harvesting, he responded that he wasn't sure (T.332.4-.6). On this basis the Court should find that VicForests had not conducted a targeted survey for Leadbeater's Possum in Hairy Hyde prior to commencing harvesting;

b. In addition to the Leadbeater's Possum detected within Hairy Hyde coupe on 2 August 2016, there are 3 other Leadbeater's Possums detected within 200m of the coupe in 2016 each with part of their 200m buffer located in Hairy Hyde. The one in Opposite Fitzies was detected before forestry operations commenced (Coupe plan map dated 18 May 2016 at CB 8.24 p22). The two others are to the north east of the coupe (Agreed Map CB 7.24C);

c. There are more than 5 Leadbeater's Possums within 1km of the coupe, all detected in 2016 (Agreed Map CB 7.24C);

d. VicForests' own Leadbeater's Possum survey instruction states that coupes with either one Leadbeater's Possum colony buffer located within a coupe, or more than 5 colonies located within 1km of a coupe are assumed to have the highest likelihood of Leadbeater's Possum colony presence (CB 3.4.46 p6);

e. The Leadbeater's Possum detected in Hairy Hyde on 2 August 2016 is located in the centre of the coupe, not on its boundary, in circumstances where the coupe is a gross area of 43.27ha and the evidence is that the estimated Leadbeater's Possum home range (i.e. the area in which a colony lives and defends) is 1 to 3 ha

in high quality habitat (though based on few data and poorly understood) and likely to be larger in poorer quality habitat (Woinarski (1) 4.7.1 at [5h], [4]).

556. The Applicant submits the management of trees in Hairy Hyde coupe was contrary to cl 2.2.2.4 of the Code given VicForests failed to identify Leadbeater's Possum prior to harvesting and failed to address risks to the Leadbeater's Possum consistent with the Management Standards. Accordingly the exemption was lost for forestry operations in that coupe.

557. The harvesting that occurred in Hairy Hyde:

a. was contrary to the Code, because it occurred in circumstances of a failure to identify Leadbeater's Possum prior to commencement in breach of Cl 2.2.2.4;

b. occurred within 200m of the Leadbeater's Possum colony detected in that coupe *and* within about 220m of the Leadbeater's Possum colony in Opposite Fitzies coupe, in which harvesting had already been conducted up to the 200m THEZ boundary (Agreed Map 7.24D).

E. Failure to comply with cl 5.3.1.5 (maintain 20m buffer)

558. Part 2.5 of the Code includes the following relevant mandatory action in relation to timber harvesting: "Planning and management of timber harvesting operations must comply with relevant coupe management measures specified in the Management Standards and Procedures" (cl 2.5.1.1).

559. Cl 5.3.1.5 of the Management Standards (CB 6.10, p43) is a relevant coupe management measure. It creates an obligation in the Central Highlands to:

> 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.

560. VicForests submits that the words "minimum 20 m vegetation buffer with particular emphasis on the sensitive landscape features" – only requires them to use visual screens at sensitive landscape features (being those listed in the Appendix cited by VicForests).

561. The Applicant submits that this construction is wholly inconsistent with the text of the rule, which requires a minimum 20m screen for ALL harvesting operations, with

ADDED emphasis for relevant sensitive landscape features.

562. The Applicant submits that VicForests failed to comply with this rule in:

a. Mount despair coupes Glenview and Flicka;

b. Hermitage Creek coupe Guitar Solo;

c. Acheron coupes Mont blanc, Kenya and The Eiger;

d. Triangle coupe Professor Xavier;

e. Ada Tree coupe Ginger Cat;

f. Starlings Gap coupes Bullseye and Opposite Fitzies;

g. New Turkey Spur coupe Greendale;

h. Loch coupe Estate;

i. Salvage Creek coupe De Valera;

j. Noojee coupe Skerry's Reach;

k. Rubicon coupes Golden Snitch, Hogsmeade, Houston and Rocketman;

l. Big River coupe Camberwell Junction;

(being all logged coupes other than Blue Vein, Hairy Hyde, Tarzan, Rowles, Cambarville and Swing High).

563. The evidence of this is as follows.

564. Smith was asked to address whether a 20m vegetation buffer that screens forestry operations from view was present at each coupe he field inspected. He said was not aware of any effective vegetation buffer that screens forestry operations on any coupes. (Smith (1) 4.2.1 p48 at [Q28b])

565. Mr Lincoln visited the 5 other coupes subject of this allegation that were not subject of Smith's field inspection, being Greendale, De Valera, Xavier, Opposite Fitzies, and Bullseye. He said that standing along the boundary of each of those coupes from the roadside he could not see vegetation screening the logged area from view from the road. He took photographs of each coupe showing his observations to this effect. (Lincoln (3), CB 2.11 at [1]-[7], ASL7-ASL11)

566. The Court will recall from the view that in the Hermitage Creek Guitar Solo, Acheron

coupes The Eiger, Kenya and Mont Blanc, and New Turkey Spur Greendale, the harvested area in those coupes was not screened from view. The harvested area at Starlings Gap Ginger Cat coupe was also visible from the roadside along the view route (there was no stop at that coupe).

F. Failure to comply with cl 4.1.4.4 (no greater than 150m gap)

567. Clause 4.1.4.4 of the Management Standards provides that no gap between retained vegetation shall be greater than 150m.

568. To understand this rule it is necessary to read it in context. The rule is in Part 4.1 of the Management Standards which provides for Habitat Retention, and within that Part it is within 4.1.4 which provides for Habitat Retention requirements in the Central Highland FMAs. Part 4.1.4 provides as follows:

> 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 is to be greater than 150 m.
>
> 4.1.4.5 Retain habitat trees where they can be most easily protected from damage

569. 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.

570. The maps of Sally Mitchell (CB 4.8.1, p 17, p 18, p 19, 20, p 21, 22), as well as Dr Smith's first report (CB 4.2.1 p75) demonstrate that, in coupes Rubicon Rocketman, Houston, Golden Snitch and Hogsmeade, New Turkey Spur Greendale, Salvage

Creek De Valera, and The Triangle, Professor Xavier, and the post-harvest map for Ada Tree Ginger Cat (CB 8.5A), the gaps across the harvest unit or between retained patches are greater than 150m in size.

571. The coupe plans for Hogsmeade, De Valera, Greendale, Xavier and Ginger Cat show that no trees were retained in the harvest unit or outside retained patches in these coupes (CB 8.19 p5; CB 8.22 p5-6; CB 8.16 p5-6; CB 8.26 p6-7; CB 8.5 p5-6). Mr Paul said contractors are required to comply with coupe plans. There is no evidence suggesting the contractors retained habitat trees within the harvest unit contrary to the direction in the coupe plan in these coupes.

572. The Applicant submits that these documents establish that cl 4.1.4.4 was not complied with in Rubicon Hogsmeade, Salvage Creek De Valera, New Turkey Spur Greendale, The Triangle Xavier and Ada Tree Ginger Cat.

573. It can also be recalled from the view, and is visible on the view video, that there were no retained trees in the harvested area at New Turkey Spur Greendale coupe.

574. Smith photographed Ginger Cat coupe during his field inspection. The photograph shows no retained trees in the harvest unit of that coupe. Smith captioned that photograph as follows “Ada Tree Ginger Cat. Showing lack of retained habitat trees or recruitment trees”. Smith also said that “Ginger Cat is about 5 hectares net and under the Code should have 20 habitat trees instead of none.” (Smith (1) 4.2.1 at pp74-75).

G. Loss of exemption in the logged and scheduled coupes

575. The Applicant submits that, in light of the breaches of the Code in the logged and scheduled coupes, the forestry operations in each of the logged and scheduled coupes where those breaches occurred were not undertaken in accordance with an RFA.

576. The consequence of this is that the forestry operations in those coupes, i.e. the management and harvesting of the trees in those coupes (be it past management and harvesting or present management and proposed harvesting) does not have the benefit of the exemption.

577. 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 actually present 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.

H. Assessment of significant impact in the logged and scheduled coupes

578. This conduct should therefore be assessed as though s 38 did not exist – that is, by reference to s 18, which prohibits the taking of action that has had, will have or is likely to have a significant impact on a listed threatened species without approval under Part 9 of the Act.

579. Contrary to VicForests' submissions, there is no necessary correlation between the loss of the exemption in a particular coupe, and the assessment of the significant impact of an action in that coupe. When the exemption under s 38 is lost, the ordinary regime of the Act springs back into place in respect of any conduct that is not exempt.

580. Indeed in this respect it is important to note that s 38 does not refer to an "action". The concept of a "forestry operation" does not carry across to the assessment of significant impact under s 18. Rather that conduct has to be assessed at a factual level to determine whether it constitutes an action. Thus the process starts from scratch as though s 38 did not exist.

581. It is therefore necessary to consider how s 18 applies to the forestry operations in the logged and scheduled coupes.

582. Section 18(2) and 18(4) provide that:

> *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.

Civil penalty:

(a) for an individual—5,000 penalty units;

(b) for a body corporate—50,000 penalty units.

…

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 included in the vulnerable category.

Civil penalty:

(a) for an individual—5,000 penalty units;

(b) for a body corporate—50,000 penalty units.

583. There are several terms within s 18 that require attention before s 18 can be applied to the evidence in the case.

i. Action

584. The first is action. "Action" is defined in s 523 as follows:

(1) 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).

585. The Applicant submits that a forestry operation in one coupe may be treated as an action, but equally that forestry operations in a series of coupes may be treated as an

action (be they forestry operations in logged or scheduled coupes). That conclusion follows from the fact that "Action" is defined to include an activity or series of activities (such as a TRP), and a forestry operation is an activity and therefore a series of forestry operations is a series of activities that may be an action.

586. 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.

587. 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]).

588. 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.

589. 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.

ii. Significant impact

590. A significant impact may be described as one which is important, notable, or of consequence, having regard to its context and intensity, and the sensitivity, value and quality of the environment being impacted: *Booth v Bodsworth* [2001] FCA 1453; 114 FCR 39 at [99]-[100]; *Tasmanian Aboriginal Centre Incorporated v Secretary,*

Department of Primary Industries, Parks, Water and Environment (No 2) (2016) 337 ALR 96 at [240]. The Respondent accepts this is the correct test to be applied (T798.6-37).

591. The definition that was attributed to the word "significant" in *Booth* accords with the ordinary meaning of the word significant. For example, the Oxford English Dictionary (Fourth Edition, 1993, p2860) provides that: *adj.* **1** Having or conveying a meaning. **2** Important, notable; consequential. **3** *Statistics.* Of an observed or calculated result; having a low probability of occurrence if the null hypothesis is true. The Macquarie English Dictionary (Second edition, 1991, pp 1629-1630) similarly provides that: *adj.* **1.** Important; of consequence. **2.** Expressing a meaning; indicative. **3.** Having a special or covert meaning; suggestive. *-n.* **4.** *Archaic.* Something significant; a sign.

592. The definition in *Booth* should be treated as a means of providing guidance as to whether an impact is significant, but not, of course, as replacing the statutory text. Thus at the end of the day the question that the Court must ask and be satisfied of is whether the impact is "significant". With that caveat in mind as to how *Booth* should be understood, three observations are pertinent as to both the term "significant" and the definition in *Booth*.

593. First, the word "significant" and the words "important, notable or of consequence" do not necessarily suggest an extremely high test. The impact is not required to be one which must be dire, catastrophic, or irreversible (albeit that such impacts would constitute a significant impact). The word "significant", as *Booth* suggests, and as defined in the Dictionary, only requires that an impact be important, notable or of consequence. This leads to the second observation.

594. Second, the words "important, notable or of consequence" are qualified by the words "having regard to its context and intensity, and the sensitivity, value and quality of the environment being impacted". Thus where the environment is extremely sensitive – for example at high risk of extinction, a smaller impact might nevertheless be "notable" or "of consequence" in the relevant sense – the greater the sensitivity the smaller the impact need be. Similarly, where there is uncertainty as to the overall quantity of suitable habitat and also as to the location of suitable habitat, the fact that suitable habitat is both known to exist and known to provide a home for high densities

of Greater Glider populations means that any interference with such known habitat is itself significant. These matters feed into the understanding of the term "significant" – it is a relative term that may be affected by context.

595. Third, the question may be asked "significant" to what? This question may be answered having regard to the conservation objects of the EPBC Act and the scheme that it creates to protect threatened species. Clearly an impact that is one which impacts on a species long-term survival prospects is a relevant impact for the purposes of s 18.

596. Thus where a species is facing a high risk of extinction in the immediate future (such as the Leadbeater's' Possum), the following impacts will be "important, notable or of consequence", i.e. impacts that would:

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.

597. That is because each and any of those impacts may take the species closer to that high and imminent risk of extinction (depending on the facts of the particular case). Such an impact would then be "significant, notable or of consequence".

598. Likewise, where a species is facing a high risk of extinction in the wild in the medium future (such as the Greater Glider), the following impacts will be "important, notable or of consequence", namely impacts that would:

i. lead to a long-term decrease in the size of an important population of the species, reduce the area of occupancy of an important population, fragment an important population of the species into two or more populations, or disrupt the breeding cycle of an important population;

ii. adversely affect habitat critical to the survival of the species;

iii. modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline;

iv. interfere substantially with the recovery of the species.

599. Again that is because each and any of those impacts may take the species closer to that risk of extinction (again, depending on the facts of the particular case). Such an impact would be "significant, notable or of consequence".

600. These impacts are of course taken from the Significant Impact Guidelines (the **Guidelines**) published by the Department of the Environment (CB 4.2.2.14) (where the definition of "important population" can be found), but the Applicant submits that it is evident from the above that those impacts meet the definition of "significant impact" in *Booth* where a species is in the threatened state of being critically endangered or vulnerable.

601. Davey gave evidence that, in his opinion, the guidelines for vulnerable species (Davey (1), pdf, page 109), those items listed as consequences for vulnerable species are to be independently considered in assessing whether or not an action will have a significant impact on a vulnerable species, for example, it will have such an impact if there is a real chance or possibility that the action will, without any other listed items, lead to a long term decrease in the size of an important population (T472.18 to 30 and 473.2 to 19).

602. The Applicant submits that other matters that go to "context and intensity, and the sensitivity, value and quality of the environment being impacted" include:

a. the presence of the species in the coupes, often multiple records;

b. the forest type, structure and habitat value for the species in the coupes;

c. the conservation status of both species, population trends and threats identified as reasons for the species' population trends and listing;

d. the absence of any protective prescription for the Greater Glider in the CH RFA Area;

e. the current Reserve System (including SPZs), and the evidence as to its effectiveness for Leadbeater's Possum and Greater Glider;

f. the current prescriptions for the Leadbeater's Possum, and the evidence as to their effectiveness for the species;

g. the extent and intensity of logging history in the CH RFA Area and surrounding the subject coupes in particular;

h. the extent and severity of 2009 fires;

i. existing Code prescriptions, including habitat tree, stream, slope, Modelled Old Growth Forest, and the evidence as to their effectiveness for the species;

j. abundance and trends of hollow-bearing trees in the CH RFA Area;

k. available information as to forest age classes in the CH RFA Area;

l. characteristics, ecology and distribution of the species and its habitat;

m. available information, and scientific uncertainty, relating to habitat critical to the survival of both specie

n. available information, and scientific uncertainty, relating to important populations of Greater Glider; and

o. the information contained in Agreed Maps, Coupe plans and post-reconnaissance maps.

603. Each of these matters, to the extent that they render or establish that a vulnerable species is "sensitive", has the consequence that an impact on the species will be more important, notable or of consequence. The definition of significant impact thus requires a holistic consideration of the state that the species is in, what is and is not known about that species and its habitat and the impact of an action on the species in that context.

I. Evidence of significant impact on the Greater Glider

604. The impact of high intensity forestry operations is described above at paragraphs [106-200]. That impact must be considered in the following context to determine its significance for the species:

a. the Greater Glider has been listed as vulnerable, which means that it is facing a high risk of extinction in the wild in the medium future, on the basis that there is a stark decline in the populations of Greater Glider nationally as described in the Conservation Advice (CB 6.18), which records that there is an 87% decline in the Greater Glider in the Central Highlands as outlined at [393] above;

b. The cause of population decline is habitat loss caused by factors including forestry operations, and Smith's opinion that of those threats forestry operations

are primarily responsible for the species' decline in the Central Highlands, as outlined above at [221], [392-396].

c. there is no protective prescription for the Greater Glider in the CH RFA Area;

d. the current Reserve System (including 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, as the evidence of Smith outlined above at paragraphs [175] – [178] indicates;

e. the 2009 fires had the effect of reducing the available habitat for the Greater Glider and thereby increasing the value of that habitat, as described in the evidence of Smith outlined above at paragraphs [146(b)] and [225];

f. there were/are significant numbers of Greater Gliders in the logged/scheduled coupes, as described above at [117] – [118];

g. as Smith described in Appendix 1 to his First Report (CB 4.2.1), by reference to in the field observations, each and every coupe contains habitat that is of high value to the Glider as it is:

    i. of critical importance;

    ii. high, very high or extremely high quality habitat;

    iii. very or extremely rare habitat;

    iv. a critical resource;

    v. a refuge area;

    vi. highly or unusually highly suitable habitat;

    vii. necessary to preserve;

    viii. necessary to recruit old growth.

h. VicForests has used and continues to propose and use high intensity silvicultural methods (clearfell, seed tree and regrowth retention harvesting) in the Central Highlands. This is evident from:

    i. the methods used in the logged coupes;

    ii. the 2019 TRP where those high intensity methods are the only methods proposed to be used in the scheduled coupes;

iii. the ancillary coupes where VicForests has continued to use those methods up to and during the trial as described above at [345] – [349];

iv. Paul's evidence in cross-examination that despite VicForests' purported commitment to shift to new less intensive methods of silviculture (CB 3.6 at [52]-[119]), the least intensive of those methods would not be used on the scheduled coupes and the criteria for its application would be unlikely to be satisfied in any coupes in the Central Highlands (T 316.1-8), Mr Paul would not rule out the use of the most intensive methods of silviculture in the scheduled coupes and Mr Paul accepted that the least intensive of the new methods which might be used on the scheduled coupes (with 5-12 habitat trees per ha) would only amount to retention of an additional 15% of the area of a coupe not otherwise required to be set aside (T 318.46-319.6).

i. Recent intensive harvesting shown in the agreed logging history maps (series D) is both extensive and intensive in proximity to the coupes subject of the proceeding and across the Central Highlands:

i. Smith said that based on this extent of recent harvesting, timber harvesting has and continues to occur at a rate and scale that is not ecologically sustainable, and which he considered was inconsistent with the requirements in the Code to use silvicultural systems that suit the ecological requirements of the forest type (s2.2.2.11), and to modify coupe size and rotation periods to maintain a diversity of forest structures throughout the landscape (s 2.2.2.9). He said the greatest threat to future recovery of the Greater Glider in the Central Highlands is "overharvesting" by clearfelling and ecologically unsustainable harvesting methods – namely conversion of uneven aged mixed species forests to even age stands by intensive harvesting. (Smith (1) 4.2.1 p33-34, p42-43; Smith (2)).

ii. Smith said only selective harvesting that removes a small percentage of stand basal area and maintains continuous uneven-aged forest structure can be considered to "suit the ecological requirements" of Mixed Species forests, but that since the 1960s Mixed Species forests had been harvested using clearfelling which was developed for Ash species, and despite the fact that the system is not only ecologically inappropriate, but is also unreliable

for regeneration (Lutze et al 1999). (Smith (1) CB p6; Smith (2) CB 4.3 p8).

iii. In relation to Ash, Dr Smith said the age structure in the Central Highlands is over-represented by regrowth (62% is 1940 and younger) due to extensive clearfelling between 1940 and 2000, and due to a combination of logging and fires after 2000. This has resulted in a historic low of old growth (3%) that is causing declines of hollow-dependant fauna including Greater Glider and threatening their persistence in the long-term. In order to re-balance this age structure to provide for hollow-dependant fauna it is necessary to protect remaining 1939 Ash (Smith (1) 4.2.1 pp23-29; paragraphs [102], [103], [129], [162], [210] above).

j. Greater Glider habitat corresponds with the best areas for logging (Conservation Advice CB 6.18 p3; SAC Final Recommendation on Nomination for Listing CB 6.20 p3; Smith (3) CB 4.10.1 p12 at Q1(c));

k. Smith observed repeated instances of what he considered to be non-compliance with existing prescriptions for habitat tree retention, leading him to conclude that "Timber harvesting in most logged coupes does not appear to comply with the one or more habitat tree protection prescriptions (which he extracted in his report) ... 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". (Smith (1) 4.2.1 p48) He described the specific non-compliance for individual coupes in Appendix 1 to his report: see pp 52-58, 76). As a consequence the Court should conclude, as did the 2018 FSC Audit Report (CB 3.6.122, p19), that these prescription are not reliable for biodiversity and Greater Glider corridor protection.

l. There is a decline in hollow-bearing trees in the CH RFA Area. Smith, Woinarski and Davey agreed that hollow-bearing trees are declining in the Central Highlands as a result of fire, natural decay and forestry operations (Smith (1) 4.2.1 p38 at [Q13c-13d]; Davey (2) CB 5.4.1 at [69], [238]; Woinarski (1) at

[24b, f, g], [83]; Woinarski (2) at [27] [42] [54]). See also the Conservation Advice (CB 6.18 p3).

m. the 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, as described above at [247] – [256];

n. the inability of the Greater Glider to move into new areas of forest and the low reproductive output of the Greater Glider, outlined above at [140];

o. 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, described above at [452] –[459];

p. Interference of forestry operations with recovery of the species outlined above at [156] – [168].

605. 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 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.

J. Evidence of significant impact on the Leadbeater's' Possum

606. The question of whether forestry operations in the logged and scheduled coupes where the Leadbeater's' Possum is present has, will or is likely to have a significant impact on the species, is key in this proceeding.

i. Approach adopted by the Leadbeater's' Possum experts

607. Woinarski and Baker each gave their opinion on the significant impact on the Leadbeater's Possum by reference to the criteria in the Significant Impact Guidelines.

608. 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.

609. Any one of the impacts in (a) – (d) above is sufficient in making significant impact for the Leadbeater's Possum under the Significant Impact Guidelines.

610. Baker, Davey and Woinarski diverged in their approach and interpretation on the issue of *critical habitat*.

611. Woinarski's opinion was that:

a. Despite dedicated efforts, there has been no recent success in captive breeding of Leadbeater's possum, and no sustained success arising from the few translocation efforts undertaken to date. Hence, the conservation outlook for Leadbeater's possum is likely to be entirely contingent on conservation management actions *in situ*, i.e., on maintaining or enhancing populations and their habitat where they exist in the wild. (Woinarski (1) CB 4.7.1 at [25]);

b. in the wild the Leadbeater's Possums is not affected by predation or parasitism or any of the other threats which affect threatened species. It's affected primarily – or entirely by habitat quality and suitability. Thus the whole future of the species depends on retaining its suitable habitat (T555.12-17; 555.45-556.30);

c. it is important not to take a narrow view of *critical habitat* (e.g. Zone 1A) (T556.16-23), because the survival of the Leadbeater's Possum species is contingent on and depends on retaining or increasing critical habitat (T557.25-30);

d. what was written in the draft Recovery Plan for Leadbeater's Possum should be regarded as critical habitat. It states: *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* (CB 3.4.9);

e. Woinarski said that suitable habitat for Leadbeater's' Possum included a location where a Leadbeater's Possum was out of its den foraging for food or where it is in a hollow-bearing cavity (T555.12-18).

612. Baker on the other hand, did not consider that any habitat where a Leadbeater's Possum is detected to be highly suitable habitat for the species (T641.1-6). He did not provide an opinion as to what constitutes 'critical habitat', but said he understood the definition of "highly suitable habitat" is greater than 10 hollow-bearing trees per 3 hectares (i.e. Zone 1A only) (T645.36-40). Similarly, Davey said that what he would describe as critical habitat is Zone 1A (T513.6-7).

613. Such an interpretation, the applicant contends, is directly at odds with the definition of critical habitat in the draft Recovery Plan (CB 3.4.9).

614. Davey and Baker's interpretation of habitat suitability does not:

a. take into account the critically endangered status of the species; and

b. takes an unnecessarily narrow approach to the definition of both 'highly suitable' and 'critical habitat'

615. The applicant contends that the approach of Professor Woinarski – an expert in the species who authored the draft Recovery Plan for Leadbeater's Possum – which the court should prefer over that taken by Professor Baker as to what constitutes both suitable habitat and critical habitat for the Leadbeater's Possum.

ii. Evidence of impact on Leadbeater's' Possums

616. Woinarski said high intensity forestry operations cause (Woinarski (1) CB 4.7.1, pp 9-10):

a. almost certain direct mortality of Leadbeater's possum in any den trees felled during harvesting;

b. local and landscape-scale reduction, immediately and into the future, in the abundance of the possum's key limiting factor, tree hollows, and hence reduction in the carrying capacity for possums at the local and catchment-scale levels. 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 re-growing 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;

c. habitat fragmentation and hence reduction in capability of individual possums to disperse and colonise new areas, or move over time as their current habitat becomes unsuitable;

d. habitat fragmentation and hence reduction in gene flow, leading to reduced genetic heterogeneity in subpopulations in retained patches which leads to reduce viability;

e. habitat fragmentation and hence reduction in the viability of subpopulations retained in remaining fragments;

f. susceptibility of retained trees to being killed by fire in post-harvesting management burns, and hence reduction in habitat quality and extent in retained areas;

g. susceptibility of retained large old hollow-bearing trees to windfall or other disturbance;

h. potential increases in the severity of wildfire (and hence habitat destruction) in a landscape with substantial areas of regeneration following timber harvesting.

617. Woinarski said that there can be no doubt that harvesting in any coupe in which Leadbeater's Possums occurs modifies, destroys, removes and decreases the availability or quality of habitat immediately and into the future (Woinarski (2) CB 4.9.1 at [33]).

618. Further, that given Leadbeater's possum is Critically Endangered and undergoing decline – with its current small population size and decline pivoting largely on the sparse and declining availability of large old hollow-bearing trees – any factor that causes modification, destruction, removal, and decrease in the extent and quality of suitable forested habitat will contribute further – now and into the future – to a long term decline of the species (Woinarski (2) at [33]).

619. Woinarski also said that none of the new silviculture systems changed the conclusion: that harvesting at many of the individual coupes and across the set of all coupes will have a significant impact on the Leadbeater's Possum and render it more likely that the species will be made extinct (Woinarski (3) CB 4.11.1 p4-5).

620. Woinarski said that *in theory* Regrowth Retention Harvesting should have less impact but found during his inspections of coupes logged by that method, the Rubicon coupes, that survival of the retained habitat was patchy. 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, he does 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. (First Report, [89], p24).

621. Turning specifically to the coupes in issue in the proceeding.

622. Woinarski found "suitable" Leadbeater's Possum habitat in all coupes subject of his field inspection, except Hermitage Creek (Woinarski (1) CB 4.7.1 pp23-24).

623. Smith also made direct observations of 'highly suitable', 'excellent' or 'critical' habitat for Leadbeater's Possum in a number of coupes that Woinarski did not visit, specifically (Smith (1) 4.2.1): Mount Bride (Bourbon Street and Louisiana, p88); New Turkey Spur (Gallipoli p92); Nolan's Gully (Shrek, Goliath, Infant, Junior p93); Noojee (Skerry's Reach and Loch Stock p95) and South Noojee (Backdoor and Lodge p98).

624. Thus the forestry operations in Leadbeater's' Possum coupes in this proceeding all involve the destruction and fragmentation of the Leadbeater's present in the coupe and of the habitat observed in each coupe.

iii. Review of Conservation status of Leadbeater's Possums post-hearing

625. 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.

626. The proposal to down-list the species was informed largely by new information suggesting that the population size of Leadbeater's possum was conceivably larger than previously recognised, and that recent sampling had discovered many new colonies (Woinarski (1) CB 4.7.1 at [18]).

627. Woinarski said however that the recent increase in detections of Leadbeater's Possum

is due to better surveying techniques and more surveys – rather than an indicator of more possums (Woinarski (1) CB 4.7.1 at [6]; Woinarski (2) CB 4.9.1 at [64]). Baker agreed that new records of >500 new individuals over the past four years is likely attributable to better detection techniques and more extensive survey efforts (Baker (1) CB 5.2 at p 92).

628. Two days after the conclusion of the trial, the Minister for the Environment completed the review and re-confirmed the species conservation status as critically endangered. The eligibility for listing in this category was again based on findings of >80% population reduction observed, estimated, inferred, projected or suspected where the time period must include both the past and the future (up to a maximum of 100 years in future), and where the causes of reduction may not have ceased, may not be understood, or may not be reversible. The Committee found this rate of decline using hollow-bearing trees as an index of abundance appropriate for the taxon. The Minister approved a new Conservation Advice for the species in effect from 22 June 2019. That document is CB 11.103.

iv. Significance of this impact

629. To determine the significance of that impact it is of course necessary to consider it in context.

1. Small population in rapid decline

630. The first contextual matter is the small population and severe decline in the population of the Leadbeater's' Possum.

631. It will be recalled that the Leadbeater's' Possum has been assessed as facing a high risk of extinction in the immediate future i.e. critically endangered.

632. Woinarski said that Leadbeater's possum is one of only nine Australian mammal species with this most imperiled conservation status (Critically Endangered). 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 (Woinarski (1) CB 4.7.1 p 8).

633. The species has declined at a rate of 80% over 3 possum generations from 1997-2015, and a projected future decline of at least 80% is projected over next 3 possum generations from 2016-2034. This assessment of the rate of decline allows for timber

harvesting prescriptions designed to protect the Leadbeater's' Possum (Woinarski (1) CB 4.7.1 at [12]-[14]).

634. 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 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 (Woinarski (1) CB 4.7.1 at [14]). Woinarski said Lindemayer's long term studies provide robust population trends and a sound sampling methodology (Woinarski (3) CB 4.11.1 at [27-28]).

635. Woinarski said that given the Leadbeater's current small population size and decline pivoting largely on the sparse and declining availability of large old hollow-bearing trees – any factor that causes modification, destruction, removal, and decrease in the extent and quality of suitable forested habitat will contribute further – now and into the future – to the decline of the species (Woinarski (2) CB 4.9.1 at [33]).

636. This rate of decline was challenged by VicForests' experts.

637. Baker criticised the studies relied on by Woinarski as not providing reliable population trend data and said that population trend could not be determined without total population estimate (Baker (1) 5.2.1 at [134-135]). He said Lindemayer's work was not a suitable sampling scheme for estimating population sizes across the Central Highlands and suggested that local decline on his study plots may be related to the loss of Acacia due to suppression and senescence in his study plots, the majority of which are 1939 regrowth. He said extrapolating Lindenmayer's work to the entire Central Highlands landscape ignores important variability in the structure, composition, spatial context, and temporal dynamics of the forests within this landscape (Baker (1) 5.2.1 at [134-135]).

638. Under cross-examination about the basis for not accepting that the Leadbeater's Population was in decline, he discounted the Lindenmayer plots study as a baseline against which Leadbeater's Possum population trends could be compared (T574, l28-31). He held that opinion despite accepting that the study looked at the population trends of other hollow-dwelling animals (apart from Leadbeater's Possum), and those

were also observed to be on the decline at the monitored sites (T593.33– 45).

639. Davey also disputed that the species was in decline, stating information gaps are an impediment to understanding overall population size, distribution and dynamics, and asserting without explanation that there were "identified flaws" in calculating declines in population size applied in the species up-listing (Davey (2) CB 5.4.1 at [114]).

640. In cross-examination, Woinarski said that Lindenmayer's monitoring program is one of the longest-lasting and most intensive and best monitoring programs of biodiversity we have in Australia. He said Lindenmayer's plot design was to appropriately encompass a broad range of habitat types and forest stages, and it was spatially replicated across the Central Highlands. He said it is a very good basis for inferring population declines across the whole of the Central Highlands. He disputed Baker's statement that it's not a suitable sampling stand for estimating population sizes across the Central Highlands. He said in fact, it's a very good sampling program to estimate changes in population or relative abundance. He said Lindenmayer never attempted to actually establish population size, but rather the trends in population trajectory over time, and the two are different matters (T534.11-28).

641. Woinarski said a total population estimate is not required in order to find decline, stating that although it is undoubtedly useful to have a reliable estimate of population size, the relevant criterion in conservation status assessment does not require such an estimate, but rather a measure of relative change in abundance is sufficient (Woinarski (3) CB 4.11.1 at [33]; (T538.16-25).

642. In cross-examination, Woinarski responded to Baker's statement that the local decline of Leadbeater's Possums across Lindenmayer's study sites may be related to decline in Acacia. He said that if you look at Lindenmayer's plots and the data from them, they show clearly that there has been a severe decline in large, old, hollow-bearing trees, which is entirely concordant with what you would expect, where the consequence of that is exactly consistent with the decline in Leadbeater's Possum. And also that Lindenmayer's data also shows, coincidentally, at the same time, declines in a whole range of other hollow-bearing mammal and bird species. So the dominant factor driving the decline of these species is the decline in hollow-bearing trees at these plots, so there's not decline in Acacia (T534.30-535.4).

643. In cross-examination, Woinarski was asked whether he accepted that Lindenmayer's

plots were selected to be in high quality Leadbeater's Possum habitat and are heavily weighted towards 1939 regrowth. Woinarski said they are not heavily weighted. There was a preponderance of 1939 regrowth in his samples initially because they constituted about 70 per cent of the Montane Ash forests in the Central Highlands when he started, so it was reasonable to put 70 per cent or so of his plots in that age group. But subsequently, he increased the representativeness of his plot design by adding more plots of different forest age. He said he did not think it is unrepresentative (T535.6-17).

644. Also in cross-examination, it was put to Woinarski that the sites were located in close proximity to roads, and that Baker said they're likely to have higher rates of mortality and turnover than the vast majority of the forested landscape. Woinarski responded that he did not think that should make any difference to the occurrence of Leadbeater's Possums in those plots (T535.19-536.8). Woinarski explained that they are 100m plots, which are permanently marked locations in the Central Highlands, each one of which is one hectare, 100 metres by 100 metres in size. They're permanently marked, the trees are painted or tagged. He said even for those plots that are 2 meters from a road, that would be only the closest proximity to the road and the plot would extend at least to 102 metres from the road as well (T536.30-43).

645. Woinarski said the sites are certainly representative of the forest in the Central Highlands in terms of their environmental settings (T537.5-7).

646. Woinarski's evidence in relation to decline should be preferred. He was an eloquent and articulate witness, who demonstrated a comprehensive knowledge of the subject matter that was consistent with the scientific literature.

647. Davey and Baker by contrast are not experts in the subject matter (Davey (1) CB 5.1.1. pp 4-9; T565.46 – T570.47) and their assertions that the Leadbeater's Possum are not in decline are inconsistent with the scientific literature.

648. Another reason to reject the evidence of Davey and Baker is that their assertion that the Leadbeater's' Possum is not in decline is inconsistent with the past and reviewed Conservation Advice.

2. Cause of the decline

649. The second contextual matter is the cause of the decline.

650. Woinarski said the major threats to Leadbeater's possum are well recognised and well demonstrated, notably in the Draft Recovery Plan, the 2014 Victorian Action Statement and the 2015 Conservation Advice. He said the most important threat is loss, fragmentation and reduction in quality of suitable habitat with several factors contributing to it. 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.

651. Woinarski said loss, degradation and fragmentation of habitat, caused mostly by wildfire and timber harvesting (Woinarski (1) CB 4.7.1 at [23]). Establishment of roads and track networks can also result in local habitat loss and fragmentation, as roading interrupts the vegetation connectivity on which the species depends (Woinarski (1) CB 4.7.1 at [23]). He said almost every management plan, conservation advice and assessment of the conservation status of Leadbeater's possum recognises that the species is primarily threatened by landscape-scale disturbance, explicitly wildfire and timber harvesting (Woinarski (3) CB 4.11.1 at [41]).

652. Woinarski said the abundance of hollow-bearing trees in the Central Highlands is declining and is a key threat to Leadbeater's Possum which forestry operations contributes to by removing the future cohort of habitats and increasing the susceptibility of retained hollow-bearing trees to damage and collapse due to windthrow and regeneration fires (Woinarski (2) CB 4.9.1 at [27] [42] [54], Woinarski (1) 4.7.1 at [24b, f, g]).

653. Woinarski said the much larger cohort of trees regrowing after the 1939 wildfires (which are especially targeted for harvesting) is 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 (Woinarski (2) CB 4.9.1 at [13] and [42] and [27]).

654. Davey did accept that timber harvesting was causing loss, degradation and fragmentation of habitat, but rather than address it in the context of his impact assessment at the coupes, he sought to minimize the importance of it as a threat by

stating that natural loss of hollow-bearing trees and wildfire are the most important threats, followed by timber harvesting (Davey (2) CB 5.4.1 at [118-119]). Further, given he did not accept the population was declining, he could not have considered the threat as a cause of decline.

655. Baker suggested that timber harvesting was beneficial for Leadbeater's Possum by generating a "flush of acacia" (refer [675] below). His reports make no mention of the causes of the species decline let alone that he considered that in the context of his impact assessment. In cross-examination he sought to suggest that his work has shown that hollow-bearing trees are more extensive that had been thought. However, that work was submitted to the Threatened Species Scientific Committee who nevertheless concluded the species is facing an extremely high risk of extinction in the wild in the immediate future due to population size reduction caused by scarcity and loss of hollow-bearing trees (Conservation Advice 2019 CB 11.103, p5-7). Further, his modelling was shown under cross-examination to be inaccurate in predicting hollow-bearing trees (see [702]-[704] below)

3. Current prescriptions not sufficient to prevent impacts of forestry operations

656. The third contextual matter is whether the current prescriptions are sufficient to protect the Leadbeater's Possum species from the impact of logging in the logged and scheduled coupes.

657. The main area of disagreement between the experts was as to whether the existing reserve system, and suite of prescriptions – 200 metre buffers, Z1A and Z1B habitat protection – resulted in no significant impact from forestry operations in the coupes subject of the proceeding.

Reserve system

658. The Applicant submits that if the evidence is accepted that the species has declined and is predicted to decline at the rates found to justify its listing in the critically endangered category as set out in the Conservation Advice in 2015 and again on 22 June 2019, it must follow that the existing reserves and prescriptions *are not* staunching the species' decline let alone ensuring forestry operations do not interfere with its recovery. The Applicant submits this is prima facie evidence that the existing suite of protections and reserves do not defeat a claim of significant impact.

659. However Woinarski also addressed precisely why the Reserve system is not sufficient

to protect the Leadbeater's' Possum such that impacts caused by forestry operations are not significant to the species.

660. Woinarski said recent analyses have demonstrated that the dedicated Leadbeater's Possum Reserve System is inadequate for the long-term maintenance of population viability for Leadbeater's possum or to achieve its recovery. The dedicated Leadbeater's Possum Reserve System is estimated to comprise less than 8% of the extent of suitable habitat for Leadbeater's possum, and collectively that reserve system complemented by all other formal reserves is estimated to comprise less than 30% of the extent of habitat for Leadbeater's possum. A much larger network of formal protected areas is needed, and/or an assurance that the mixture of regulations and other protective measures operating outside the formal reserve system (Woinarski (1) CB 4.7.1 at [39]). He said of the available models, Taylor 2017 is the most rigorous and has been subject of peer review. That model found that only small proportion of Leadbeater's' Possum suitable habitat is reserved and much less is reserved than is require to maintain minimum viable population of Leadbeater's' Possum. That supports the conclusion that species is wholly dependent on sympathetic management off-reserve and that current reserves are inadequate and ineffective to prevent significant impacts (Woinarski (2) CB 4.9.1 at [59]-[61]).

661. Woinarski said the ongoing decline of Leadbeater's possum, and of its key habitat feature (large old hollow-bearing trees), shows that the conservation protective measures described in Davey's account of the Central Highlands RFA – even with subsequent enhancements – were inadequately formulated and have been demonstrably insufficient (Woinarski (2) CB 4.9.1 at [52])

662. He said the failing of the reserve system is evidenced in a table extracted in Davey's first Report (CB 5.1.1 p32), which foretells a vast increase in the area and proportion of old aged montane ash forests into the future: whereas such a valuable resource for Leadbeater's possum is now scarce, this Table describes a landscape of plenty in the future. It is entirely illusory, as it pivots on note 3 to the table – '*assumes no wildfires*'. The Central highlands RFA process provided inadequate consideration of contingencies, or of inbuilt mechanism for remedial responses should it be shown to be failing to deliver on its conservation objectives (Woinarski (2) CB 4.9.1 at [53]).

663. Woinarski said 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 (Woinarski (1) CB 4.7.1 at [40]).

664. Davey gave a history of the policy and planning for Leadbeater's Possum since the comprehensive assessments that informed the RFAs, in support of his conclusion that application of existing suite of protections and the reserves would result in no significant impact. Woinarski also referred to the processes and plans in place as a result of the RFA (reserves and prescriptions), but concluded the opposite. However in cross-examination, Davey could not provide a satisfactory answer as to why the Reserves had not been effective in preventing the decline in populations of Leadbeater's' Possum (T477.17 – T478.44).

<u>200 metre THEZ</u>

665. Woinarski said the 200m buffers are inadequate and insufficient to reduce extinction risk. He said that this was accepted by the Leadbeater's Possum Advisory Group and was stated in the review of the effectiveness of 200m buffers to which Davey refers as backing up his finding that 200m buffers are sufficient (Woinarski (2) CB 4.9.1 at [12], [23-24], [28], [43], [63-65]).

666. Woinarski said Davey cites from the DELWP THEZ review report, concluding that the THEZ system has resulted in protection of 436 additional Leadbeater's possum colonies' that '*without this protection, many of these possum colonies may have been at risk from timber harvesting*' and that '*the effectiveness of THEZs contributes to achieving the … aim of slowing the projected decline in population numbers in the Central Highlands*'. However, as he notes that report also provides a more cautionary note that '*the species remains at risk of extinction, especially when considering the likelihood of future bushfires, and so the establishment of the current THEZs has not achieved complete recovery of the species and continued efforts to provide protection will be required*'.

667. Woinarski said Davey's rationale assumes, in part, that THEZs will be adequate to maintain Leadbeater's Possum populations within (part) of a coupe in which they have been reported, whereas the LPAG Technical report (2014), notably at Table 6, makes it clear that the stipulated size of THEZs is suboptimal for this purpose. LPAG

found when assessing options for the buffers that the 200m buffer would only provide minor benefit (a low-medium impact on reducing extinction risk) (Woinarski (2) CB 4.9.1 at [66]).

668. Woinarski was commissioned by DELWP in June 2017 to undertake an independent review of their THEZ report. His assessment concurred that the THEZ system produced some benefits to Leadbeater's possum, particularly in avoiding many cases of unwitting destruction of possum colonies in the process of timber harvesting. However, he also reported that (Woinarski (2) 4.9.1 p25-26 at [66]):

a. the total area protected through THEZs (ca. 40 km2, or about 2-4% of the potential habitat of Leadbeater's possum) is relatively modest;

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;

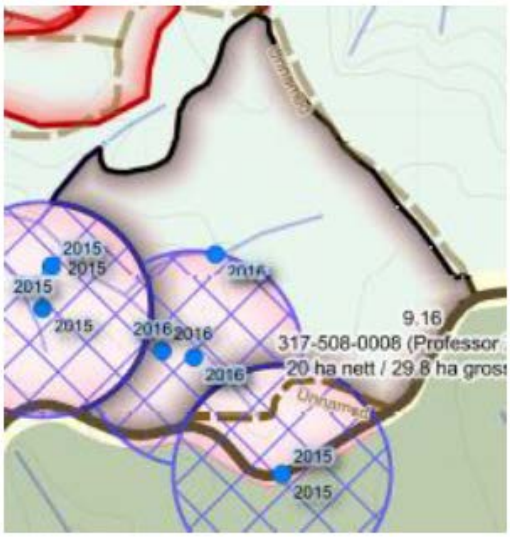
e. DEWLP's assessment of the of the benefit of the THEZ system which predicted a considerable residual risk (45% chance) of the quasi-extinction of Leadbeater's possum but predicted 34% reduction in extinction *related solely to an implausible future scenario of 200 years without bushfire*. When a single bushfire was factored into the analysis, the population within the conservation reserve system, including THEZs, was far more likely than not to become quasi-extinct;

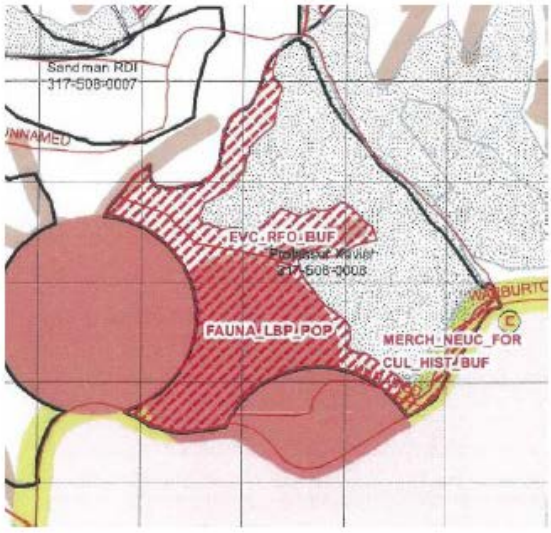
f. the 200m radius used in the establishment of a THEZ was considered by the LPAG Technical Report (2014) as sub-optimal. In Table 6 of that Report, it rates

a set of potential conservation management actions and prescriptions according to their likely mitigation of impacts and benefit to Leadbeater's possum. The 200m 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 (LPAG Technical Report CB 11.96 p42). Davey was taken in cross-examination to the statement in the LPAG Technical Report to which Woinarski refers, and he said agreed with these ratings (T510.10-40);

g. 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;

h. furthermore, depending upon their spatial separation, nearby records of Leadbeater's possum may or may not be protected with additional THEZ establishment. He provided an example of a coupe subject of the proceeding in which 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.





669. He said this showed Leadbeater's possum record at the centre of Xavier coupe, not accorded additional protection because it fell within an already established 200 metre radius zone established around previous records. Because of this protocol, harvesting could have occurred immediately adjacent to this Leadbeater's possum record. The Post-harvest map (Agreed map 12.1(a)) showed that some minor additional protection was accorded in the vicinity of the record of Leadbeater's possum on the periphery of the central THEZ, but nonetheless harvesting occurred within 50 m of the record (Woinarski (2) 4.9.1 p26-27 at [66g]).

670. Woinarski said 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). 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 (Woinarski (3) CB 4.11.1 at [40]).

671. Woinarski then said that even if a THEZ if it encompasses a possum home range, a 200 metre buffered area is likely to protect only a single colony, or small set of neighbouring colonies. Where isolated by timber harvesting, track networks or other forms of habitat loss, such small subpopulations are unlikely to be viable. The network of 200 metre buffered areas (Timber Harvesting Exclusion Zones) comprises a fragmented archipelago of retained habitat patches, with such fragmentation likely to inhibit possum dispersal, be inefficient to manage, and lead to cumulative losses of

the small subpopulations within protected fragments. Further, a 200 metre buffered area may be exposed to ongoing and cumulative degradation from disturbance around its edges, especially if timber-harvesting has occurred at those edges. Such degradation may include trees in the patch perimeter being killed in post-harvesting management fire. (Woinarski (1) CB 4.7.1 at [41d-g])

Zone 1A/1B

672. Woinarski noted that the 2017 Draft Recovery Plan noted 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. He therefore said 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 (Woinarski (2) at [54]).

673. Woinarski thus concluded that neither the protection offered by the formal reserve system to Leadbeater's possum (Woinarski [40], p10), nor the suite of protection measures employed outside the reserve system can be considered to reliably, robustly and adequately provide effective conservation for Leadbeater's possum (Woinarski (1) CB 4.7.1 at [41], p10).

674. However, Baker said he believed the definition for highly suitable habitat is greater than 10 hollow-bearing trees per 3 hectares (i.e. Zone 1A) (TS 645.36-40). Consistent with that view, in his report he concluded that forestry operations in any coupe in which his model predicted 2-10 living hollow-bearing trees per 3ha (i.e. less than Zone 1A) "*would be unlikely to have a direct impact on Leadbeater's Possum habitat over the short- or long-term due to the absence of areas with sufficient habitats within the coupe.*" (CB 5.2.1 p11-17, 19, 21-22, 25-34, 36, 38-40, 42, 44, 47-49, 51-52, 54, 57-60, 62, 64, 65, 67-73, 75). He provided no reason for this opinion, nor is he qualified or experienced to reach that conclusion. So much was accepted in his cross-examination, in which he accepted he was not a zoologist and all he could tell you about was whether key habitat elements would or would not be present (TS T630 l6-8); 646.15-20). His conclusion that the current forest structure in 55 of the 62 coupes was not considered "high quality habitat" for Leadbeater's Possum (Baker (1 CB 5.2.1 at [24]) should be understood as reflecting that erroneous assumption.

675. In cross-examination, he conceded that areas with 2-10 habitat per 3 ha would be "suitable" habitat and said whether or not logging those areas was inconsistent with the recovery plan statement that all suitable habitat is critical habitat depended on how forestry operations occurred. (TS 645.41-47). He went on to suggest that forestry operations could be beneficial to Leadbeater's Possum habitat, by generating a "flush of acacia" (T646.1-13).

676. However he conceded that hollow-bearing trees should be protected and that harvesting around them and leaving them may accelerate their loss and have impacts on long-term density or numbers of hollow-bearing trees on the landscape (TS 645.25-34).

677. Further, the view that harvesting areas with 2-10 living hollow-bearing trees per 3ha "*would be unlikely to have a direct impact on Leadbeater's Possum habitat over the short- or long-term due to the absence of areas with sufficient habitats within the coupe",* directly contradicts:

a. the 2015 Conservation Advice findings that "optimum habitat' for Leadbeater's Possum is **4.2-10 habitats/3ha**. Logging areas with hollow-bearing tree density at "optimum habitat" cannot be said to have "no direct impact" on a critically endangered species "because of insufficient habitats" for which the single main threat causing decline and justifying listing is scarcity and decline of hollow-bearing trees (Woinarski; Conservation Advice 105, Conservation Advice 2019);

b. the 2019 Conservation Advice that management action required for the species includes protecting *all* hollow-bearing trees **by suitable buffers**, plainly this does not currently occur under the Code and is not proposed under any of VicForests' new systems.

678. Applying the 2015 conservation advice as to "optimum habitat" to Baker's maps of hollow-bearing trees results in almost all coupes containing a hollow-bearing tree density that constitutes "optimum habitat". This under-estimates the comparison, because Baker's maps do not count dead habitat trees, which he accepted to be a critical nesting resource (T615.8-.16; see also Smith (1) CB 4.2.1 p92). That is, the conservation advice says optimum habitat is 4-10HBTs (without qualification of living or dead) per 3ha, Baker finds almost all of the coupes have areas with 2-5 living habitat trees per 3ha (yellow on the bottom left map for each coupe), and many

have areas of 5-10 living habitat trees per 3ha - green. It is fair to assume there are at least some dead habitat trees in each coupe. So even on Baker's model – all Leadbeater's possum coupes contain habitat trees at the density of "optimum habitat" according to the conservation advice.

679. Baker's assumption that only Zone 1A is high quality habitat, in contradiction to the Conservation Advice, the Draft Recovery Plan and Woinarski's opinion, without any reasoning, without any peer-reviewed literature in support of that position, and without the expertise to so depart, negates his habitat suitability model and his opinion concerning impact assessment.

680. Similarly, Davey's conclusion that Zone 1A is what he considered to be critical habitat was without reasoning and should be rejected.

4. Impact of fire

681. The fourth contextual matter is the impact of fire on Leadbeater's' Possum habitat.

682. Woinarski said that about 45% of the Leadbeater's Possum reserve system was burnt by intense wildfire in 2009, which would have destroyed much of the Leadbeater's possum population in those areas. He said the consequence of this insufficiency of the reserve system is that the population viability of Leadbeater's possum is dependent upon sympathetic and effective management of areas outside the formal reserve system. (Woinarski (3) at [34])

683. Woinarski said 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 species'* (Woinarski (2) CB 4.9.1 at [8]).

5. Limited use of regrowth

684. The fifth contextual matter is whether Leadbeater's' possum can use regrowth.

685. Baker suggested that logging may generate habitat for Leadbeater's Possum by encouraging Acacia growth (Baker (1) CB 5.2.1 at [155], p93-94). (Baker (1) CB 5.2.1 at [155], p93-94). But he conceded that if you harvest around and leave hollow-bearing trees, if there is accelerated loss of those, that may have impacts in terms of the long-term density or number of hollow-bearing trees on the landscape (T 645.25-29). Woinarski's opinion was that is precisely the effect of forestry operations, and was uncontradicted. Baker agreed that hollow-bearing trees are a critical resource for Leadbeater's Possum (see [678]).

686. Davey said that 41% of the area encompassed by THEZs comprises 1980-1999 regrowth, and that 61% of the area encompassed within the set of THEZs comprised 'forest harvested or burnt after the 1939 bushfire' (with this 61% including the 41% in the 1980-1999 age category). He then inferred from this that '*Leadbeater's possum can occupy and use harvested and burnt forest at a relatively early age of regrowth forest, if suitable habitat is available*'(Davey (1) CB 5.1.1 at [227-228]).

687. Woinarski said Leadbeater's' Possum needs both hollow bearing trees and acacia, and one is rare and becoming rarer, and the other is abundant and becoming more abundant, so that the critical factor is the old, hollow-bearing trees. He said just retaining one or two hollow-bearing trees would be insufficient. Leadbeater's Possum 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. (TS 542.21-543.11)

688. Woinarski said Davey's statements concerning the percentage of THEZ comprising regrowth required a number of caveats (Woinarski (2) CB 4.9.1 at [68]):

a. 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;

b. 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;

c. while occasional hollow trees within a landscape dominated by younger-aged regrowth may provide the mix of resources required by Leadbeater's possum, these trees are likely to be more prone to collapse when in such disturbed sites, and ongoing loss of large old hollow trees is a major threat to Leadbeater's possum. Furthermore, as the abundance of these large old trees (and hence hollows) diminishes, it is more likely that there will be competition among hollow-dependent species for that critical and increasingly scarce resource, accentuating the extent to which hollow availability limits the population, and drives the decline, of Leadbeater's possum.

6. Recovery of Leadbeater's' Possum

689. The sixth contextual matter is the impact of forestry operations on the recovery of the species.

690. Woinarski said that notwithstanding the policy and planning systems (which were described in detail by Davey), Leadbeater's possum is not recovering: along with its key habitat requirement of large old hollow bearing trees, it is continuing to decline. There is a real chance or possibility that actions, such as harvesting, that cumulatively and continually reduce the extent and quality of its habitat now and into the future, will reduce the likelihood and rate of (i.e. interfere with) any recovery. In this regard,

he noted the Conservation Advice of the independent Threatened Species Scientific Committee, the body that oversees recovery of Australia's threatened species, that '(it) 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' (Woinarski (2) CB 4.9.1 p14).

691. Woinarski said the main threats to Leadbeater's possum are wildfire and timber harvesting, and referenced by way of example the 2014 Action Statement and the 2016 Draft Recovery Plan in support of this proposition. He said that although the impacts of timber harvesting upon the conservation outlook for Leadbeater's possum can be (and are being) reduced *to some extent* through prescriptions, planning and other mechanisms, these are compromised actions that by no means eliminate the detrimental impacts of harvesting on individual populations and the species as whole, and do not optimise the likelihood of *recovery* of the species. He referred to the LPAG technical report in support of this proposition. He said this was so for every one of the coupes for which he considered harvesting to have a significant impact, and collectively for all harvested coupes (Woinarski (2) CB 4.9.1 at [35b]).

692. He said Davey's own report cited from a key component of the planning process, 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*'. Woinarski said any action that has as its consequence a reduction in the ability of the species to survive is *ipso facto* interfering with the recovery of the species. (W (2) at [35b]).

693. He said Davey rather over-optimistically interprets his source of DELWP's THEZ review (2017) that '*strategies are in place to support the recovery of Leadbeater's possum*'. That source states somewhat more guardedly that: '*The effectiveness of THEZs contributes to … slowing the projected decline in population numbers in the Central Highlands, so that there are sufficient individuals for the species to recover in the future. However, the species remains at risk of extinction, especially when considering the likelihood of future bushfires, and so the establishment of the current THEZs has not achieved complete recovery of the species and continued efforts to provide protection will be required*'17. So, strategies may well be in place to support the recovery of Leadbeater's possum, but that recovery is far from being achieved, and ongoing loss of habitat and populations is likely to make it even more unachievable (Woinarski (2) CB 4.9.1 at [35c]).

694. Woinarski noted that the population of Leadbeater's possum is already undergoing long-term decrease, driven largely by the limitations of hollow availability and the ongoing trend for reduction in the numbers of large old hollow trees. In turn this resource limitation is caused mostly by wildfire and timber harvesting. Any factor, such as harvesting of trees that currently provide hollows, ***or will do so in the foreseeable future***, will contribute to this regional-scale ongoing reduction in hollow availability, and hence will consolidate and exacerbate the long-term decrease in Leadbeater's possum population size. In his consideration of this criterion, Davey does not note that the existing population of Leadbeater's possum is declining and likely to long continue to do so (and that any further pressure is likely to consolidate or exacerbate that trend), nor does he explicitly recognize that this decline is associated with current and future local- and regional-scale limitation (and decline) in large old hollow trees. Therefore, he considered that Davey has not adequately addressed the issue that harvesting has a 'real chance or possibility' of contributing to or exacerbating the long-term decrease in the size of the Leadbeater's possum total population (Woinarski (2) CB 4.9.1 at [27]).

695. Woinarski said that Davey's assessment of (low) severity of impacts for those harvested coupes is based substantially on his apparent confidence that THEZs established around confirmed records of Leadbeater's possum will provide adequate protection for the population within that 200 metre radius area (refer [667] above). However, as informed also by the LPAG Technical Report considerations and independent assessments, he did not consider that the 200 metre radius THEZ fragments provide adequate assurance for the longer-term viability of Leadbeater's possum populations within them. He noted that for Critically Endangered species, the guidelines define a '*population of a species*' as '*an occurrence of the species in a particular area*'. 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 (Woinarski (2) CB 4.9.1 at [28]).

696. Baker's opinion that forestry operations in 1939 regrowth will have no impact on the Leadbeater's' Possum because of the present lack of hollow bearing trees should be rejected for the obvious reason that 1939 regrowth provides for the next cohort of hollow bearing trees – if the 1939 regrowth is all logged there will be no future

development of hollows in circumstances where lack of future hollow availability *is the most critical factor* threatening the species with extinction in the wild in the immediate future (Woinarski (1) CB 4.7.1 at [24(b)]; Conservation Advice 2015; Conservation Advice 2019 CB 11.103 p-7).

7. Criticism of Baker's models and opinions

697. Professor Baker developed two models:

a. The Habitat Suitability Model, which purported to model living hollow-bearing trees and Zone 1A habitat, and separately, the suitability of habitat for Leadbeater's Possum. He applied this model to coupes the subject of this proceeding to opine on the level of habitat suitability for Leadbeater's Possum in each coupe and, consequently, the impact of forestry operations in each one.

b. The Forest Dynamics Model, which used the output from the habitat suitability model to analyse how Vic Forests' proposed new silvicultural systems may influence Leadbeater's Possum habitat suitability over the next 40 years, when applied to coupes the subject of this proceeding.

698. Both models were the subject of cross-examination.

Habitat Suitability Model

699. Baker was cross-examined about the opacity of his methodology in developing his Habitat Suitability Model. He gave evidence that he input over 80 variables into the model. He conceded that on the face of his first report, his modelling cannot be properly tested and scrutinised in a way that may assist the court in determining what weight will attach to the Zone 1A and Habitat Suitability modelling and outputs (T601.18-21).

700. He was cross-examined about how well the Habitat Suitability Model predicted the results that were observed on the ground. Fourteen sites (5 coupes) were used as on the ground validation sites by Baker. He accepted that at those sites there was considerable discrepancy between what he thought they would find and what they observed (T604.37).

701. He was cross examined about how well his model predicted the type of forest that was present on the ground. He was taken to examples where his habitat suitability model predicted high Leadbeater's Possum suitability and Zone 1A (Montane Ash) in areas

that were mapped and observed on ground by Smith to be Mixed Species forest, and he conceded that to be the case for:

a. Estate (TS 610.25-32, 611.1-8; Agreed Map 7.13.3F; Baker (1) 5.2.1 p28);

b. Jakop (T613.7-29; Agreed Map 7.13.3F; Baker (1) 5.2.1 p28)

702. He was cross-examined about how well the Habitat Suitability Model predicted living hollow bearing trees – one of the critical components of Leadbeater Possum habitat. He was taken to a number of examples where what his Zone 1A model predicted did not align with Zone 1A that had been identified on the ground by VicForests as depicted on VF maps / VF documents, He conceded that to be the case in:

a. Bullseye (T624.1-627.39; VicForests coupe marking map 11.89; Paul (4) at [31-32]; WEP-106 CB 3.6.106 p2 identifies 7.74ha Z1A in Bullseye, p4 is VicForests Zone 1A checklist for identification of Leadbeater's Possum habitat);

b. Rocketman (T628.5-29; VicForests Zone 1A checklist for identification of Leadbeater's Possum habitat 11.90 p2);

c. Vice Captain (T628.37-629.4; VicForests Operations Biodiversity Map 11.91);

d. Spell (T629.6-27; VicForests operations biodiversity map 11.97).

703. He conceded he had opined that harvesting in an area of mixed species forest in Jakop might have an impact on Leadbeater's Possum (614.12). He conceded that it would be important that his model is able to tell whether the coupe is mixed species or ash forest for him to opine about the habitat suitability for Leadbeater's Possum, and that Leadbeater's Possum prefer Ash primarily (TS 608.6-18), but that his model had not input Ash versus Mixed Species mapping and instead used EVCs which he accepted does not predict Ash or Mixed Species (TS 612.14-21, 615.5-6):

704. Baker's report included maps of *living* hollow-bearing trees only. He was taken to the example of Blue Vein, in which VicForests found 66 dead hollow-bearing trees (Shepherd (1) 4.6.1, p22-23, depicting VicForests' spatial data recording trees identified at Blue Vein and mapped in Annexure WEP-65 to Paul (2) CB 4.6.2.3). And in which the Department found Zone 1B habitat (11.86, p2, 5), being a high density of living and *dead* hollow-bearing trees together with a high acacia density, Baker conceded such habitat was "prime" for Leadbeater's Possum and that his habitat suitability did not align with the Zone 1B found (T 615.18-619.21). In fact, his HSI

model had mapped all of the Zone 1B as the lowest two suitability indexes (Baker (1) p15).Baker was cross examined about the Habitat Suitability Model's predictive power. He accepted there is an uncertainty in the model's ability to predict the number of hollow bearing trees on the ground (T605.26 – 33).

705. Baker was cross-examined about the correlation between his predicted and observed hollow-bearing trees, and conceded there was a small sample size (only 5 coupes), and there was considerable discrepancy between what he thought he would find as a result of the model and what he actually found (T604.1-37)

706. Woinarski said that Baker described field testing of his imagery-based assessment of the density of hollow-bearing trees, the parameter that is the basis for eligibility and delineation of Zone A habitat. Professor Baker's field verification indicated that assessments based on this imagery provided only a 57% accuracy relative to field-based assessments (Baker (1) at [131]), little better than random. The graph of image-based predictions relative to observed numbers of hollow-bearing trees (Figure 73, p 87) shows many cases of mis-match between the predicted and actual numbers of hollow-bearing trees, and indicates (as does para 131) that the imagery tends to over-estimate the actual number of hollow-bearing trees, the key resource for Leadbeater's possum. (Woinarski (3) 4.11.1 at [21])

707. Woinarski said neither of the two components described in Professor Baker's report have been published in the peer-reviewed literature (specifically in reference to their use in the Central Highlands and for predicting Leadbeater's possum occurrence), and that his report provides little description of the modelling methods, noting for example, in footnotes that 'A detailed account of the methods will be available in her PhD thesis' (Baker (1) p5) (Woinarski (3) 4.11.1 at [20]).

708. Baker made a number of concessions about the limitations of his Habitat Suitability Model and, hence, the conclusions based on that modelling. Ultimately, he:

    a. accepted that Her Honour cannot rely on the output of the models in his First Report (Zone 1A and Habitat Suitability) in in predicting whether or not a possum is actually there at a particular area of the coupe (T630 l35). The models, he said, predicted whether the habitat (forest and forest structure) would be suitable for possums if possums were to be present there (T630 l33 – 38). But, as was demonstrated, his models were not in fact reliable for predicting any of the

possum's 4 key habitat features: living hollow-bearing trees (Zone 1A), dead hollow-bearing trees, wattle and Ash forest.

b. said that he did not have the expertise to provide any opinion as to the likelihood of Leadbeater's Possums thriving in a particular area long-term, because he was not a zoologist. As such, he could opine on whether its key habitat elements will be present in the area long-term, given a specific silvicultural method was used. (T646 l15-22). Whether this translates to a Leadbeater's Possums thriving on the ground in that area is outside of his expertise.

709. Baker was also cross examined about his classification of Leadbeater habitat suitability.

a. He accepted that Leadbeater's Possum may use acacia on their own, or hollow bearing trees on their own (T635.16 – 30) but said that his model only classified the habitat as high quality if the area included hollow bearing trees *and* acacia within 100 m of one another. Unless both components were detected, the model regards the area as low quality habitat for Leadbeater's Possum (T632.30-31, T634.44 – 47).

b. He was taken to a number of examples where what his model predicted low suitability habitat in areas where there had been a recorded detection of Leadbeater's Possum (Blue Vein T632.10-26, Map 7.6C compared to CB 5.2.1 p15; Diving Spur T633.44-634.30 Map 7.7C compared to 5.2.1 p24; Imperium & Utopia T635.36-637.10 Map 7.25C compared to 5.2.1 p44; Starlings Gap T637.12-35 Map 7.24C compared to 5.2.1 p66; Shrek T638.20-44 Map 7.18C compared to 5.2.1 p71; Swing High T639.21-47 Map 7.14C compared to 5.2.1 p68). He sought to explain some of those detections by nearby mapped areas of high suitability. That is, by "speculating" that the possums detected there could have been foraging for food and had come from nearby high suitability areas.

c. He said that habitat classified as low quality by his model did not mean it is not necessary habitat for the Leadbeater's Possum (T635). He would not, however, accept that *any* location that a Leadbeater's Possum is using (regardless of what it's doing there) is highly important habitat for the species, by reference the Draft Recovery Plan (3.4.9). This was a main point of difference between his evidence and the evidence of Woinarski.

710. In short, the Habitat Suitability Model:

a. does not predict the presence of Leadbeater's Possum in a particular area. At its highest, it purports to predict the presence of habitat (forest and forest structure) would be suitable for possums Leadbeater's Possum;

b. is, the applicant contends, weak in its ability to predict key components of that habitat, and is certainly less accurate than on-ground inspections and observations of the coupes, conducted by Woinarski and Smith. Baker's contention that modelling may provide better accuracy than field inspection ought to be rejected, and given he only inspected 5 coupes subject of the proceeding his evidence ought to be given less weight than that of Woinarski.

711. The model, its outputs, and any opinions based on those outputs as to the impact on Leadbeater's Possum ought not be attributed weight by the court on the issue of significant impact. It is of minimal, if any, use to the court in this respect. Rather, Woinarski's opinion on this issue ought be preferred.

Forest Dynamics Model

712. Baker was cross examined about the factors that were omitted from this model. He accepted that fire, the impact of track network (accepting Davey's opinion about same), and future harvesting in areas surrounding the subject coupe were not factored into the Forest Dynamic Model (T 644.14-645.4).

713. Additionally, given that this model uses the output from the Habitat Suitability Model, and Baker's assumption that only Zone 1A constitutes high quality habitat, the applicant contends that unreliability carries through to output of the Forest Dynamic Model.

714. The model, its outputs, and any opinions based on those outputs as to the impact of the new systems on the Leadbeater's Possum ought not be attributed weight by the court. Rather, Woinarski's opinion on this issue ought to be preferred.

7. Conclusion

715. The evidence relevant to assessing significant impact on Leadbeater's Possum is set out in the table at Annexure D (**significant impact evidentiary table**).

716. The table refers to evidence on the issue of significant impact for each of the coupes the subject of the proceeding. Relevantly, the Applicant relies on the following in contending that that forestry operations in the logged and scheduled coupes have had,

will have or are likely to have a significant impact on the Leadbeater's' Possum:

a. Woinarski's coupe-specific assessment for the coupes he visited (column C); or

b. For all other coupes, a combination of:

   i. Evidence of the Leadbeater's Possum in or in proximity of each coupe subject of Leadbeater's Possum allegations (column C); and

   ii. Smith's identification of Leadbeater's Possum habitat (either suitable, highly suitable or critical), including descriptions of forest type and structure (such as uneven aged Ash, pre-1900 Ash and 1939 Ash), and counts of hollow-bearing trees occurring at several coupes that he visited (column E); and

   iii. Woinarski's opinions that harvesting in <u>any</u> coupe in which Leadbeater's Possums occurs modifies, destroys, removes and decreases the availability or quality of habitat immediately and into the future (Woinarski (2) CB 4.9.1 at [33]) (column D)

   iv. Woinarski's opinion is that:

      1. all current and prospective suitable habitat is critical for survival of Leadbeater's Possum, and necessary for its recovery, given the current Critically Endangered status of Leadbeater's possum, and its predicted severe ongoing decline, including significant risks of extinction. (Draft Leadbeater's Possum Recovery Plan CB 4.7.2.21 p38; TS 555.1-556.5).

      2. the much larger cohort of trees regrowing after the 1939 wildfires is a critical resource. These generally do not have hollows now, but in the future these will provide the next major source of hollows (Woinarski (2) at [13] and [42] and [27]). Any factor, such as harvesting of trees that currently provide hollows, ***or will do so in the foreseeable future***, will contribute to this regional-scale ongoing reduction in hollow availability, and hence will consolidate and exacerbate the long-term decrease in Leadbeater's possum population size (Woinarski (2) at [27]).

      3. there is a real chance or possibility that actions, such as harvesting, that cumulatively and continually reduce the extent and quality of its

habitat now and into the future, will reduce the likelihood and rate of (i.e. interfere with) any recovery. (Woinarski (2) p14)

4. in relation to impacts on occurrences of Leadbeater's Possum within 200m, 500m or 1km of the coupe - a 200m 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) (W (3) at [40]). A population contained within a 200m 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. (W (2) at [28]). 200m buffers only provide a low-medium impact on reducing extinction risk, low impact on retaining quality and extent of habitat and medium impact on retaining the number of individuals, 500m buffers provide medium impacts on these matters, and one kilometre buffer was predicted to have generally 'high' benefits including on reducing extinction risk. (LPAG Technical Report CB 11.96 p42; Woinarski (2) 4.9.1 p25-26 at [66f]). Dr Davey agreed with these ratings (T510.10-40). It follows that harvesting within 500m and 1km at least interferes with the species recovery.

717. The Applicant contends that the court should conclude, on the basis of this evidence in its proper context (see [607-696]), and in preference over any opinion to the contrary by Davey and Baker, that forestry operations in the logged and scheduled coupes have had, will have or are likely to have a significant impact on the Leadbeater's' Possum.

K. Observations on witnesses

718. Mr Paul was an unsatisfactory witness. Like the organisation he represented, he refused to accept the basic science concerning greater gliders in the CH RFA, its population decline and that causes of that decline "**may**" include forestry operations and fire. Confronted with expert evidence in the case, even agreed to by VicForests' own witnesses, he refused to accept the validity of those opinions and the validity of the criticisms of VicForests' inadequate mapping system.

719. His evidence concerning surveys was opportunistic, and shown to be misleading, vague or exaggerated when tested against the documents concerning the Department's survey

program, Castella coupe, and surveys for Greater Gliders in coupes subject of the proceeding. His evidence in cross examination demonstrated a gap between VicForests' pleaded case and the policy documents he put forward in his 5 affidavits and what occurs on the ground. Despite the class 1 habitat maps, biodiversity survey policy and interim strategy, not a single coupe subject of the proceeding had been surveyed for the species or subject of a prescription that would have protected the individuals present. According to VicForests, there should not have been any greater gliders present.

720. Mr McBride is a witness who had experience in the United States of what is required in terms of surveys, monitoring and compliance with a legal framework in circumstances where a species is vulnerable or endangered. His cross examination demonstrated that none of what he had learnt and observed in the United States to be important and effective concerning field surveys and monitoring in designing and implementing conservation strategies is being replicated, even to a small extent, by VicForests in the Central Highlands. His opinions were not heeded or acted upon in the Interim Strategy and his input to the HCV document was overruled by others not called, changing his 70% 2022 implementation target to 75% by 2020. The so called adaptive measures for which Mr McBride was responsible are still in draft yet VicForests have been seeking FSC certification since 2007. There is a prevailing air of unreality about a proposed draft system of adaptive management for which this witness had notional responsibility, but which in June 2019 is very much in draft, talks of 5 years to develop but adopts 2020 as its implementation date, without any evidence whatsoever of how any of whatever methods proposed will or may be applied on the ground.

721. Dr Smith is the standout expert witness of greater gliders, including in Central Highlands. He has more than 30 years' experience with the species, which includes substantial research work on the Central Highlands forests in particular and a lengthy body of published, peer-reviewed research on arboreal mammals. The evidence in his detailed written reports and in cross examination can confidently be relied upon by the Court.

722. Dr Smith presented as a witness with an excellent depth of knowledge of his subject matter. His evidence was clear, articulate and responsive. He was readily able to provide a reasoned answer to each of the matters that were put to him in cross examination. One clear example is a reference which he was able to make to his field notes – that was only possible because he had actually inspected all of the coupes on

which he opined. Where he disagreed with the evidence of Dr Davey, his reasons were carefully and appropriately explained in his reports and in cross-examination.

723. Professor Woinarski is a zoologist, a conservation biologist and an expert in Leadbeater's Possum. He was an engaging and extremely knowledgeable expert witness. He displayed a great depth of knowledge of the Leadbeater's Possum and its habitat requirements. That is unsurprising, given his role in writing the recovery plan for the species (T: 555.5-6; Draft Leadbeater's Possum Recovery Plan CB 4.7.2.21) and the action plan for Australian mammals (CB 4.7.1 p39; CB 12.60), upon which the conservation advice for both Leadbeater's Possum and Greater Glider rely (CB 6.23 p40, CB 6.18 p1). Professor Woinarski inspected 23 coupes in the field and presented photographs to demonstrate some specific in-field findings. The evidence in his written reports and in cross-examination was presented with clarity and depth. It can confidently be relied upon by the Court.

724. His body of research and publication on Australian threatened fauna, particularly mammals, is voluminous and formidable (CB 4.7.1 p39-77). His extensive experience both in Government and academia is testament to his credibility and independence, this includes 8 years appointed by the Minister to sit on the Federal Threatened Species Scientific Committee, and a current position as Deputy Director of the Threatened Species Recovery Hub of the National Environmental Science Programme and Professor at Charles Darwin University (4.7.1 p37-38).

725. Dr Davey's evidence was not persuasive, aspects of it were unrealizable. His first report was, to a large extent, background as to the history and development of RFAs, the reserve system and accreditation of Victoria's regulatory system for the Central Highlands RFA. This was not relevant opinion evidence within his expertise. It seems his first report was a "vehicle" sought to be relied upon by VicForests to introduce voluminous background materials.

726. He also expressed opinions as to the impact of forestry operations. However, as his cross examination demonstrated, those opinions were not reliable. They were based on assumptions shown to be flawed, such as the assumed accuracy of Class 1 habitat modelling, and assumptions shown to be mistaken, such as an assumption VicForests was responsible for locating and identifying Greater Gliders shown on maps to which he referred.

727. When considering his evidence concerning significant impact, it is important for the Court to bear in mind that table 15 reflects his views on an individual coupe basis but without context. The consequence of such an isolationist analysis means that the impact rating in those tables is simply not reliable. In assessing significant impact, Dr Davey's starting point was 21 important populations, derived from the Leadbeater's Possums which:

    a. he acknowledged was genetically unique and totally unrelated to the Greater Glider;

    b. as is common ground, the two species have very different habitat requirements.

728. Dr Davey's opinions placed great weight and reliance upon the CAR reserve system as ameliorating against what would otherwise be the impacts of forestry operations. However, there was no proper scientific or other basis for such reliance in respect of the Greater Glider. Dr Davey's attempts to justify his opinion in his written work that the precautionary principle had been complied with in the logged and scheduled coupes was not persuasive and his opinions should be rejected. Where Dr Davey's evidence conflicts with that of Dr Smith or Professor Woinarski, the evidence of those witnesses should be accepted and acted upon.

729. Baker was cross examined about his expertise. It is accepted that he proffered a number of times that he was not a zoologist, his speciality was working was the forest (T630 l6-8). His modelling work was demonstrated not to be reliable. Where his evidence conflicts with either that of Professor Woinarski or Dr Smith, it should not be acted on.

730. The Applicant made fuller submissions in respect of the witnesses at T710.33-721.2.

L. Relief

731. The Court has indicated that the parties will have an opportunity to make submissions on relief once liability is determined.

Date: 7 August 2019

Jim Delany

Julia Watson

Tanya Skvortsova