

IN THE SUPREME COURT OF VICTORIA
AT MELBOURNE
COMMON LAW DIVISION
VALUATION, COMPENSATION AND PLANNING LIST

Not Restricted

S ECI 2021 01527

ENVIRONMENT EAST GIPPSLAND INC.

Plaintiff

v

VICFORESTS

Defendant

S ECI 2021 04204

KINGLAKE FRIENDS OF THE FOREST INC.

Plaintiff

v

VICFORESTS

Defendant

<u>JUDGE:</u>	Richards J
<u>WHERE HELD:</u>	Melbourne
<u>DATE OF HEARING:</u>	9-13, 16 May, 23 June 2022 Further written submissions 5 August 2022
<u>DATE OF JUDGMENT:</u>	4 November 2022
<u>CASE MAY BE CITED AS:</u>	Environment East Gippsland Inc v VicForests (No 4)
<u>MEDIUM NEUTRAL CITATION:</u>	[2022] VSC 668

ENVIRONMENTAL LAW – Timber harvesting in State forests in East Gippsland and Central Highlands – Proper interpretation of ss 2.2.2.2 and 2.2.2.4 of the *Code of Practice for Timber Production 2014 (as amended 2022)* – Precautionary principle – Whether precautionary principle is engaged in relation to greater gliders and yellow-bellied gliders – Whether VicForests is applying precautionary principle to conservation of greater gliders and yellow-bellied gliders – Measures for detection and protection of greater gliders and yellow-bellied gliders – Whether VicForests is applying s 2.2.2.4 of the Code – Whether VicForests is correctly applying cl 4.2.1.3 and Table 13 of the *Management Standards and Procedures for timber harvesting operations in Victoria's State forests 2021* in East Gippsland – Criteria for applying

protection area of 'suitable habitat' around certain populations of greater gliders and yellow-bellied gliders in East Gippsland – Whether injunctions should be granted – Whether declarations appropriate – *Sustainable Forests (Timber) Act 2004* (Vic) – *Conservation, Forests and Lands Act 1987* (Vic) – *Code of Practice for Timber Production 2014 (as amended 2022)*, ss 2.2.2.2 and 2.2.2.4 – *Management Standards and Procedures for timber harvesting operations in Victoria's State forests*, cl 4.2.1.3 and Table 13 – *Environment East Gippsland Inc v VicForests* (2010) 30 VR 1 (*Brown Mountain*) – *Friends of Leadbeater's Possum Inc v VicForests* (No 4) (2020) FCA 704 – *VicForests v Friends of Leadbeater's Possum Inc* (2021) 285 FCR 70.

APPEARANCES:

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Solicitors

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For the Defendant

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GLOSSARY

Term	Definition
40% retention prescription	The intended management provided for VicForests to meet Objective 2 of the Greater Glider Action Statement, as set out in paragraph [170] of the judgment.
Allocation Order	The Allocation Order made by the Minister under the <i>Sustainable Forests (Timber) Act 2004</i> (Vic) in October 2013, as amended from time to time, most recently on 24 April 2019.
CAR	‘Comprehensive, Adequate and Representative’, a reserve system established under the RFAs under which areas of public and private land are designated by the Victorian government for conservation purposes.
CBP	Common brush-tailed possum
CFL Act	<i>Conservation, Forests and Lands Act 1987</i> (Vic)
Code	<i>Code of Practice for Timber Production 2014 (as amended 2022)</i>
DELWP	Department of Environment, Land, Water and Planning
East Gippsland proceeding	Proceeding S ECI 2021 01527 Environment East Gippsland Inc. v VicForests, commenced on 11 May 2021.
EEG	Environment East Gippsland Inc.
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
Flora and Fauna Guarantee Act	<i>Flora and Fauna Guarantee Act 1988</i> (Vic)
FMA	Forestry Management Area
FMZS	Forest Management Zoning Scheme
FPSP	Forest Protection Survey Program
GMZ	General Management Zone
Greater Glider Action Statement	Greater Glider Action Statement prepared by DELWP in 2019 under s 19 of the <i>Flora and Fauna Guarantee Act 1988</i> (Vic)
HBT	Hollow-bearing tree

Term	Definition
HCV	High Conservation Value
Intergovernmental Agreement	<i>Australian Intergovernmental Agreement on the Environment</i> , 1 May 1992, contained in the Schedule to the <i>National Environment Protection Council Act 1994</i> (Cth)
IPAs	Immediate Protection Areas
KFF	Kinglake Friends of the Forest Inc.
Kinglake proceeding	Proceeding S ECI 2021 04204 Kinglake Friends of the Forest Inc. v VicForests, commenced on 9 November 2021
RFAs	Regional Forest Agreements
Rio Declaration	<i>Rio Declaration on Environment and Development</i> 1992 (Report of the United Nations Conference on Environment and Development, 3-14 June 1992, Annex 1)
SGG	Southern greater glider
SLCP	Spotlight Call Playback
SMZ	Special Management Zone
SPZ	Special Protection Zone
Standards	<i>Management Standards and Procedures for timber harvesting operations in Victoria's State forests</i>
2014 Standards	<i>Management Standards and Procedures for timber harvesting operations in Victoria's State Forests 2014</i>
Timber Act	<i>Sustainable Forests (Timber) Act 2004</i> (Vic)
VR1	Variable retention 1 harvesting
VR2	Variable retention 2 harvesting
YBG	Yellow-bellied glider

HER HONOUR:

Introduction

- 1 VicForests is a Victorian Government owned business, established by an Order in Council made under s 14 of the *State Owned Enterprises Act 1992* (Vic). Its primary purpose is to sell and supply timber resources in Victorian State forests on a commercial basis. In order to fulfil that purpose it conducts timber harvesting operations in those forests. In doing so, it must comply with the provisions of the *Sustainable Forests (Timber) Act 2004* (Vic) (**Timber Act**) and any relevant Code of Practice made under Pt 5 of the *Conservation, Forests and Lands Act 1987* (Vic) (**CFL Act**).¹ Currently, VicForests' timber harvesting operations are governed by the *Code of Practice for Timber Production 2014 (as amended 2022)* (**Code**), which incorporates the *Management Standards and Procedures for timber harvesting operations in Victoria's State forests* (**Standards**).
- 2 The Code and the Standards impose various obligations on VicForests that are directed to maintaining the biological diversity and ecological characteristics of native flora and fauna in the State forests in which it operates.² It has previously been observed that this places VicForests in a position of inherent conflict.³ On the one hand, it is expected to operate as a business engaged in the profitable sale and supply of timber harvested in Victoria's native forests. On the other, it has responsibilities to undertake its timber harvesting operations in a way that maintains the biodiversity of those forests – including a number of threatened species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**).
- 3 This judgment concerns two separate proceedings brought by incorporated associations, each with a special interest in the preservation of State forests.

¹ *Sustainable Forests (Timber) Act 2004* (Vic), s 46(a) (**Timber Act**).

² *Code of Practice for Timber Production 2014 (as amended 2022)*, s 1.3 – Code Principle 1, s 2.2.2 – Conservation of Biodiversity.

³ *Friends of Leadbeater's Possum Inc v VicForests (No 4)* [2020] FCA 704, [12], [940] (*Leadbeater's Possum No 4*).

Environment East Gippsland Inc. (EEG) has previously been found to have standing to seek remedies to protect a special interest in the preservation of State forests in the East Gippsland region.⁴ More recently, the Court of Appeal held that Kinglake Friends of the Forest Inc. (KFF) had a special interest in preserving the native forests of the Central Highlands region of Victoria, and standing to seek remedies to secure compliance with the Code and Standards.⁵ VicForests no longer disputes the standing of either plaintiff in these proceedings.

4 In the **East Gippsland proceeding**,⁶ EEG seeks declarations and permanent injunctions to enforce what EEG contends are VicForests' obligations to identify and protect greater gliders and yellow-bellied gliders that live in State forests in the East Gippsland forestry management area (FMA). In the **Kinglake proceeding**,⁷ KFF seeks similar relief in respect of VicForests' obligations to identify and conserve greater gliders and yellow-bellied gliders in State forests in the Central Highlands FMAs. Both greater gliders and yellow-bellied gliders are listed threatened species under the EPBC Act.

5 EEG and KFF contend that ss 2.2.2.2 and 2.2.2.4 of the Code require comprehensive pre-harvest surveys of a coupe scheduled for harvesting, in order to identify whether greater gliders and yellow-bellied gliders are present within the coupe and, if so, the location of the gliders' home ranges. They further contend that ss 2.2.2.2 and 2.2.2.4 require VicForests to exclude an area of forest from harvesting around the location of each sighting of a greater glider or yellow-bellied glider. In addition, EEG says that VicForests is not meeting its obligations under cl 4.2.1.3 of the Standards to apply a protection area of approximately 100 hectares of suitable habitat around certain populations of greater gliders and yellow-bellied gliders.

6 VicForests denies that ss 2.2.2.2 and 2.2.2.4 of the Code have the meaning contended

⁴ *Environment East Gippsland Inc v VicForests* (2010) 30 VR 1 (**Brown Mountain**).

⁵ *VicForests v Kinglake Friends of the Forest Inc* (2021) 66 VR 143.

⁶ S ECI 2021 01527, commenced on 11 May 2021.

⁷ S ECI 2021 04204, commenced on 9 November 2021.

for by the plaintiffs. It argues that the precautionary principle in s 2.2.2.2 is not engaged in relation to greater gliders or yellow-bellied gliders, and that the measures it takes for the detection and protection of both are adequate. VicForests says that it correctly applies s 2.2.2.4 when planning timber harvesting operations in East Gippsland, and that s 2.2.2.4 has no application in the Central Highlands in relation to greater gliders and yellow-bellied gliders. In the East Gippsland proceeding, it maintains that it meets its obligations under cl 4.2.1.3 of the Standards. VicForests contends that neither plaintiff has made out a case for relief, and in any event says that relief should be refused on discretionary grounds.

7 The issues for determination, and a summary of my conclusions in relation to each issue, are as follows:

(1) What is the proper interpretation of s 2.2.2.2 of the Code?

Section 2.2.2.2 of the Code means that VicForests, as the managing authority and a harvesting entity, must always apply the precautionary principle to the conservation of biodiversity values, including when planning and conducting timber harvesting operations in State forests.

Applying the precautionary principle involves two inquiries – (a) are there threats of serious or irreversible environmental damage, (b) about which there is a lack of scientific certainty? If the answer to both of those inquiries is ‘yes’, proportionate measures to prevent environmental degradation should not be postponed.

(2) What is the proper interpretation of s 2.2.2.4 of the Code?

Section 2.2.2.4 of the Code is a mandatory action that requires VicForests, during planning, to identify whether and where the biodiversity values listed in the first column of Table 13 of the Standards are present in a coupe, before undertaking timber operations such as roading and harvesting. The phrase ‘biodiversity values’ is used in s 2.2.2.4 of the Code to refer to things,

including species of fauna and flora, that have value to biodiversity. The two species with which these proceedings are concerned, greater gliders and yellow-bellied gliders, are biodiversity values for the purposes of s 2.2.2.4. Where they are present in a coupe, VicForests must address risks to them by taking management actions consistent with the Standards. These actions may be in addition to the management actions already prescribed in Table 13, where that is necessary to address risks to the species.

(3) What measures does VicForests take in its timber harvesting operations for the conservation of greater gliders?

VicForests relies on pre-harvest spotlight surveys conducted by the Department of Environment, Land, Water and Planning (DELWP), in addition to spotlight surveys carried out by its own staff and contractors. It is not the practice of either DELWP or VicForests to survey an entire coupe; they both survey transects approximately one kilometre in length within a coupe. Where possible, VicForests conducts these surveys along an existing road or track.

VicForests retains habitat trees, as required by cl 4.1.1.1 and Table 12 of the Standards, giving priority to hollow-bearing trees and to trees most likely to develop hollows in the short term. It uses variable retention harvesting as its preferred method of timber harvesting.

In East Gippsland, VicForests applies a protection area of approximately 100 hectares where a 'relative abundance' of greater gliders is detected, as required by cl 4.2.1.3 and Table 13 of the Standards. VicForests does not do this in the Central Highlands, where there is no equivalent prescription.

In both East Gippsland and the Central Highlands, VicForests retains 40% of the basal area of eucalypts across each harvested coupe in which three or more greater gliders are detected per spotlight kilometre.

(4) Is the precautionary principle engaged in relation to greater gliders?

Yes. There is a threat of serious and irreversible damage to greater gliders as a species, in that the species is at risk of extinction. It is a listed threatened species which has been assessed to be facing a very high risk of extinction in the wild in the near future. I am also satisfied that VicForests' timber harvesting operations in East Gippsland and the Central Highlands present a threat of serious or irreversible harm to the greater glider as a species. There is a lack of scientific certainty about the nature and extent of the threats to the species, including as to the effect of timber harvesting operations on the species.

(5) If so, is VicForests applying the precautionary principle to the protection of greater gliders?

I consider the application of the precautionary principle to the conservation of greater gliders in two parts – protection and detection. Issue 5 concerns what the precautionary principle requires for the protection of greater gliders. At Issue 9, I consider what the precautionary principle requires for their detection.

In relation to Issue 5, I have concluded that VicForests does not currently apply the precautionary principle to the protection of greater gliders.

The expert ecologists recommended two alternative measures for protecting greater gliders from destruction by timber harvesting operations in their habitat.

- (a) One approach is to retain a circular area of approximately 18 hectares of suitable habitat centred on a confirmed greater glider sighting. This approach allows for intensive timber harvesting outside of the exclusion area.

- (b) The second approach is to retain a smaller area of around three hectares, corresponding to the home range of any greater glider detected within the coupe. Within the remainder of the coupe, at least 60% of the basal area should be retained, protecting suitable habitat features such as hollow-bearing trees and feed trees. This approach provides better protection for undetected greater gliders.

Both approaches involve maintaining connections between retained areas of habitat and other suitable glider habitat.

I prefer the second approach, as the more proportionate of the two.

VicForests does not currently take either of these approaches. The actions that VicForests takes to conserve greater gliders that have been detected within a coupe scheduled for harvest are inadequate and, in many cases, unlikely to be effective. They are also not consistent with relevant scientific research. In particular, variable retention harvesting was not shown to be effective to conserve greater glider populations in harvested coupes. The available evidence was that variable retention harvesting is of no short to medium term benefit to greater gliders, and that its impact is similar to clearfall harvesting.

VicForests' current approach falls well short of what the precautionary principle requires for the conservation of greater gliders. The ecological evidence was clear - greater gliders that live in coupes that are harvested in accordance with VicForests' current practices will probably die as a result of the harvesting operations.

(6) What measures does VicForests take in its timber harvesting operations for the conservation of yellow-bellied gliders?

In East Gippsland, VicForests detects yellow-bellied gliders in the same way that it detects greater gliders. VicForests does not specifically survey for

yellow-bellied gliders in the Central Highlands.

VicForests retains habitat trees, giving priority to hollow-bearing trees and to trees most likely to develop hollows in the short term. It uses variable retention harvesting as its preferred method of timber harvesting.

In East Gippsland, but not in the Central Highlands, VicForests applies a protection area of approximately 100 hectares where a 'relative abundance' of yellow-bellied gliders is detected, as required by cl 4.2.1.3 and Table 13 of the Standards.

(7) Is the precautionary principle engaged in relation to yellow-bellied gliders?

Yes. There is a threat of serious and irreversible damage to yellow-bellied gliders as a species, in that the species is at risk of extinction. It is a listed threatened species which has been assessed to be facing a high risk of extinction in the wild in the medium term. Further, VicForests' timber harvesting operations in East Gippsland and the Central Highlands present a threat of serious or irreversible harm to the yellow-bellied glider as a species. There is a lack of scientific certainty about the nature and extent of these threats, including as to the effect of timber harvesting operations on yellow-bellied gliders.

(8) If so, is VicForests applying the precautionary principle to the protection of yellow-bellied gliders?

No. VicForests does not currently apply the precautionary principle to the protection of yellow-bellied gliders.

The ecologists recommended two alternative measures for protecting yellow-bellied gliders from the effects of timber harvesting operations in their habitat.

- (a) One approach is to retain a circular area of approximately 38 hectares of suitable habitat around a family group of three or more yellow-bellied gliders. This approach allows for intensive timber harvesting outside of the retained area of habitat.
- (b) The second approach is to identify and retain the feed trees of yellow-bellied gliders, as well as recruitment trees around each feed tree and hollow-bearing trees within a coupe. Across the harvested area of the coupe, at least 60% of the basal area should be retained. This approach does not support intensive timber harvesting in any part of a coupe in which yellow-bellied gliders are present.

Again, both approaches depend on maintaining connectivity between areas of suitable glider habitat, including by retaining riparian strips along waterways.

Again, I prefer the second approach, as the more proportionate of the two.

VicForests' existing timber harvesting practices do not take either of these measures for the protection of yellow-bellied gliders. The actions that it does take, such as variable retention harvesting, are unlikely to be effective, and are not supported by relevant monitoring and research. Variable retention harvesting was not shown to be effective to conserve yellow-bellied gliders in harvested coupes, and its impact is comparable to clearfall harvesting. The ecological evidence was that yellow-bellied gliders that live in coupes that are harvested in accordance with VicForests' current practices will probably die as a result of the harvesting operations.

(9) Is VicForests applying the precautionary principle to the detection of gliders?

VicForests' current approach to detecting greater gliders and yellow-bellied gliders is considerably less than s 2.2.2.2 of the Code requires. In order to

apply the precautionary principle to the conservation of greater gliders and yellow-bellied gliders, VicForests must survey the whole of any coupe proposed for harvest which may contain glider habitat. It must do so using a survey method that is likely to detect any gliders that may be present in the coupe, so as to locate the gliders' home ranges wherever practicable. This is necessary in order that their essential habitat can be excluded from timber harvesting operations, as the precautionary principle requires – in the case of greater gliders, their home ranges, and in the case of yellow-bellied gliders, their feed trees and hollow-bearing den-trees within the coupe.

At present VicForests does not survey all of a coupe before harvesting, and so it plans and undertakes timber harvesting operations without knowing where gliders live within the coupe and which parts of the coupe should be retained for their habitat. In order to comply with s 2.2.2.2 of the Code, VicForests needs to undertake much more thorough pre-harvest surveys for greater gliders and yellow-bellied gliders.

The plaintiffs proposed a survey protocol that is a reliable and effective method for detecting and locating gliders within a coupe. The protocol is both safe and feasible. However, it is highly prescriptive, and it may not be safe or effective to apply it in every coupe. It is also not the only effective method of detecting gliders, in particular yellow-bellied gliders.

(10) Is VicForests applying s 2.2.2.4 of the Code in East Gippsland?

No. VicForests is not applying s 2.2.2.4 of the Code in East Gippsland. It does not meet its obligation to identify whether and where greater gliders and yellow-bellied gliders are present in a coupe, when planning to harvest the coupe. The spotlight surveys it relies on to detect gliders are limited to a one kilometre transect through a coupe. This leaves most of the coupe unsurveyed, and provides incomplete information about whether gliders are present and where their home range is located. Without knowing where the

gliders are within a coupe, it is not possible for VicForests to take management actions to address risks to them.

Moreover, the management actions that VicForests currently takes to protect greater gliders and yellow-bellied gliders in East Gippsland are not effective to address risks to them. Effective management actions to address the risks to greater gliders and yellow-bellied gliders, based on the ecological expert evidence, are set out at Issues 5 and 8 above.

(11) Is VicForests applying s 2.2.2.4 of the Code in the Central Highlands?

For similar reasons, VicForests is not applying s 2.2.2.4 of the Code in the Central Highlands. It does less in the Central Highlands to identify whether and where gliders are present, because it does not specifically survey for yellow-bellied gliders. The management actions it takes in relation to greater gliders are not effective to address risks to them. It takes no specific management action for the protection of yellow-bellied gliders in the Central Highlands. Effective management actions to address risks to both species were identified by the ecological experts, as summarised at Issues 5 and 8 above.

(12) In East Gippsland, is VicForests correctly applying cl 4.2.1.3 of the Standards?

No. The location, composition and shape of a protection area of approximately 100 hectares of 'suitable habitat' for a relative abundance of greater gliders or yellow-bellied gliders should be guided by the ten principles agreed by the expert ecologists. At present, VicForests is not guided by the ten principles for determining suitable habitat when designing a protection area of suitable habitat for a threshold population of gliders, and it does not propose to adopt them.

VicForests currently has no criteria for determining whether a population of

gliders detected in East Gippsland is a 'substantial population' in 'isolated habitat' for the purposes of Table 13. The ecological evidence provided criteria for identifying a 'substantial population' of gliders in 'isolated habitat'. A 'substantial population' of greater gliders is at least 20 greater gliders within 100 hectares, and 'substantial population' of yellow-bellied gliders is at least two family groups of at least three yellow-bellied gliders within 100 hectares. Isolated habitat is suitable habitat surrounded by hostile habitat at least 100 metres wide, where any corridors of suitable habitat through the hostile habitat are less than 100 metres wide.

(13) Is VicForests likely, absent an order of the Court, to apply cl 4.2.1.3 of the Standards incorrectly in future?

Yes. Based on the evidence of VicForests' Regional Manager East Gippsland, I am satisfied that it is likely to misapply cl 4.2.1.3 of the Standards in future absent an order of the Court.

(14) Should injunctions be granted in the form sought by the plaintiffs, or in some other form?

Injunctions should be granted to give effect to my conclusions in relation to Issues 5, 8, 9, 10 and 11. I will hear from the parties about their final form, by reference to a formulation that I propose below.

(15) Should declarations be granted in the form sought by the plaintiffs, or in some other form?

Declarations should be made in the East Gippsland proceeding, although not in the precise form sought by EEG. I do not consider it necessary to make declarations that cover the same ground as the injunctions that will be ordered in each proceeding.

8 These are my reasons for reaching those conclusions.

Regulation of timber harvesting in State forests

- 9 Victoria's forest estate comprises large tracts of public land reserved as State forest under the *Forests Act 1958* (Vic). Much of this State forest is found in eastern and north-eastern Victoria, in East Gippsland and in the Central Highlands region.
- 10 The regulation of timber harvesting in State forests occurs within a national policy framework that includes the EPBC Act and the *Regional Forest Agreements Act 2002* (Cth). Victoria and the Commonwealth have entered into five Regional Forest Agreements or **RFAs**, including the East Gippsland RFA and the Central Highlands RFA. Under these RFAs, Victoria has agreed to implement Forest Management Systems for East Gippsland and the Central Highlands that include the Timber Act, the *Flora and Fauna Guarantee Act 1988* (Vic), and the systems and processes established by the Code.
- 11 A component of these RFAs is the establishment of the Comprehensive, Adequate and Representative or **CAR** reserve system, under which areas of public and private land are designated by the Victorian government for conservation purposes. Timber harvesting is not permitted in CAR reserves.
- 12 Forestry operations undertaken in accordance with an RFA are exempt from the requirements for environmental approvals in the EPBC Act.⁸
- 13 The Timber Act is the legislative cornerstone of the Forest Management Systems that Victoria must implement under the RFAs. Its main purposes include providing a framework for sustainable forest management and sustainable timber harvesting in State forests.⁹
- 14 Part 2 of the Timber Act is headed 'Sustainable forest management'. It begins with the principles of ecologically sustainable development set out in s 5, as follows:

- (1) In undertaking sustainable forest management in accordance with this Act, regard is to be had to the principles of ecologically sustainable

⁸ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 38(1) (**EPBC Act**). See also *VicForests v Friends of Leadbeater's Possum Inc* (2021) 285 FCR 70, [117]-[130].

⁹ Timber Act, s 1(a).

development set out in this section.

- (2) Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.
- (3) The objectives of ecologically sustainable development are –
 - (a) to enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations;
 - (b) to provide for equity within and between generations;
 - (c) to protect biological diversity and maintain essential ecological processes and life-support systems.
- (4) The following are to be considered as guiding principles of ecologically sustainable development –
 - (a) that decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations;
 - (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
 - (c) the need to consider the global dimension of environmental impacts of actions and policies;
 - (d) the need to develop a strong, growing and diversified economy which can enhance the capacity for environment protection;
 - (e) the need to maintain and enhance international competitiveness in an environmentally sound manner;
 - (f) the need to adopt cost effective and flexible policy instruments such as improved valuation, pricing and incentive mechanisms;
 - (g) the need to facilitate community involvement in decisions and actions on issues that affect the community.

15 The Timber Act provides that all timber resources in State forest are the property of the Crown, and that property in timber resources only passes from the Crown in accordance with the Timber Act.¹⁰ Under s 13 of the Timber Act, the Minister may by order allocate timber in State forests to VicForests for the purposes of harvesting

¹⁰ Timber Act, s 12A.

and selling timber resources. On the publication of an order under s 13 in the Government Gazette, property in the timber allocated by the order is vested in VicForests.¹¹ VicForests may only harvest and sell vested timber resources in accordance with the allocation order,¹² and must carry out its relevant functions in accordance with the order.¹³

- 16 The **Allocation Order** made by the Minister in October 2013 has been amended from time to time, most recently on 24 April 2019. The Allocation Order specifies a number of conditions with which VicForests is required to comply, including compliance with all relevant Codes of Practice made under the CFL Act.¹⁴
- 17 VicForests must prepare a timber release plan in respect of an area to which an allocation order applies, which must be consistent with both the allocation order and any relevant Code of Practice relating to timber harvesting.¹⁵ The timber release plan must include a schedule of coupes selected for timber harvesting and associated road access requirements. It must also include details of the location and approximate timing of timber harvesting in the proposed coupes.¹⁶ Section 44 of the Timber Act provides that VicForests must carry out its functions and powers under the Act in relation to vested timber resources in accordance with any timber release plan. Under s 45 of the Timber Act, it is an offence to undertake timber harvesting operations in a State forest that are not ‘authorised operations’ – which includes timber harvesting operations undertaken by or on behalf of VicForests other than in accordance with an allocation order and the relevant timber release plan.
- 18 Part 5 of the CFL Act empowers the Minister to make Codes of Practice which specify standards and procedures for the carrying out of any of the objects or

¹¹ Timber Act, s 14(1).

¹² Timber Act, s 14(2).

¹³ Timber Act, s 16.

¹⁴ Minister for Agriculture (Vic), ‘Allocation (Amendment) Order 2019’, *Victoria Government Gazette*, No S 153, 24 April 2019, 3, cl 8.

¹⁵ Timber Act, s 37.

¹⁶ Timber Act, s 38.

purposes of a ‘relevant law’ – which includes the Timber Act.¹⁷ These Codes of Practice are prescribed to be legislative instruments for the purposes of the *Subordinate Legislation Act 1994* (Vic).¹⁸ I proceed on the basis that they are instruments of a legislative character and hence subordinate instruments to which the *Interpretation of Legislation Act 1984* (Vic) applies.¹⁹

19 The Code with which these proceedings are concerned is one such Code of Practice. Compliance with the Code is required by s 46 of the Timber Act.²⁰

20 The Flora and Fauna Guarantee Act is also part of the Forest Management System in place in East Gippsland and the Central Highlands, and is another relevant law for the purposes of the CFL Act. The Flora and Fauna Guarantee Act sets out its objectives in s 4 and principles in s 4A. One principle of the Flora and Fauna Guarantee Act is that a decision, policy, program or process is to give proper consideration to the precautionary principle, ‘such that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation’.²¹ Under s 4B, public authorities – which are defined to include State-owned enterprises such as VicForests – must give proper consideration to various matters, including action statements prepared under s 19. Relevant here is the Greater Glider Action Statement prepared by DELWP in 2019 under s 19 of the Flora and Fauna Guarantee Act. There is currently no action statement in respect of yellow-bellied gliders.

¹⁷ *Conservation, Forests and Lands Act 1987* (Vic), s 3 (definition of ‘relevant law’), s 31, sch 1 (**CFL Act**).

¹⁸ *Subordinate Legislation Act 1994* (Vic), s 3 (definition of ‘legislative instrument’), s 4A; *Subordinate Legislation (Legislative Instruments) Regulations 2021* (Vic), reg 7, sch 2, item 6.1.

¹⁹ *Interpretation of Legislation Act 1984* (Vic), s 38 (definition of ‘subordinate instrument’). While this question was not directly addressed by the parties, both sides submitted that the Code and Standards should be construed on the basis that they are subordinate legislation.

²⁰ CFL Act, s 39(a) provides that compliance with a Code of Practice is not required unless the Code of Practice is incorporated in or adopted by a relevant law.

²¹ *Flora and Fauna Guarantee Act 1988* (Vic), s 4A(d).

Relevant provisions of the Code and the Standards

21 Section 1.2.1 of the Code is titled ‘Why a Code of Practice for Timber Production?’.

The answer that follows is:

Maintaining the benefits to society provided by forest ecosystems depends on balancing community needs and concerns with careful stewardship and responsible management. The effective implementation of the **Code** helps to ensure that timber production is compatible with the conservation of the wide range of values associated with **forests**, and of any such values associated with land on which commercial **plantation** development is proposed.

22 The purpose of the Code is set out in s 1.2.2:

The purpose of the **Code** is to provide direction to the **managing authority, harvesting entities and operators** to deliver sound environmental performance when planning for and conducting commercial **timber harvesting operations** in a way that:

- permits an economically viable, internationally competitive, sustainable timber industry;
- is compatible with the conservation of the wide range of environmental, social and cultural values associated with **forests**;
- provides for the ecologically sustainable management of **timber harvesting operations in native forests** within **State forests** until 2030 when **timber harvesting operations in native forests** will cease; and
- enhances public confidence in the management of timber production in Victoria’s **forests and plantations**.

23 Throughout the Code, bold type is used to designate words and phrases that are defined in the Glossary. A key phrase is ‘timber harvesting operation’ which is defined to mean:

[A]ny of the following kinds of activities carried out by any person or body for the purposes of sale or processing and sale —

- (a) felling or cutting of trees or parts of trees;
- (b) taking or removing **timber**;
- (c) delivering timber to a buyer or transporting **timber** to a place for collection by a buyer or sale to a buyer;
- (d) any works, including **road works, site preparation**, planting and **regeneration**, ancillary to any of the activities referred to in paragraphs (a) to (c) —

but does not include –

- (e) the collection or production of firewood for **domestic** use.

This definition is similar but not identical to the definition of ‘timber harvesting operations’ in s 3 of the Timber Act.

- 24 The scope of the Code is described in s 1.2.4:

The **Code** applies to the planning and conducting of all commercial timber production and **timber harvesting operations** on both **public land** and **private land** in Victoria. The **Code** does not apply to the collection or production of firewood for **domestic** use. Any **haulage, road construction, significant road improvement operations** or **road maintenance** works, **tending, regeneration** or **rehabilitation** activities conducted in association with a **timber harvesting operation** are by definition, also a **timber harvesting operation**. The provisions of this **Code** apply to all **timber harvesting operations**, unless the provision expressly excludes specified **timber harvesting operations** from its operation.

- 25 The Code applies to ‘the managing authority, harvesting entities and operators’.²² The Glossary defines the ‘managing authority’ to be ‘a person or body responsible for the planning and management of a timber harvesting operation’. In State forests, the managing authority is VicForests. A ‘harvesting entity’ is defined to be a person or body responsible for conducting a timber harvesting operation. VicForests is a harvesting entity in State forests.

- 26 Section 1.2.4 also explains the role of the Standards, and their relationship with the Code:

Schedule 1 to this **Code**, referred to as the **Management Standards and Procedures**, forms part of this Code.

The **Management Standards and Procedures** provide detailed mandatory operational instructions, including region specific instructions for **timber harvesting operations** in Victoria’s **State forests**.

The **Management Standards and Procedures** are consistent with the Operational Goals and Mandatory Actions and must be complied with for **timber harvesting operations** in Victoria’s **State forests**.

The **Management Standards and Procedures** are informed by relevant policy documents including policies relating to specific forest values such as

²² Code, s 1.2.6.

threatened species, guidelines and strategies within forest management plans made under the *Forests Act 1958* and **Action Statements** made under the *Flora and Fauna Guarantee Act 1988*. The **Management Standards and Procedures** replace any directions relating to **timber harvesting operations** contained within these documents.

- 27 The interpretation of the Code and Standards is expanded on in s 1.2.4A, which provides:

All references to the **Code**, subject to any contrary intention, include references to the **Management Standards and Procedures**.

A provision in the body of the **Code** prevails over any provision in the **Management Standards and Procedures** to the extent of any inconsistency.

The provisions of the **Code** are referred to as sections. The provisions of the **Management Standards and Procedures** are referred to as clauses.

- 28 As part of the Code, the Standards apply to all commercial timber harvesting operations in Victoria's State forests.²³ The role of the Standards in relation to the Code is explained in cl 1.2 of the Standards:

1.2 Role

1.2.1.1 This Schedule provides standards and procedures to instruct managing authorities, harvesting entities and **operators** in interpreting the requirements set out in the main body of the Code.

1.2.1.2 These **Management Standards and Procedures** are in addition to the mandatory actions set out in the main body of the Code.

- 29 Returning to the Code, its conceptual structure involves three tiers:²⁴
- (a) Code Principles, which are broad outcomes that express the intent of the Code for each aspect of sustainable forest management;
 - (b) Operational Goals, which state the desired outcome or goal for each specific area of timber harvesting operations, to meet the Code Principles; and
 - (c) Mandatory Actions, which are actions to be conducted in order to achieve

²³ *Management Standards and Procedures for timber harvesting operations in Victoria's State forests*, cl 1.1 (**Standards**).

²⁴ Code, s 1.2.10.

each Operational Goal.

30 Section 1.3 of the Code explains that the six Code Principles ‘are developed from the internationally recognised Montreal Process criteria, and are consistent with the objectives of the *Sustainability Charter for Victoria's State forests*’. The Code Principles are that:

1. Biological diversity and the ecological characteristics of native **flora** and **fauna** within **forests** are maintained.
2. The ecologically sustainable long-term timber harvesting capacity of forests managed for timber harvesting is maintained or enhanced.
3. Forest ecosystem health and vitality is monitored and managed to reduce pest and weed impacts.
4. Soil and water assets within forests are conserved. **River health** is maintained or improved.
5. **Historic places** and **Aboriginal cultural heritage** within forests are protected and respected.
6. Planning is conducted in a way that meets all legal obligations and operational requirements.

31 Section 1.3 goes on to provide:

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

32 Table 1 in s 1.3 sets out the Operational Goals that are aligned with each Code Principle. In relation to the first Code Principle, concerning biodiversity, Table 1 relevantly provides:

Code Principles	Operational Goals	Section
Biological diversity and ecological characteristics of native flora and fauna within forests is maintained	Timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and implementation.	2.2.2 and 3.2.2 Conservation of Biodiversity
...

Code Principles	Operational Goals	Section

	Harvested native forest is managed to ensure that the forest is regenerated and the biodiversity the native forest is perpetuated.	2.2.2 and 3.2.2 Conservation of Biodiversity

- 33 Chapter 2 of the Code applies to timber harvesting operations in State forests.²⁵ Section 2.2 concerns environmental values in State forests, including native forests. The introduction to s 2.2 says:

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

- 34 Section 2.2 goes on to address various environmental values including, in s 2.2.2, conservation of biodiversity. The Code adopts the definition of biodiversity used in the Flora and Fauna Guarantee Act, which is:

biodiversity means the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems) and includes –

- (a) diversity within species and between species; and
- (b) diversity of ecosystems.

- 35 Section 2.2.2 – Conservation of Biodiversity sits at the heart of these proceedings. It begins by setting out several Operational Goals, the first of which is most relevant:

Timber harvesting operations in State forests specifically address **biodiversity** conservation risks and consider relevant scientific knowledge at all stages of planning and management.

- 36 The section then sets out mandatory actions to be taken in order to achieve each of the Operational Goals. In relation to the first Operational Goal, the following mandatory actions are prescribed:

²⁵ Chapter 3 applies to private native forests, and Chapter 4 applies to plantations.

Mandatory Actions

Addressing biodiversity conservation risks considering scientific knowledge

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

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

Note:

It is intended by the definition of the precautionary principle and section 2.2.2.2 that the precautionary principle and its application in section 2.2.2.2 be understood as it was by Osborn J in *Environment East Gippsland Inc v VicForests* [2010] VSC 335 (in relation to the precautionary principle as it appeared in the *Code of Practice for Timber Production* 2007).

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

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

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

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

2.2.2.7 **Rainforest** communities must not be harvested.

37 The Glossary to the Code includes a definition of the precautionary principle:

‘**precautionary principle**’ means that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the **precautionary principle**, decisions by **managing authorities**, **harvesting entities** and **operators** must be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options.

Note:

It is intended by this definition and section 2.2.2.2 that the **precautionary principle** and its application in section 2.2.2.2 be understood as it was by Osborn J in *Environment East Gippsland Inc v VicForests* [2010] VSC 335 (in relation to the **precautionary principle** as it appeared in the *Code of Practice for Timber Production* 2007).

38 For the purposes of s 2.2.2.1 of the Code, the biodiversity conservation measures specified in the Standards include cl 4.2.1, which provides for detection-based management of fauna and flora:

4.2.1 Detection-based management

4.2.1.1 Detection based management obligations apply in any area that may be affected by current or planned **timber harvesting operations**, and in any area in which an obligation may affect the conduct of such **timber harvesting operations** (for example, if a **protection area** would include an area within which **timber harvesting operations** are proposed).

4.2.1.2 If evidence of the presence of a value listed in **Table 13 Rare or threatened fauna and invertebrate prescriptions** or **Table 14 Rare or threatened flora prescriptions** is identified, the **managing authority** must:

- a) notify the **Secretary**, providing details (including spatial information) of evidence and the value location; and
- b) unless the **Secretary** otherwise approves, take appropriate steps to **verify** evidence of the presence of the value.

Note: The **Secretary** may otherwise approve if the Secretary intends to take steps to **verify** the existence of the value.

4.2.1.3 If evidence of the presence of a value listed in **Table 13 Rare or threatened fauna and invertebrate prescriptions** or **Table 14 Rare or threatened flora prescriptions** is **verified**, apply and undertake any associated management action specified in the Table.

...

4.2.1.6 The **managing authority** must comply with the requirements of clause 4.2.1.2, 4.2.1.3, 4.2.1.4 and 4.2.1.5, either:

- a) prior to the commencement of **timber harvesting operations**; or

- b) if a requirement only arises after **timber harvesting operations** have commenced, as soon as possible after the requirement arises.

39 Table 13 in Appendix 1 to the Standards lists a large number of rare or threatened fauna and invertebrates, including the greater glider and the yellow-bellied glider. In the East Gippsland FMA, but not in the Central Highlands FMAs, certain management actions are prescribed for both species:

Species name	Value	Applicable FMAs	Management Actions
Greater Glider <i>Petauroides volans</i>	Relative abundance (More than 10 per Spotlight Kilometre)	East Gippsland FMA	Apply a protection area of approximately 100 ha of suitable habitat where records report a relative abundance of more than 10 individuals per spotlight kilometre (equivalent to more than 2 individuals per hectare or more than 15 individuals per hour of spotlighting), or where substantial populations are located in isolated or unusual habitat. Note: Assumed rate of spotlighting per kilometre is 100mins per 1km and visible range either side of transect for this species is 25m, equating to assumed minimum survey area of 5 hectares.
Yellow-bellied Glider <i>Petaurus australis</i>	Relative abundance (More than 5 per Spotlight Kilometre)	East Gippsland FMA Otways FMA	Apply a protection area of approximately 100 ha of suitable habitat where records report a relative abundance of more than 5 individuals per spotlight kilometre (equivalent to more than 0.2 individuals per hectare or more than 7 individuals per hour of spotlighting), or where substantial populations are located in isolated or unusual habitat. Note: Assumed rate of spotlighting per kilometre is 10mins per 100m and visible range either side of transect is 150m, equating to assumed minimum survey area of 30 hectares.

40 Table 14 in Appendix 1 to the Standards lists rare or threatened species of flora and prescribes various management actions in respect of those species.

VicForests' timber harvesting operations

- 41 Several VicForests witnesses gave detailed evidence about its timber harvesting operations in State forest. What follows is based on the evidence of VicForests' Chief Executive Officer, Monique Dawson,²⁶ its Manager Forest Practices, James Gunn,²⁷ and its Director Environmental Performance, William Paul.²⁸
- 42 Victoria has more than 7 million hectares of native forest on public land, almost 4 million hectares of which is in dedicated conservation areas such as national parks. The remaining 3.14 million hectares of State forest is managed in accordance with the regulatory scheme described above, with parts of it allocated to VicForests for harvesting and sale.
- 43 The current Allocation Order sets out the forest stands allocated to VicForests, together with five-year harvest limits. The five-year harvest limit for the period 1 July 2018 to 30 June 2023 is 13,700 hectares of Ash forest²⁹ and 70,500 hectares of Mixed Species forest.³⁰ The same five-year harvest limits apply for five year periods commencing from 1 July 2023. VicForests harvests approximately 2,500 hectares of State forest in a typical year - about 70% of this in the Central Highlands and 10 to 15% in East Gippsland.
- 44 In November 2019, the Victorian government announced that timber harvesting in Victoria's native forests would be phased out by 2030, with an initial step-down in 2024. In association with this announcement, the government developed the Victorian Forestry Plan, under which more than \$200 million in funding will be made available to assist the forestry industry to manage the gradual transition away from native forest harvesting.

²⁶ Affidavit of Monique Dawson dated 6 April 2022 (**Dawson affidavit**).

²⁷ Affidavit of James Murdoch Gunn dated 8 April 2022 (**Gunn affidavit**).

²⁸ Affidavit of William Edward Paul dated 7 April 2022 (**Paul affidavit**).

²⁹ Ash forest comprises areas of State forest dominated by *Eucalyptus delegatensis*, *E. regnans* or *E. nitens*.

³⁰ The major species typical of Mixed Species forest include *Eucalyptus obliqua*, *E. cypellocarpa*, *E. fastigata*, *E. radiata*, *E. denticulata*, *E. viminalis*, *E. robertsonii*, *E. bicostata*, *E. sieberi*, *E. globoidea*, *E. muelleriana*.

45 The Victorian Forestry Plan also contemplates that VicForests will meet its existing contractual obligations to supply timber to mills to mid-2024. Until that time, VicForests is expected to supply 138,000 cubic metres of Ash D+ grade sawlogs and 115,000 cubic metres of Mixed Species D+ grade saw logs in each financial year. The timber allocation process for 2024 to 2030 is to commence during 2022, with an expectation that the volumes of timber to be supplied by VicForests will reduce to zero by 2030.

Forest Management Zoning Scheme

46 The Forest Management Zoning Scheme or **FMZS** is a planning scheme administered by DELWP comprising zones that set the priorities and permitted uses in different parts of State forest.³¹ It is 'a product of broad strategic planning and is a spatial representation of forest values which are managed in Victoria's State forests'.³²

47 There are three main management zones within the FMZS:

- (a) the Special Protection Zone or **SPZ**, which is managed primarily for conservation values as part of Victoria's Comprehensive, Adequate and Representative reserve system.³³ Timber harvesting operations are generally excluded from the SPZ;
- (b) the Special Management Zone or **SMZ**, which is managed to conserve specific features and values, while catering for sustainable timber production and some other activities; and
- (c) the General Management Zone or **GMZ**, in which sustainable timber production is a major use.

48 Maps depicting the zoning of the East Gippsland FMA and the Central Highlands

³¹ Code, Glossary (definition of 'Forest Management Zoning Scheme').

³² Code, s 1.2.12.

³³ The Comprehensive, Adequate and Representative reserve system is a component of both the East Gippsland RFA and the Central Highlands RFA.

FMA's are **Figures 1 and 2** respectively.

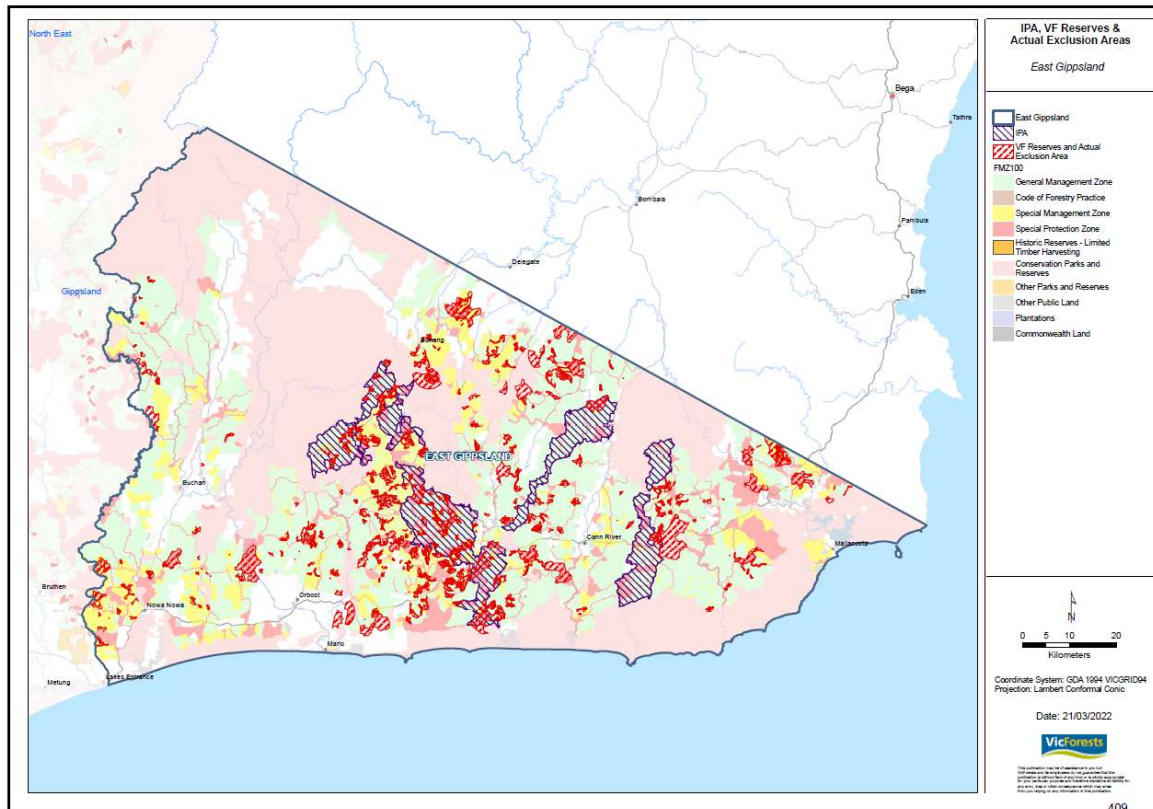


Figure 1: Map of East Gippsland FMA, exhibited to the affidavit of Monique Dawson dated 6 April 2022.

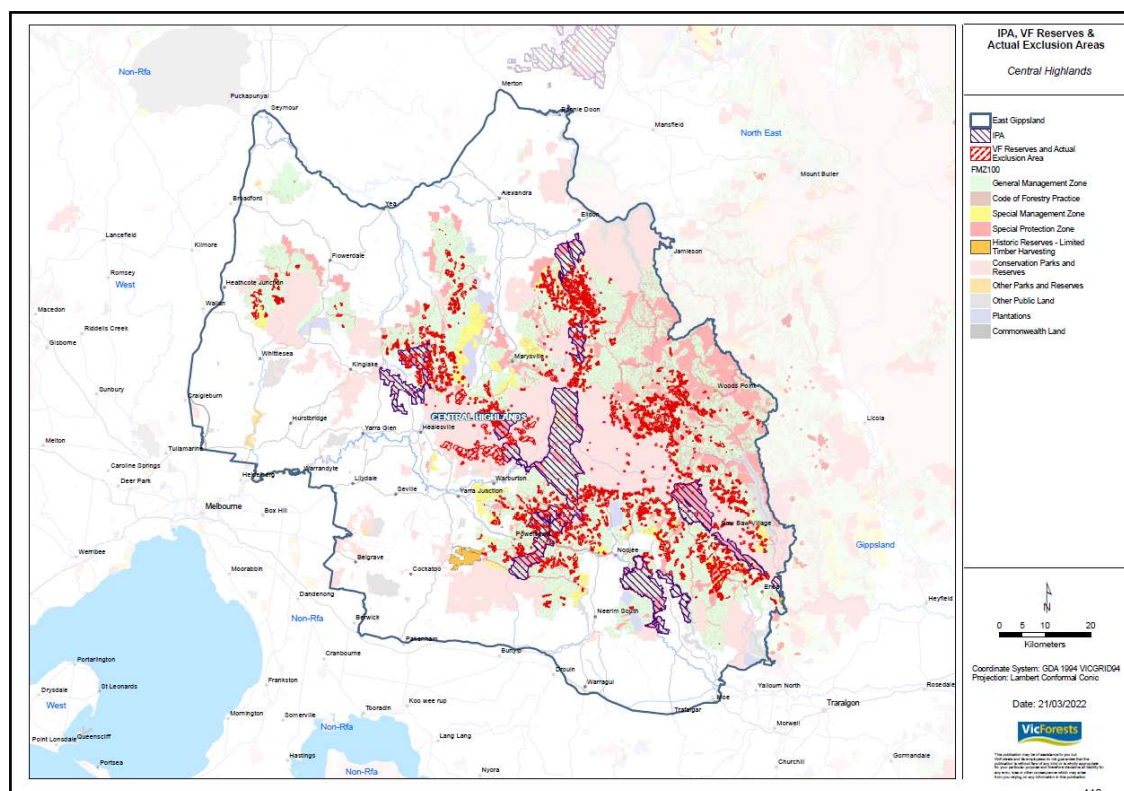


Figure 2: Map of Central Highlands FMAs, exhibited to the affidavit of Monique Dawson dated 6 April 2022.

49 Also shown on these maps are Immediate Protection Areas or **IPAs**, which were set aside by the Victorian government in 2019 as a conservation measure to protect threatened species, including the greater glider. These IPAs amount to about 96,000 hectares of threatened species habitat in East Gippsland, the Central Highlands, the Strathbogie Ranges and Mirboo North. The Victorian government has directed VicForests not to undertake timber harvesting operations within IPAs, even where they have been allocated to VicForests in the current Allocation Order.

Coupe planning

50 As mentioned, the timber release plan prepared by VicForests includes a schedule of coupes selected for timber harvesting and associated road access requirements. Before any coupe can be harvested, VicForests must plan its timber harvesting operations to meet the requirements of the Code.³⁴ As part of that planning exercise, VicForests prepares the following documents for each coupe:

- (a) a forest operations coupe plan;
- (b) a forest operations map;
- (c) a High Conservation Value or **HCV** summary and retention plan; and
- (d) HCV data management maps.

51 Mr Gunn explained that the preparation of coupe plans by VicForests begins with a 'coupe reconnaissance' process in respect of each coupe. The goal of the reconnaissance process is to produce viable, risk-assessed coupes and to identify possible environmental and management risks before more detailed coupe planning takes place. Information about a proposed coupe is gathered and kept in the file for each coupe, as well as being entered into an electronic planning system called Cengea and stored as spatial or textual data within VicForests' spatial data storage.

³⁴ Code, s 2.3.1.2.

- 52 Coupe reconnaissance involves both desktop and on-the-ground information gathering and assessment. During the desktop assessment, a member of VicForests' tactical planning team analyses spatial data records including:
- (a) existing habitat or threatened species records within or adjacent to the coupe;
 - (b) modelled threatened species habitat and threatened or rare forest or plant communities;
 - (c) mapped forest type and species mix;
 - (d) certain forest management zones or dedicated reserves that are known to contain threatened species populations or habitat, within or adjacent to the coupe; and
 - (e) a range of LiDAR³⁵ derived spatial layers.
- 53 After the desktop assessment, foresters undertake field assessments on the ground to verify the existence of the mapped or modelled values identified during the desktop assessment, and to provide further information for VicForests' operations planning team. Foresters conduct a range of field assessments, including targeted species surveys, targeted species habitat surveys, cultural heritage surveys and advice, rainforest or threatened flora community assessments, and old growth forest surveys.
- 54 The survey methods employed by VicForests to identify whether greater gliders and yellow-bellied gliders are present in a coupe are considered in detail below, in my discussion of Issues 3 and 6 respectively.
- 55 An important survey that is conducted at this point is a habitat and hollow-bearing tree planning survey. The purpose of this survey is to capture representative habitat data for arboreal hollow-dependent species, including greater gliders and yellow-bellied gliders. It also involves identifying the density and location of hollow-

³⁵ LiDAR is an acronym used to refer to light detection and ranging technology.

bearing trees within the coupe.

56 Habitat tree surveys are conducted in accordance with VicForests' Habitat Tree Survey Guideline, in the following manner:

- (a) The coupe is overlaid with a one hectare (100 metre by 100 metre) grid, with a plot centroid located at the centre of each hectare.
- (b) In Ash-dominant stands of forest, the survey is conducted at the centroid of each hectare. In Mixed Species stands, where Ash does not predominate, every second hectare is surveyed.
- (c) The surveying forester walks to each plot centroid location, and at each point uses a phone app and GPS to record the attributes and location of trees within a 30 metre radius.
- (d) As well as assessing hollow-bearing trees at each point, the forester records any other hollow-bearing trees observed during the survey, any signs of threatened species habitat (such as an owl roost), and other significant environmental values (such as a Tree Geebung).
- (e) Specific trees are classified into Habitat Type 1, 2 or 3, according to criteria that vary between Ash and Mixed Species forest. Type 1 habitat trees are typically late mature to senescent trees that are most likely to contain hollows; Type 2 habitat trees are mature trees beginning to develop hollows, or dead hollow-bearing trees; Type 3 habitat trees are those trees likely to be the next to develop hollows.

57 The data recorded during the survey is then uploaded to Cengea, and represents a spatial dataset which can be used to produce a map of the coupe depicting the actual locations of trees identified in the field during the survey. The information is used in planning to guide the specific silviculture systems and retention patterns selected for the coupe.

Operations planning

- 58 At the operations planning stage, a forester produces for each coupe an HCV summary and retention plan and HCV data management map, a forest operations coupe plan, and a forest operations map, using the information gathered during coupe planning. These documents describe the biodiversity and conservation values identified in the coupe and the method by which those values will be managed – including the silvicultural or harvesting system to be employed.
- 59 The coupe plan, operations map and HCV map specify how the coupe is proposed to be harvested, and represent the planned harvesting system to be used. The coupe plan contains specifications and operational requirements that must be followed by the harvesting contractor when harvesting the coupe – including how and where to harvest.
- 60 VicForests draws on a range of information to determine the harvesting system to use for a coupe, and the areas of forest to be retained. Mr Paul said that the data sets used typically include:³⁶
- Code requirements relevant to the area;
 - Habitat tree density from surveys and modelling assessments;
 - Topographical features including contours and waterways;
 - Habitat distribution models;
 - Modelled old growth forest;
 - Threatened Ecological Vegetation classes (**EVCs**);
 - The Forest Management Zoning Scheme defined in the Code;
 - Threatened species detections;
 - Any other data or information about values that are relevant (e.g. bushfire mapping).
- 61 Harvesting in a coupe may not commence until the coupe plan has been sanctioned, which involves the plan being signed by VicForests' supervising forester and the

³⁶ Paul affidavit, [103].

contractor. A sanctioned coupe plan for a coupe represents VicForests' final decision to harvest the coupe, and the harvesting method to be used.

Harvesting systems

- 62 VicForests uses a range of harvesting and regeneration systems, with increasing levels of habitat retention and reducing harvest intensity. The harvesting system selected for a coupe is determined by the density of Type 1 habitat trees that are found during the habitat tree survey. Depending on other values within the coupe, including the presence of a threatened species, more than one harvesting system may be used for the coupe.
- 63 The most intense form of harvesting is clearfall harvesting. This system is typically used where the density of Type 1 habitat trees is less than three per hectare. It involves retaining up to four or five trees per hectare, which is the minimum habitat tree retention requirement for East Gippsland and the Central Highlands prescribed in Table 12 of the Standards.
- 64 Next most intense is seed tree harvesting, which involves the retention of five to ten seed trees or habitat trees per hectare, across the harvest area of the coupe. It also is used where the density of Type 1 habitat trees is less than three per hectare.
- 65 Variable retention 1 or **VR1** harvesting is usually used where the density of Type 1 habitat trees is between three and six per hectare. VR1 harvesting sees the retention of existing habitat trees and recruitment trees, with 10 or more trees per hectare retained across the harvest area.
- 66 Variable retention 2 or **VR2** harvesting is typically used where the density of Type 1 habitat trees is between seven and nine per hectare. It involves higher levels of aggregated and dispersed retention across the coupe, indicatively retaining 20 or more trees per hectare across the harvest area.
- 67 The least intensive harvesting system is selection or selective harvesting, where individual trees or small groups of trees are selected and removed. This system may

be used where the density of Type 1 habitat trees is greater than nine per hectare.

68 Mr Paul identified two other harvesting systems used by VicForests — regrowth retention harvesting and thinning. Regrowth retention harvesting is used in Ash forests with advanced regrowth, such as 1939 bushfire regrowth. It is a form of aggregated retention that overlaps with VR1 and VR2 harvesting systems, and wider retention areas around the outside of the harvest area and retained islands within the harvest area. Thinning is a harvesting system used in young, even aged-regrowth stands to release retained stems (trees) from competition for light, water and nutrients.

69 Following the 2019 announcement that timber harvesting in native forests is to be phased out by 2030, VicForests reaffirmed that the ‘almost universal application of Variable Retention Harvesting would be a key feature of VicForests’ harvesting approach’.³⁷ It took this approach because variable retention harvesting had been shown to allow harvesting of commercial quantities of timber while delivering a better biodiversity outcome.

70 According to Ms Dawson, VicForests’ adoption of variable retention harvesting ‘means that its operations can support the persistence of arboreal marsupials in active harvest areas, while also encouraging re-colonisation of harvested areas over time’. The plaintiffs dispute this. Their position is that variable retention harvesting, as it is practised by VicForests, will cause the destruction of any greater gliders and yellow-bellied gliders that may be present in the forest that is harvested.

Ecological evidence

71 I heard expert evidence from two ecologists — Associate Professor Grant Wardell-Johnson, who was called by the plaintiffs, and Dr Benjamin Wagner, who was called by VicForests.

72 Associate Professor Wardell-Johnson completed a Bachelor of Science in forestry at

³⁷ Dawson affidavit, [74].

the Australian National University in 1979. He also obtained a Master of Science degree in forestry in relation to land management from Oxford University in 1985, and a Doctorate of Philosophy in botany at the University of Western Australia in 1998. He worked for 18 years for the Western Australian Forests Department and Department of Conservation and Land Management, as a forestry officer and research scientist in the south-west forests of Western Australia. He then spent 22 years as an academic at several universities, researching and teaching wildlife ecology, botany, disturbance ecology, climate change, restoration ecology, landscape ecology and advanced topics in ecology. Associate Professor Wardell-Johnson has extensive experience conducting field-based research, including in Australian eucalypt forests, and has more than 200 peer reviewed publications. He is currently an Associate Professor at Curtin University in Western Australia, in the School of Molecular and Life Sciences and Centre for Mine Site Restoration.

73 Associate Professor Wardell-Johnson prepared three reports for these proceedings – his principal report dated 8 March 2022, and two responsive reports dated 13 April 2022 and 21 April 2022.

74 Dr Wagner is a Research Fellow in forest resilience and adaptation at the School of Ecosystem and Forest Sciences, the University of Melbourne. He has a Bachelor of Science in forest science and forest ecology, and a Master of Science in forest ecology and forest science from the Georg-August University in Göttingen, Germany. He also has a Doctorate of Philosophy in forest and landscape ecology from the University of Melbourne. His doctoral research investigated the habitat requirements of southern greater gliders in Victoria across different scales, and he has studied and surveyed southern greater gliders and their mature forest habitat for the past five years. Dr Wagner also has numerous publications in the field of forest ecology.

75 Dr Wagner prepared a report dated 1 April 2022.

76 Associate Professor Wardell-Johnson and Dr Wagner met to discuss areas of

agreement and disagreement and produced a joint report dated 29 April 2022. They gave evidence concurrently on the fifth day of the trial, addressing an agreed list of topics. I am indebted to them both for their clear and carefully expressed opinions in relation to some of the critical issues in these proceedings.

77 There was a great deal about which Associate Professor Wardell-Johnson and Dr Wagner agreed, including the ecology of the southern greater glider and the yellow-bellied glider. In the next sections of this judgment, I set out some uncontroversial facts about both species, based largely on Associate Professor Wardell-Johnson's report of 8 March 2022. Dr Wagner accepted that the introductory section of this report provided 'a good and comprehensive summary' of the ecology of southern greater gliders and yellow-bellied gliders.

Greater gliders

78 The southern greater glider or *Petauroides volans* is one of three species of greater glider, and the only one that is found in Victoria.³⁸ It is the largest Australian gliding mammal. It is found from the montane forests of the Victorian central highlands to northern New South Wales.³⁹ Within Victoria, it is distributed throughout the forested parts of eastern Victoria, and as far west as Daylesford.

79 Southern greater gliders are mature forest dependent and prefer older tree age classes in moist forest types; they use hollow-bearing trees for shelter and nesting, with up to 20 den trees within their home range. They are nocturnal, solitary herbivores, feeding almost exclusively on eucalyptus leaves and buds.⁴⁰

80 The movements of southern greater gliders are mainly restricted to gliding between tree canopies. The home range of a male is typically between 1.4 and 4.1 hectares; for females the range is between 1.3 and 3 hectares.⁴¹ Individual gliders have been observed to extend their home range to up to 18 hectares, probably due to habitat

³⁸ Report of Associate Professor Grant Wardell-Johnson dated 8 March 2022, [11]–[12] (**First Wardell-Johnson report**).

³⁹ First Wardell-Johnson report, [15].

⁴⁰ First Wardell-Johnson report, [15]–[16].

⁴¹ First Wardell-Johnson report, [16].

fragmentation and resource availability.⁴² Their home ranges may overlap, but they are generally solitary creatures and rarely interact outside of the breeding season between February and May. A southern greater glider reaches sexual maturity after between 18 months and two years, and lives for up to 15 years. Females bear a single young each year.⁴³

81 Of the three species of greater glider, the southern greater glider is thought to be the most threatened and has suffered the sharpest declines. The species is highly vulnerable to the synergistic impacts of intensive and extensive logging, fire, and global warming.⁴⁴

82 Clearing, intense fire, logging, and fragmentation of habitat have long been recognised as the major threats to the southern greater glider. More recently, extreme droughts and higher temperatures (including overnight temperatures) associated with global warming have been demonstrated to be emerging threats. These threats may result in a reduction in quality or availability of food and increased morbidity or mortality due to heat stress.⁴⁵ Southern greater gliders are not well equipped to handle high ambient temperatures as they inefficiently use water for evaporation through salivation, and often have limited access to water in their arboreal habitat.⁴⁶

83 As populations decline and become more isolated, southern greater gliders are more prone to the effects of small population size and potential genetic decline. Before late 2019, significant logging in the forests of Victoria and New South Wales had led to the removal of large areas of hollow-bearing trees that southern greater gliders depend on, and the species had declined by almost 80% in some areas. A significant proportion of the species' habitat burned during the 2019-20 bushfire season,

⁴² Report of Dr Benjamin Wagner dated 1 April 2022, [2] (**Wagner report**).

⁴³ First Wardell-Johnson report, [16].

⁴⁴ First Wardell-Johnson report, [18].

⁴⁵ First Wardell-Johnson report, [19].

⁴⁶ First Wardell-Johnson report, [17].

including more than half of the forest set aside in Victoria for glider protection.⁴⁷

84 At the time of the trial, greater gliders as a group were listed as ‘vulnerable’ nationally, under the EPBC Act, in Queensland under the *Nature Conservation Act* 1992 (Qld), and on the Victorian Advisory List of Threatened Vertebrate Fauna. On 5 July 2022, the Commonwealth Minister for the Environment and Water moved the southern greater glider from the vulnerable to the ‘endangered’ category on the list of threatened species made under s 178 of the EPBC Act.⁴⁸

Yellow-bellied gliders

85 The yellow-bellied glider or *Petaurus australis* is an arboreal gliding possum and the second largest of all gliding marsupials.⁴⁹ Yellow-bellied gliders can be found in native eucalypt forests in eastern Australia, from northern Queensland to Victoria.⁵⁰ It is a nocturnal species that lives in tall, mature eucalypt forest, generally in areas with high rainfall and nutrient rich soils. In Victoria, yellow-bellied gliders inhabit a range of forest types, predominantly smooth barked eucalypts and mixed eucalypt species. The species can be found in the forests of East Gippsland, the Eastern Highlands and the Otway Ranges.⁵¹

86 Yellow-bellied gliders are highly vocal and audible for over 500 metres.⁵² They become independent at six to eight months, reach sexual maturity at 18 to 24 months and live for 14 years or more.⁵³ Yellow-bellied gliders live in small family groups of three to six. They use dens within large tree hollows, and the family group will use several large tree hollows within an exclusive home range of between 20 and 85

⁴⁷ First Wardell-Johnson report, [19].

⁴⁸ By consent, on 13 July 2022 I gave leave to the plaintiffs to reopen their case to tender the List of Threatened Species Amendment (*Petauroides minor* and *Petauroides volans* (285)) Instrument 2022, along with its explanatory statement, and the updated **conservation advice** for *Petauroides volans* issued by the Commonwealth Department of Climate Change, Energy, the Environment and Water on 5 July 2022.

⁴⁹ First Wardell-Johnson report, [4].

⁵⁰ First Wardell-Johnson report, [4].

⁵¹ First Wardell-Johnson report, [6].

⁵² First Wardell-Johnson report, [7].

⁵³ First Wardell-Johnson report, [7].

hectares.⁵⁴

- 87 Yellow-bellied gliders primarily eat plant and insect exudates including nectar, sap, honeydew and manna, and they source protein from pollen and insects.⁵⁵ They extract sap by biting into the trunks and branches of relevant food trees, often leaving a distinctive 'V' shaped mark.⁵⁶ The gliders primarily forage in larger trees because they provide more sap and increased flower cover, and are more likely to flower and provide a reliable source of nectar.⁵⁷ As their diet is high in sugar from nectar and sap, the species is highly active.⁵⁸ The gliders can travel more than two kilometres through suitable habitat from their dens to forage for food.⁵⁹
- 88 Threats faced by yellow-bellied gliders include loss and fragmentation of habitat, loss of hollow-bearing trees, and loss of feed trees.⁶⁰ The species occurs more frequently in mature and old growth forests, and is sensitive to intensive logging. However, yellow-bellied gliders can occur in older aged regrowth forests, provided that den trees and other essential resources are available in adjacent areas.⁶¹ The effects of logging are compounded by intense wildfire, which can kill the species and impact short-term food supply, and the increasing incidence of drought associated with climate change.⁶²
- 89 The species is classified as 'vulnerable' nationally under the EPBC Act.⁶³ It is also listed as vulnerable in New South Wales, where the area occupied by yellow-bellied gliders at the time of European settlement had reduced by up to 50% by the year

⁵⁴ First Wardell-Johnson report, [7].

⁵⁵ First Wardell-Johnson report, [8].

⁵⁶ First Wardell-Johnson report, [8].

⁵⁷ First Wardell-Johnson report, [8].

⁵⁸ Wagner report, [6].

⁵⁹ First Wardell-Johnson report, [7].

⁶⁰ First Wardell-Johnson report, [9].

⁶¹ First Wardell-Johnson report, [9].

⁶² First Wardell-Johnson report, [9].

⁶³ East Gippsland proceeding – Fifth further amended statement of claim dated 23 June 2022 (**EEG statement of claim**), para 40AGA(a), admitted in defence to second further amended statement of claim dated 8 May 2022 (**EEG defence**), para 40AGA(a); Kinglake proceeding – Third further amended statement of claim dated 23 June 2022 (**KFF statement of claim**), para 33A(a), admitted in defence to second further amended statement of claim dated 8 May 2022, para 33A(a).

2000.

90 Against that background of uncontroversial facts, I now turn to the issues for determination.

Issue 1: What is the proper interpretation of s 2.2.2.2 of the Code?

91 It will be recalled that s 2.2.2.2 of the Code provides:

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

92 It is also useful to repeat here the definition of the precautionary principle in the Glossary to the Code:

‘**precautionary principle**’ means that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the **precautionary principle**, decisions by **managing authorities, harvesting entities and operators** must be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options.

93 Both s 2.2.2.2 and the definition contain a note to the effect that it is intended that the precautionary principle and its application in s 2.2.2.2 be understood as it was by Osborn J in *Environment East Gippsland Inc v VicForests* [2010] VSC 335 (**Brown Mountain**),⁶⁴ which concerned the precautionary principle as it appeared in the *Code of Practice for Timber Production 2007*.

94 The parties had fundamentally different positions as to the meaning and operation of the precautionary principle and s 2.2.2.2 of the Code.

⁶⁴ The media neutral citation is used in the Code. The decision is reported as *Environment East Gippsland Inc v VicForests* (2010) 30 VR 1, and is referred to in this judgment as **Brown Mountain**.

Plaintiffs' submissions

95 The plaintiffs began their argument by referring to various principles of statutory construction. They said that the ordinary principles of statutory construction apply to subordinate legislation.⁶⁵ Those principles require the Court to ascertain the meaning of a statutory provision having regard to its purpose and context.⁶⁶ A construction that promotes the purpose of a provision should be preferred over one that does not.⁶⁷ The plaintiffs further submitted that subordinate legislation such as the Code should be construed in light of practical considerations, in order to achieve a reasonably practicable result.⁶⁸ Where a statutory provision is directed to the fulfilment of multiple purposes, the words used in the provision are the surest guide to its meaning.⁶⁹

96 As to context and purpose, the plaintiffs drew attention to the regulatory scheme for timber harvesting, and the interlocking provisions of the RFAs, the EPBC Act, the Timber Act, and the Code. They pointed out that every level of this regulatory scheme seeks to provide a framework for sustainable forest management and ecologically sustainable development.

97 The plaintiffs submitted that, on its true construction, s 2.2.2.2 of the Code provides a framework for decision making that must always guide VicForests' actions. They said that it requires VicForests' relevant decisions to:

- (a) be consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on forest ecology and conservation values;

⁶⁵ Referring to *Mount Atkinson Holdings Pty Ltd v Landfill Operations Pty Ltd* [2020] VSC 345, [28]–[34].

⁶⁶ Referring to *Project Blue Sky Inc v Australian Broadcasting Authority* (1998) 194 CLR 355, [78] (McHugh, Gummow, Kirby and Hayne JJ); *Alcan (NT) Alumina Pty Ltd v Commissioner of Territory Revenue* (2009) 239 CLR 27, [47] (Hayne, Heydon, Crennan and Kiefel JJ); *SZTAL v Minister for Immigration and Border Protection* (2017) 262 CLR 362, [14] (Kiefel CJ, Nettle and Gordon JJ).

⁶⁷ *Interpretation of Legislation Act*, s 35(a).

⁶⁸ Referring to *Bayside City Council v Stockland Development Pty Ltd* [2020] VSC 354, [53], quoting *Gill v Donald Humberstone & Co Ltd* [1963] 1 WLR 929, 933–4 (Lord Reid).

⁶⁹ Referring to *MyEnvironment Inc v VicForests* (2013) 42 VR 456, [1], [17], [148]–[155], [202].

- (b) be guided by a careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
- (c) also be guided by an assessment of the risk-weighted consequences of its options.

98 This construction would, the plaintiffs said, be consistent with the Timber Act's recognition of the precautionary principle as a guiding principle of ecologically sustainable development.⁷⁰ It would also promote the first Code Principle of maintaining biological diversity and the ecological characteristics of native flora and fauna within forests, and the value of ecologically sustainable management of forests that is embraced by the RFAs, the Timber Act, and the Code.

99 The plaintiffs refuted any suggestion that s 2.2.2.2 only applies when there is both a threat of serious or irreversible environmental damage and a lack of full scientific certainty. They argued that these were not preconditions to the application of s 2.2.2.2; instead, the clause always requires VicForests to apply the precautionary principle to the conservation of biodiversity values. In the context of s 2.2.2.2, the plaintiffs said that the precautionary principle operates as an overarching mandatory obligation that goes beyond specific prescriptions, and requires VicForests to take a 'bigger picture' view of biodiversity values in planning and conducting its timber harvesting operations.⁷¹ They said that the precautionary principle always applies to those operations, because logging of native forests always affects biodiversity values. According to the plaintiffs, the only qualification of the obligation imposed by the first sentence of s 2.2.2.2 is that its application must be consistent with relevant monitoring and research, as provided in the second sentence.

100 As to the definition of 'precautionary principle' in the Glossary to the Code, the plaintiffs submitted that the two sentences of the definition should be read together

⁷⁰ Referring to Timber Act, s 5(4)(b), set out at [14] above.

⁷¹ Referring to *Leadbeater's Possum No 4*, [845].

and construed as a whole. They emphasised that the task of statutory construction involves construing the language of the statute, viewed as a whole, and not individual words divorced from their context.⁷² Taking that approach, the plaintiffs contended, it becomes clear that the role of the first sentence of the definition is to inform the implementation of the second sentence.

101 The plaintiffs relied on and urged me to adopt Mortimer J’s analysis of the precautionary principle and s 2.2.2.2 of the Code in *Friends of Leadbeater’s Possum Inc v VicForests (No 4) (Leadbeater’s Possum No 4)*.⁷³ They submitted that I would not be assisted by judicial consideration of different formulations of the precautionary principle in other contexts, because the relevant definitions did not include the second sentence that appears in the definition of ‘precautionary principle’ in the Code.⁷⁴

102 The plaintiffs rejected the idea that s 2.2.2.2 does not oblige VicForests to apply the precautionary principle in situations where there is scientific certainty that logging activities will inflict serious environmental damage. They said that this would be an absurd result that would be inconsistent with the context and purpose of the provision. They reiterated that s 2.2.2.2 always applies; it is not enlivened only where the ‘threshold conditions’ in the precautionary principle exist.

103 In relation to the note to s 2.2.2.2 and the definition of precautionary principle, the plaintiffs said that the application of Osborn J’s approach in *Brown Mountain* does not lead to the result that, where a threat of environmental damage is certain, VicForests need not take measures to ameliorate the threat. They referred to the reasoning in *Brown Mountain*,⁷⁵ in support of their submission that the

⁷² Referring to *Sea Shepherd Australia Ltd v Federal Commissioner of Taxation* (2013) 212 FCR 252, [34] (Gordon J).

⁷³ [2020] FCA 704, [800]–[806], [815]–[819], [831]–[845].

⁷⁴ Referring to *Telstra Corporation Ltd v Hornsby Shire Council* (2006) 67 NSWLR 256, in relation to s 6(2)(a) of the *Protection of the Environment Administration Act 1991* (NSW) and *Bob Brown Foundation Inc v Minister for Environment (No 2)* [2022] FCA 873, in relation to s 391 of the EPBC Act.

⁷⁵ Referring to *Brown Mountain*, [186], [188], [199]–[200] and the authorities referred to therein.

precautionary principle applies in circumstances of certainty as well as uncertainty. In the alternative, the plaintiffs submitted that the explanatory note could not displace the true meaning of s 2.2.2.2.⁷⁶

VicForests' submissions

104 VicForests also referred to the ordinary principles of statutory construction, which it accepted apply to the construction of subordinate instruments such as the Code and the Standards. It too emphasised the need to construe the Code in light of practical considerations to seek an interpretation that leads to a reasonably practicable result.⁷⁷ VicForests drew attention to the fact that s 45(1) of the Timber Act makes it an offence to undertake timber harvesting operations that are not authorised operations, and that authorised operations must be in accordance with an allocation order, which requires compliance with the Code. This has the effect that a failure to comply with the Code is a criminal offence.

105 VicForests pointed out that the definition of 'precautionary principle' in the Code changed in November 2021, and that the explanatory note was added to the definition and s 2.2.2.2 at that time. Before then – and at the time that *Leadbeater's Possum No 4* was decided – the definition was in a different form, and there was no reference to the intent that the precautionary principle be understood as it was by Osborn J in *Brown Mountain*.

106 According to VicForests, there is a conflict between the text of the new definition and the way that the precautionary principle was understood by Osborn J in *Brown Mountain*. It submitted that the note must give way to the plain meaning of the definition as drafted.⁷⁸

107 In VicForests' submission, the obligation in s 2.2.2.2 is to apply the precautionary principle 'to the conservation of biodiversity values'. It said that the conservation

⁷⁶ Referring to *Director of Public Prosecutions v Walters (A Pseudonym)* (2015) 49 VR 356, [50]–[51] (Maxwell P, Redlich, Tate and Priest JJA) (*DPP v Walters*).

⁷⁷ *Kinglake Friends of the Forest Inc v VicForests (No 2)* [2022] VSC 143, [89]–[91], quoting Lord Reid in *Gill v Donald Humberstone (Kinglake Friends of the Forest No 2)*.

⁷⁸ Referring to *DPP v Walters*, [49]–[51] (Maxwell P, Redlich, Tate and Priest JJA).

of biodiversity values is not the activity during which the principle must be applied, but the means to which the principle is directed. VicForests rejected the plaintiffs' contention that the precautionary principle always applies. It submitted that, on the fair and natural meaning of the new definition, VicForests is required to be precautionary if there are threats of serious or irreversible damage. In that circumstance, it cannot postpone measures to prevent environmental degradation because of a lack of full scientific certainty.

- 108 As to the meaning of the new definition, VicForests argued that the only precondition to its application is if there is a threat of serious or irreversible environmental damage. In that event, VicForests cannot put off measures to prevent environmental degradation, and should take a conservative or pessimistic position where there is scientific uncertainty. VicForests maintained that a lack of scientific certainty is no longer a precondition to the application of the precautionary principle, as it is now defined in the Code. It said that this differs from the approach taken by Osborn J in *Brown Mountain*, despite what is said in the explanatory note.
- 109 VicForests argued that the second paragraph of the definition is not the principle, but an instruction as to the reasoning process to be adopted when applying the principle. It said that the principle is that VicForests should act with caution where there are threats of serious or irreversible harm. In applying that principle, VicForests should make decisions that are guided by an evaluation of the various options and an assessment of the risk-weighted consequences of those decisions.
- 110 VicForests said that the plaintiffs' proposed construction of the precautionary principle, as imposing a positive obligation to take measures to prevent environmental degradation, was not supported by the text of the definition or by precedent. It argued that *Leadbeater's Possum No 4* lacked precedential value, because the judgment of Mortimer J was set aside on appeal in *VicForests v Friends of Leadbeater's Possum Inc (Leadbeater's Possum Appeal)*.⁷⁹ However, VicForests

⁷⁹ (2021) 285 FCR 70 (*Leadbeater's Possum Appeal*).

accepted that the Full Court of the Federal Court did not resolve the question of how the precautionary principle should be applied,⁸⁰ and that the appeal was decided on an unrelated issue.

- 111 VicForests eschewed the position, attributed to it by the plaintiffs, that it could avoid taking action where there was scientific certainty that its operations would cause serious or irreversible damage to the environment. In that circumstance, VicForests said that a principle of prevention would be required, rather than a principle of precaution.

Consideration

- 112 The principles to be applied in construing the Code and its provisions were not in dispute. The construction of s 2.2.2.2 and the definition of ‘precautionary principle’ starts and ends with the text, and the ordinary grammatical meaning of the words used, with the object of construing s 2.2.2.2 and the definition so that their legal meaning is consistent with the language and the legislative purpose of the Code.⁸¹ The words of both provisions take some of their meaning from the context in which they appear. Here, the relevant context includes the Code and the regulatory scheme of which it is a part, the legislative history, and the purpose and policy of the provisions.⁸²

- 113 Where there is a choice to be made between possible meanings of a provision, the principles give guidance as to which choice is to be preferred. In particular:

- (a) a meaning that promotes the purpose or object underlying the statute should be preferred over one that does not;⁸³ and
- (b) as subordinate legislation, the Code should be construed in light of practical considerations, and an interpretation that gives a reasonably practicable

⁸⁰ *Leadbeater’s Possum Appeal*, [163]–[184].

⁸¹ See, eg, *Alcan (NT) Alumina*, [47] (Hayne, Heydon, Crennan and Kiefel JJ); *Federal Commissioner of Taxation v Consolidated Media Holdings Ltd* (2012) 250 CLR 503, [39].

⁸² See, eg, *Alcan (NT) Alumina*, [47]; *Consolidated Media Holdings*, [39].

⁸³ *Interpretation of Legislation Act* (Vic), s 35(a).

result should be preferred over one that is impracticable.⁸⁴

- 114 There are two separate questions of construction to be resolved. The first concerns the meaning of s 2.2.2.2 of the Code, and when it requires VicForests to apply the precautionary principle. The second is what is meant by the application of the precautionary principle, as it is now defined in the Glossary.
- 115 As to the first question, the words of s 2.2.2.2 are clear – VicForests must apply the precautionary principle to the conservation of biodiversity values. The conservation of biodiversity values is not merely the means to which the application of the precautionary principle is directed, as VicForests submitted. It is a substantive, overarching obligation that is imposed on VicForests by the Code, an obligation that it must meet when planning and conducting timber harvesting operations in State forests.
- 116 Within the three-tiered conceptual structure of the Code, s 2.2.2.2 is a mandatory action that is to be undertaken by VicForests, as both the managing authority and a harvesting entity in State forests. It must take that action in order to achieve the Operational Goal stated in s 2.2.2, which is that timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and management. That Operational Goal is in turn designed to meet Code Principle 1, which is that biological diversity and the ecological characteristics of native flora and fauna within forests are to be maintained.⁸⁵ In short, the conservation of biodiversity is an outcome that the Code is intended to achieve, and is the purpose of the mandatory action in s 2.2.2.2.
- 117 This reading of s 2.2.2.2 is consistent with the broader context of the Timber Act and the rest of the elaborate, multi-layered scheme that regulates timber harvesting operations in State forests.⁸⁶ At every level of that scheme, an intent is expressed to

⁸⁴ *Kinglake Friends of the Forest No 2*, [91].

⁸⁵ Code, s 1.2.10, summarised at [29] above.

⁸⁶ Described at [9]–[20] above.

promote ecologically sustainable development and the conservation of biodiversity. This is exemplified in s 5 of the Timber Act, which sets out the principles of ecologically sustainable development and its objectives, which include protecting biological diversity.⁸⁷

118 Section 2.2.2.2 means that VicForests, as the managing authority and a harvesting entity, must always apply the precautionary principle to the conservation of biodiversity values when planning and conducting timber harvesting operations in State forests. This conclusion is consistent with that reached by Mortimer J in *Leadbeater's Possum No 4*.⁸⁸ I agree with her Honour that, in some circumstances, s 2.2.2.2 will 'operate to fill gaps left by more specific management prescriptions'.⁸⁹

119 Answering the second question – what the application of the precautionary principle means – is more difficult. This is in part because of the different ways that the precautionary principle has been formulated in the Code over time, including by the most recent amendments made to the definition of 'precautionary principle' in November 2021.

120 In *Leadbeater's Possum Appeal*, the Full Court of the Federal Court referred to the formulations of the precautionary principle in cl 3.5.1 of the Australian *Intergovernmental Agreement on the Environment* and Principle 15 of the *Rio Declaration on Environment and Development 1992*.⁹⁰ The formulation in the Intergovernmental Agreement is:

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measure to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- i. careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and

⁸⁷ See [14] above.

⁸⁸ *Leadbeater's Possum No 4*, [805], [840]–[841].

⁸⁹ *Leadbeater's Possum No 4*, [805].

⁹⁰ *Leadbeater's Possum Appeal*, [171]–[172].

- ii. an assessment of the risk-weighted consequences of various options.

The principle as stated in the Rio Declaration is:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

121 The Full Court observed:⁹¹

Both of these intergovernmental agreements articulate the precautionary principle in terms that place primacy on the existence of the threshold issues of a threat of serious or irreversible environmental damage and a lack of full scientific certainty. The Intergovernmental Agreement is explicit that these two issues are threshold issues or conditions precedent before proceeding to describe the appropriate approach to decision-making.

122 This is the way in which the precautionary principle was understood by Osborn J in *Brown Mountain*,⁹² in which his Honour accepted the analysis of Preston CJ in *Telstra Corporation Ltd v Hornsby Shire Council*. The precautionary principle stated in the EPBC Act is also understood to be triggered on satisfaction of the two conditions precedent of threat of serious or irreversible environmental damage, and lack of scientific certainty.⁹³

123 However, until November 2021 the definition of ‘precautionary principle’ in the Code and its predecessors inverted the statement of the principle with the statement of the actions to be taken when contemplating a decision. When *Brown Mountain* was decided in 2010, the then Code of Practice for Timber Production contained the following definition:

Precautionary principle – 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

⁹¹ *Leadbeater’s Possum Appeal*, [173].

⁹² *Brown Mountain*, [188]–[212].

⁹³ EPBC Act, s 391(2), considered recently in *Bob Brown Foundation*, [19]–[32].

degradation.

124 A decade later, the Code contained a similar definition, as follows:

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

This was the definition that was considered and applied in *Leadbeater's Possum No 4* and *Leadbeater's Possum Appeal*.

125 In *Leadbeater's Possum No 4*, Mortimer J noted the textual differences between the definition of 'precautionary principle' in the Code and the formulation that was considered by Preston CJ in *Telstra*.⁹⁴ Her Honour indicated that, had it been necessary, she would have accepted the applicant's submission that Osborn J had too readily applied the reasoning in *Telstra* to the differently expressed precautionary principle in the Code, and that the correct approach was to apply the text of s 2.2.2.2 and the definition as it appeared in the Code.⁹⁵ The applicant's submission was similar to the plaintiffs' submission in these proceedings, that s 2.2.2.2 obliges VicForests to carefully evaluate management options, properly assess the risk-weighted consequences of those options, and avoid wherever practicable serious or irreversible damage to the environment.

126 However, it was not necessary for Mortimer J to determine whether to accept the applicant's submission in preference to the approach to the precautionary principle taken by Osborn J in *Brown Mountain*. That was because she was satisfied on the evidence that VicForests' forestry operations in the Central Highlands posed a serious threat to the greater glider and that there was scientific uncertainty about how the greater glider could cope with the impacts of forestry operations in and

⁹⁴ *Leadbeater's Possum No 4*, [826]–[827].

⁹⁵ *Leadbeater's Possum No 4*, [828]–[829].

around its habitat.⁹⁶ On appeal, the Full Court also found it unnecessary to resolve this issue.⁹⁷

127 After the Full Court's decision in *Leadbeater's Possum Appeal*, the Code was amended to, among other things, include the current definition of 'precautionary principle' and add the explanatory note at the end of s 2.2.2.2. The new definition is formulated in substantially the same way as the principle is expressed in the Intergovernmental Agreement. It no longer inverts the statement of the principle and the statement of the actions to be taken in applying it. This resolves the textual differences that Mortimer J noted in *Leadbeater's Possum No 4*, so that the text of the definition is now indisputably aligned with Osborn J's analysis of the precautionary principle in *Brown Mountain*. The explanatory note reinforces that resolution.

128 While VicForests accepted that the precautionary principle requires it to act with caution where there are threats of serious or irreversible damage to the environment, it contended that lack of scientific certainty is not — or is no longer — a precondition to the application of the precautionary principle under s 2.2.2.2 of the Code. I do not accept that contention. While the precautionary principle has been expressed in slightly different ways in different contexts, there is a consistent body of judicial consideration of the principle across those contexts. The analysis of Preston CJ in *Telstra* has been adopted and applied to the precautionary principle as it is formulated in the EPBC Act,⁹⁸ and to the differently worded precautionary principle defined in an earlier version of the Code.⁹⁹ The 'logic of the principle' remains the same, despite the variations in expression.¹⁰⁰ The principle involves two inquiries:

- (a) are there threats of serious or irreversible environmental damage;
- (b) about which there is a lack of scientific certainty?

⁹⁶ *Leadbeater's Possum No 4*, [829].

⁹⁷ *Leadbeater's Possum Appeal*, [183].

⁹⁸ See, eg, *Bob Brown Foundation*, [19]–[20].

⁹⁹ *Brown Mountain*, [187]–[188], [212].

¹⁰⁰ *Bob Brown Foundation*, [21].

If the answer to both of those inquiries is ‘yes’, measures to prevent environmental degradation should not be postponed.

129 The explanatory note to s 2.2.2.2 and the definition of the precautionary principle direct attention to Osborn J’s understanding of the principle in *Brown Mountain*, which went beyond the preconditions to the operation of the principle. I gratefully adopt the following summary of his Honour’s analysis from the judgment of the Full Court in *Leadbeater’s Possum Appeal*:¹⁰¹

- if the conditions precedent are satisfied (a threat of serious or irreversible environmental damage and a lack of full scientific certainty), the burden of showing the threat of serious or irreversible environmental damage will not occur shifts to the proponent of the relevant action (*Brown Mountain* at [199]);
- the precautionary principle permits the taking of preventative measures without having to wait until the reality and seriousness of the threat have been fully known (*Brown Mountain* at [201]);
- the precautionary principle is not however directed to the avoidance of all risks (*Brown Mountain* at [203]);
- the degree of precaution appropriate will depend on the combined effect of the seriousness of the threat and the degree of uncertainty (*Brown Mountain* at [204]);
- the margin for error in respect of a particular proposal may be controlled by an adaptive management approach (*Brown Mountain* at [205]);
- the precautionary principle requires a proportionate response. Measures should not go beyond what is appropriate and necessary in order to achieve the objective in question. The principle requires the avoidance of serious or irreversible damage to the environment ‘wherever practical’. It also requires the assessment of the risk-weighted consequences of optional courses of action (*Brown Mountain* at [207]);
- a reasonable balance must be struck between the cost burden of the measures and the benefit derived (*Brown Mountain* at [208]).

130 In summary, the proper construction of s 2.2.2.2 of the Code is that VicForests must always apply the precautionary principle to the conservation of biodiversity values, including when planning and conducting timber harvesting operations. This involves two inquiries – (a) are there threats of serious or irreversible harm of

¹⁰¹ *Leadbeater’s Possum Appeal*, [180].

environmental damage, (b) about which there is a lack of scientific certainty? If the answer to both of these inquiries is 'yes', VicForests should not delay taking proportionate measures to prevent environmental degradation. The proportionality of a proposed measure is to be assessed in the way described in the preceding paragraph.

- 131 I discuss the engagement and application of the precautionary principle in my consideration of Issues 4, 5, 7, 8 and 9 below.

Issue 2: What is the proper interpretation of s 2.2.2.4 of the Code?

- 132 Section 2.2.2.4 of the Code provides:

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

- 133 The parties were at odds about the meaning of 'biodiversity values' in s 2.2.2.4, and the extent to which the section imposes obligations on VicForests over and above the specific conservation measures specified in the Standards.

Plaintiffs' submissions

- 134 The plaintiffs contended that s 2.2.2.4 of the Code requires VicForests to:

- (a) identify the biodiversity values — the flora and fauna — listed in the Standards that are present in a coupe before undertaking roading, harvesting, tending and regeneration in that coupe; and
- (b) address risks to those biodiversity values by management actions consistent with the Standards, such as the appropriate location of protection areas.

The plaintiffs added that, in accordance with s 2.2.2.3, this process is to be informed by relevant scientific advice.

- 135 As to the meaning of ‘biodiversity values’, the plaintiffs referred to the definition of ‘biodiversity’ in the Code and the Flora and Fauna Guarantee Act. They submitted that the ordinary meaning of a ‘biodiversity value’ is something that is valuable within the context of biodiversity, such as a species of flora or fauna, or a vegetation community. They pointed out that this is the way that the phrase is used by VicForests and DELWP in various publications, and the way it was used by VicForests’ Manager Forest Practices, James Gunn, in his evidence.
- 136 The plaintiffs argued that ‘biodiversity values’ has the same meaning in s 2.2.2.4 as it does in s 2.2.2.2. They relied on what Mortimer J said in *Leadbeater’s Possum No 4* about the meaning of ‘biodiversity values’ in s 2.2.2.2 – that it is ‘a reference to each of the species (flora or fauna) which form part of the biodiversity of any given environment’, ‘the individual components which, together, make up the ecosystem which is to be protected and conserved’.¹⁰²
- 137 In the plaintiffs’ submission, there is nothing in the context or purpose of s 2.2.2.4 that requires a departure from the ordinary meaning of ‘biodiversity values’ – namely, things that are valuable within the context of biodiversity. On the contrary, they argued, a requirement to identify flora and fauna listed in the Standards before harvesting the coupe promotes the Code Principle of maintaining the biological diversity and ecological characteristics of native flora and fauna within forests. It also promotes the related Operational Goal of specifically addressing biodiversity conservation risks at all stages of planning and implementation.
- 138 The plaintiffs submitted that the meaning of ‘biodiversity values’ advanced by VicForests was not supported by the text, context or purpose of s 2.2.2.4.
- 139 Further, the plaintiffs submitted, s 2.2.2.4 imposes obligations on VicForests over and above compliance with s 2.2.2.1 and the application of the management actions prescribed in Table 13 of the Standards. The section obliges VicForests to do more than take the management actions prescribed in Table 13; it requires VicForests to

¹⁰² *Leadbeater’s Possum No 4*, [834]. See also [835].

address risks to biodiversity values by taking management actions *consistent* with, and possibly in addition to, those already prescribed. The plaintiffs argued that s 2.2.2.4 has independent work to do, and that it should not be interpreted to do no more than repeat or mirror s 2.2.2.1. To do so would, the plaintiffs submitted, distort the natural meaning of the provision and would be contrary to its context and purpose.

VicForests' submissions

140 VicForests' position was that 'biodiversity values' in s 2.2.2.4 are the values listed in the second column of Tables 13 and 14 of the Standards — that is, the column headed 'value' — and not the species listed in the first column. It also contended that the management actions required by s 2.2.2.4 are those prescribed in Tables 13 and 14 of the Standards, and nothing further. It pointed out that Tables 13 and 14 do not prescribe a value or a management action for either the greater glider or the yellow-bellied glider in the Central Highlands FMAs. On that basis, VicForests submitted that s 2.2.2.4 does not require it to identify those species in the Central Highlands, or take any management action to address risks to them.

141 This submission was based on an analysis of the relationship between the Code and the Standards. By reference to ss 1.2.4 and 1.2.4A of the Code, and cl 1.2.1.1 of the Standards,¹⁰³ VicForests submitted that the norms contained in the Standards elaborate on or give operational content to the mandatory actions required by the Code. It argued that Pt 4 of the Standards, headed 'Biodiversity', provides 'detailed mandatory operational instructions' to VicForests for discharging its obligations under s 2.2.2 of the Code, headed 'Conservation of Biodiversity'. It further submitted that the prescriptions in cl 4.2.1 of the Standards correspond with the mandatory action provided in s 2.2.2.4 of the Code.

Consideration

142 I consider that s 2.2.2.4 of the Code has the meaning contended for by the plaintiffs.

¹⁰³ Set out at [26]–[28] above.

The construction that I prefer is supported by the text, context and purpose of s 2.2.2.4. It is also consistent with the conclusion I have reached in relation to s 2.2.2.2, that VicForests must always apply the precautionary principle when planning and conducting timber harvesting operations in State forests.¹⁰⁴

143 Section 2.2.2.4 is the fourth of seven mandatory actions that s 2.2.2 requires VicForests to take in order to achieve the Operational Goal that timber harvesting operations in State forests specifically address biodiversity conservation risks and consider relevant scientific knowledge at all stages of planning and management. The first of those mandatory actions, in s 2.2.2.1, is that planning and management of timber harvesting operations must comply with the relevant biodiversity conservation measures specified in the Standards – including the detection-based management obligations set out in cl 4.2.1 and Tables 13 and 14. To interpret s 2.2.2.4 in the way advanced by VicForests would give it no meaning or operation separate to and independent of s 2.2.2.1.

144 The phrase ‘biodiversity values’ is used in both ss 2.2.2.2 and 2.2.2.4 to refer to things, including species of fauna and flora, that have value to biodiversity. This is apparent both from the plain meaning of the words, and the context in which they appear in the Code.

145 The word ‘biodiversity’ is defined in the Code to mean ‘the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems)’, including diversity within species and between species and diversity of ecosystems.¹⁰⁵

146 The words ‘value’ and ‘values’ are used throughout the Code to denote something of value in a particular domain, as illustrated by the following examples:

- (a) Section 1.2.2 of the Code provides that its purpose is ‘to provide direction to the managing authority, harvesting entities and operators to deliver sound

¹⁰⁴ See [115]–[118] above.

¹⁰⁵ See [34] above.

environmental performance when planning for and conducting commercial timber harvesting operations’ in a way that, among other things, ‘is compatible with the conservation of the wide range of environmental, social and cultural **values** associated with forests’;

- (b) Section 1.2.12 provides for long-term (strategic) forest management planning, to ensure that ‘the full range of State forest **values** are managed sustainably for current and future generations’. The range of values identified in the section includes ‘ecological diversity, historic places, Aboriginal cultural heritage, landscape, provision of recreation and educational opportunities as well as a range of renewable forest products’.
- (c) Section 2.2.2.4 is located in Pt 2.2 of the Code, titled ‘Environmental Values in State forests’. The Operational Goals for water quality, river health and soil protection in s 2.2.1 refer to ‘forest health, water quality, biodiversity and soil values’ and ‘soil and water quality **values**’. The Operational Goals for conservation of biodiversity in s 2.2.2 also refer to maintenance of ‘forest health, water quality, biodiversity and soil **values**’.
- (d) In Pt 2.5 – Timber Harvesting, an Operational Goal is that timber harvesting operations are conducted in a manner that manages impacts on ‘soil, water and other **values** including biodiversity, historic places and Aboriginal cultural heritage’.

147 At no point in the Code are the words ‘value’ and ‘values’ used in a numerical or quantitative sense.

148 This usage of ‘value’ and ‘values’ is continued in the Standards. For example, Pt 5 of the Standards is headed ‘Important values’, and contains prescriptions in relation to heritage, historic places and Aboriginal cultural heritage, landscape sensitivity areas, apiary, recreation, research, and fuel hazard ratings in fire management zones.

149 The first indication that ‘value’ might have a different meaning is in Tables 13 and 14 of the Standards, both of which are arranged in four columns headed, respectively, ‘Species Name’, ‘Value’, ‘Applicable FMAs’, and ‘Management Actions’. The matters listed in the second column, headed ‘Value’, relate to the species identified in the first column in various ways. One is where an ‘individual’, an ‘occurrence’, a ‘population’ or ‘colony’ of the species has been detected. A second way focuses on detection of where the species lives – for example, ‘roosting and breeding site’, ‘nesting tree’ or ‘habitat’ used by the species. A third criterion used is where there is a ‘relative abundance’ of a species. For a few species – including the greater glider and the yellow-bellied glider – a numerical value is specified. In most instances the ‘value’ listed in the second column is not numerical or quantitative.

150 I do not think that the use of ‘Value’ in Tables 13 and 14 of the Standards alters the meaning of the word as it is used in the Code generally, or specifically in ss 2.2.2.2 and 2.2.2.4. There are several reasons for that view:

- (a) First, s 1.2.4 of the Code provides that the Standards are informed by policies relating to specific forest values such as threatened species. This indicates that the Standards do not define those values, including biodiversity values.
- (b) Second, s 1.2.4A provides that a provision in the body of the Code prevails over any provision in the Standards to the extent of any inconsistency. It would not be consistent with this indication to allow the use of a word in a table in an appendix to the Standards to prevail over the sense in which the same word is used in the body of the Code.
- (c) Third, the Code carefully relates mandatory actions to Operational Goals to Code Principles. In contrast, there is no clear correspondence between the mandatory actions set out in the Code and the standards and procedures provided in the Standards.

(d) Fourth, while the Standards provide ‘detailed mandatory operational instructions’ for timber harvesting operations in State forests,¹⁰⁶ they are clearly not a complete or exhaustive statement of what VicForests must do to perform the mandatory actions required by the Code. Critically, there is no suggestion in either the Code or the Standards that compliance with a prescription in the Standards is deemed to be compliance with any mandatory action in the Code. This is consistent with cl 1.2.1.2 of the Standards, which provides that the Standards are ‘in addition to the mandatory actions set out in the main body of the Code’.

151 I am reinforced in my conclusion about the meaning of ‘biodiversity values’ in s 2.2.2.4 by the interpretation given to the same phrase in s 2.2.2.2 of the Code in *Leadbeater’s Possum No 4*. Justice Mortimer understood ‘biodiversity values’ to refer ‘to each of the species (flora or fauna) which form part of the biodiversity of any given environment’, ‘the individual components which, together, make up the ecosystem which is to be protected and conserved’.

152 In summary, s 2.2.2.4 of the Code is a mandatory action that requires more of VicForests than compliance with the prescriptions in cl 4.2.1 and Table 13 of the Standards. It requires VicForests, during planning, to identify whether and where the biodiversity values — that is, the species — listed in the first column of Table 13 are present in a coupe, before undertaking timber operations such as roading and harvesting. These biodiversity values include the two species with which these proceedings are concerned — southern greater gliders and yellow-bellied gliders. Where either of those species is present, VicForests must address risks to them by taking management actions consistent with the Standards. In East Gippsland, these actions may be more than the management actions that are already prescribed in Table 13, where that is necessary to address risks to the species. In the Central Highlands, the fact that Table 13 does not prescribe management actions in relation to either species does not preclude VicForests from taking action to address risks to

¹⁰⁶ Code, s 1.2.4.

them in order to comply with s 2.2.2.4. VicForests' obligations under s 2.2.2.4 are in addition to its obligations, under s 2.2.2.1 of the Code and cl 4.3.1 of the Standards, to apply the Table 13 prescriptions.

- 153 Whether VicForests is applying s 2.2.2.4 in East Gippsland and the Central Highlands in relation to greater gliders and yellow-bellied gliders is considered at Issues 10 and 11 below.

Issue 3: What measures does VicForests take for the conservation of greater gliders?

- 154 The measures that VicForests takes for the detection and protection of greater gliders were the subject of detailed evidence from Ms Dawson, Mr Paul, Benjamin Fitzpatrick, VicForests' Manager, Forest Conservation and Research,¹⁰⁷ Michael Ryan, a forest scientist,¹⁰⁸ and Joshua Zadro, a biodiversity research officer based in Orbost.¹⁰⁹ Mr Gunn and Rodney Lewis, the Regional Manager East Gippsland, also gave relevant evidence. The following findings are based on their evidence.

Detection

- 155 VicForests relies on pre-harvest surveys conducted by DELWP, as part of its Forest Protection Survey Program (FPSP), as well as surveys carried out by its own staff or contractors.
- 156 The FPSP is a DELWP program designed to locate species that have timber harvesting prescriptions under the Code, including greater gliders, where locating the species will result in changes to the management of the area. DELWP aims to survey at least 80% of the coupes scheduled for harvest by VicForests, and to complete those surveys at least two months before the scheduled harvest date. It prioritises the coupes to be surveyed by reference to a range of factors, including coupe characteristics and detection probability.
- 157 The survey method that DELWP uses to detect greater gliders is the 'Spotlight Call

¹⁰⁷ Affidavit of Benjamin James Fitzpatrick dated 6 April 2022 (**Fitzpatrick affidavit**).

¹⁰⁸ Affidavit of Michael Francis Ryan dated 6 April 2022 (**Ryan affidavit**).

¹⁰⁹ Affidavit of Joshua Daniele Zadro dated 5 April 2022 (**Zadro affidavit**).

Playback’ or **SLCP** method, for which it has published detailed guidelines. The method involves two people following pre-identified transects through a coupe, along a total transect length of one kilometre. Transects are marked out with reflective tape or similar during daylight hours, and the spotlighting takes place on three separate nights. Two observers, ten minutes apart, spotlight the transect at a pace of ten minutes per 100 metres, stopping to record the location of any animals observed, using a GPS. At the end of the survey the two observers compare observations to calculate the total number of unique individuals. If the ‘abundance threshold’ for the species is met after one or two survey nights, the survey need not be repeated. In the case of greater gliders, the abundance threshold prescribed in Table 13 of the Standards is more than ten per spotlight kilometre.

- 158 DELWP does not conduct FPSP surveys in every coupe that VicForests plans to harvest, and does not canvass the entirety of those coupes that it does survey.
- 159 Another survey method used by DELWP as part of the FPSP is ‘terrestrial mammal camera trapping’ or TerCam. Arboreal mammals like the greater glider are not target species for TerCam surveying, but they are sometimes observed and, when they are, those observations are recorded.
- 160 VicForests conducts its own pre-harvest surveys in the 20% of coupes that have not been surveyed by DELWP, and may do additional surveys in coupes that have already been surveyed – for example, in coupes that VicForests assesses to have high conservation values. Since April 2021, DELWP’s Threatened Species and Communities Risk Assessment Interim Protections and Management Actions have expressly required VicForests to survey all unburned and low severity burn coupes in the top 20% of greater glider habitat. These surveys are usually conducted by environmental contractors engaged by VicForests, and less often by a member of VicForests’ forest conservation and research team.
- 161 The survey method used by VicForests staff and contractors is similar to the SLCP survey method used by DELWP. The main difference is that VicForests’ two

observers walk the transect together, one holding a spotlight and the second holding a thermal imaging camera. Mr Fitzpatrick, Mr Zadro and Mr Ryan all considered that the use of a thermal camera increased the effectiveness of the survey. Another important difference between the two survey methods is that VicForests prefers to survey along an existing road or track that goes through or alongside suitable habitat for gliders. That is because there are fewer obstacles along a road or track and therefore it is safer for night time surveying, and offers better visibility.

162 VicForests also conducts three repeat surveys along the same transect, over three separate nights. If the density of greater gliders detected after one or two nights exceeds the threshold of ten per spotlight kilometre, it may decide not to conduct a further survey.

163 Like DELWP, VicForests does not survey an entire coupe. It surveys transects approximately one kilometre in length, where possible along an existing road or track. Mr Ryan explained this as conducting a survey rather than a census.

164 The locations of any greater gliders detected by these FPSP and VicForests surveys are shown on the operations map and the HCV map prepared for a coupe during operations planning. VicForests also includes on these maps third party detections of greater gliders that have been reported to it.

Protection

165 A baseline protective measure taken by VicForests is to retain habitat trees as required by cl 4.1.1.1 and Table 12 of the Standards. The relevant prescriptions in Table 12 are:

Locality	Forest Type	Habitat Tree Retention Rates	Comment
Central Highlands FMAs	Ash/HEMS	All live ash eucalypts originating before 1900.	Retain at least 1 potential hollow bearing tree where gaps between retained trees are greater than 150 meters.
		At least 40 trees per 10 ha for the length of the rotation in ash forests originating since 1900.	Retained trees should be a mixture of hollow bearing trees where present and

Locality	Forest Type	Habitat Tree Retention Rates	Comment
			other trees most likely to develop hollows in the short term.
	Mixed Species	40+ trees per 10 ha	
East Gippsland FMA	All	4 – 5 trees per ha	Count seed trees towards habitat tree numbers.

- 166 The minimum retention rates for habitat trees equate to the clearfall harvesting method, as described at [63] above. VicForests' preferred harvesting method is now variable retention, with VR1 retaining ten or more and VR2 retaining 20 or more habitat trees per hectare.
- 167 The Standards give guidance about the selection of habitat trees to be retained, with some variation in criteria between East Gippsland and the Central Highlands. In both regions, priority must be given to hollow-bearing trees where they are present, and to trees most likely to develop hollows in the short term.¹¹⁰
- 168 Table 13 of the Standards also prescribes management actions that must be taken where a 'relative abundance' of greater gliders – that is, ten or more per spotlight kilometre – is detected in the East Gippsland FMA. In that event, VicForests must apply a protection area of approximately 100 hectares of 'suitable habitat'. There is no equivalent prescription for the Central Highlands FMAs.
- 169 The Table 13 prescription for greater gliders in East Gippsland also requires the application of a protection area of approximately 100 hectares of suitable habitat where substantial populations are located in isolated or unusual habitat. There is a question whether VicForests is currently observing this requirement, which is considered as part of Issue 12.
- 170 As mentioned, in 2019 DELWP prepared the Greater Glider Action Statement under s 19 of the Flora and Fauna Guarantee Act. Objective 2 of the Greater Glider Action Statement is to secure populations or habitat from potentially incompatible land use

¹¹⁰ Standards, cls 4.1.4, 4.1.5. The 'short term' in East Gippsland is during the next 50 years.

or catastrophic loss. The intended management action provided for VicForests to meet this objective is:

Retain at least 40% of the basal area of eucalypts across each timber harvesting coupe, prioritising live, hollow bearing trees, wherever a density of Greater Gliders equal to or greater than five individuals per spotlight kilometre (or equivalent measure) is identified. Note that this prescription replaces the existing requirement to establish a Special Protection Zone in cases where greater than 10 individuals per spotlight kilometre (or equivalent measure) are detected in the East Gippsland Forest Management Area.

I will refer to this as the **40% retention prescription**.

- 171 Mr Gunn explained that the retained basal area of a coupe is the gross basal area of the entire coupe after it has been harvested, expressed as a percentage of the gross basal area of the coupe before harvest.¹¹¹ The basal area of a tree is its cross-sectional area, measured at 1.3 metres off the highest side. The basal area of a coupe is the sum of the individual tree basal areas, expressed in square metres per hectare. Measurement of the basal area of a coupe is considered to be an accurate indicator of the density of trees in the coupe.
- 172 VicForests is not legally obliged to implement the 40% retention prescription – the Flora and Fauna Guarantee Act merely requires it to give ‘proper consideration’ to action statements prepared under s 19. However, VicForests’ practice across Victoria is to retain 40% of the basal area of eucalypts across a coupe if three or more greater gliders are detected per spotlight kilometre. Ms Dawson and Mr Paul pointed out that this is a lower detection threshold than that provided in the Greater Glider Action Statement.¹¹² However, no explanation was given of the basis for either detection threshold, by reference to relevant monitoring and research.
- 173 The Standards have not yet been updated to include the 40% retention prescription, and the Table 13 prescriptions for greater gliders continue to apply in East Gippsland. In practice, VicForests observes both prescriptions in East Gippsland.

¹¹¹ Transcript, 11 May 2022, 227:30–229:21.

¹¹² Dawson affidavit, [69]; Paul affidavit, [49]–[50].

- 174 The rationale for the 40% retention prescription appears to be the findings of a study published in 2000 by the ecologist Dr Rodney Kavanagh.¹¹³ Dr Kavanagh concluded that 'Greater Glider populations can be maintained at or near pre-logging levels when at least 40% of the original tree basal area is retained [throughout] logged areas and when the usual practice of retaining unlogged forest in riparian strips is applied'.
- 175 There is a question whether the 40% retention prescription, and its application by VicForests, accords with Dr Kavanagh's findings. The question arises because the Greater Glider Action Statement does not specify that retained unlogged forest in riparian strips — that is, buffers along waterways — is to be excluded from the calculation of the percentage basal area retained in the harvested area. I consider this question further in relation to Issue 5, which is whether VicForests is applying the precautionary principle to the protection of greater gliders.

Issue 4: Is the precautionary principle engaged in relation to greater gliders?

- 176 I have found that s 2.2.2.2 of the Code requires VicForests to apply the precautionary principle to the conservation of biodiversity values when planning and conducting timber harvesting operations in State forests. This is a substantive, overarching obligation that always applies to VicForests' planning and conduct of timber harvesting operations.¹¹⁴ I have also found that the southern greater glider species is a biodiversity value for the purposes of the Code.¹¹⁵
- 177 There is a dispute whether the precautionary principle is engaged in relation to greater gliders by VicForests' timber harvesting operations in East Gippsland and the Central Highlands. The resolution of that dispute turns on the answer to the two questions posed by the precautionary principle: (a) are there threats of serious or irreversible environmental damage, (b) about which there is a lack of scientific

¹¹³ Rodney P Kavanagh, 'Effects of Variable-Intensity Logging and the Influence of Habitat Variables on the Distribution of the Greater Glider *Petauroides volans* in Montane Forest, Southeastern New South Wales' (2000) 6 *Pacific Conservation Biology* 18–30.

¹¹⁴ See [115]–[118] above.

¹¹⁵ See [152] above.

certainty? If the answer to both questions is ‘yes’, VicForests should not postpone measures to prevent environmental degradation.

A threat of serious or irreversible environmental damage?

178 A threshold issue here is whether the precautionary principle will only be engaged if VicForests’ timber harvesting operations in East Gippsland and the Central Highlands pose an existential threat to greater gliders at a landscape scale.

179 The plaintiffs’ position was that this is not the correct question. They said that the relevant inquiry is whether there is a threat of serious or irreversible damage to greater gliders as a species.

180 VicForests submitted that the threat to be assessed is the threat posed to greater gliders by its timber harvesting operations, separately from other threats such as climate change and bushfires. VicForests also argued that the threat is not to be assessed at the scale of an individual coupe, but at the landscape scale, corresponding with the distribution and population of the biodiversity value in question. It relied on the approach taken by Osborn J in *MyEnvironment Inc v VicForests*,¹¹⁶ in which his Honour found that the proposed logging of a specific coupe did not pose a threat of serious or irreversible harm to the Leadbeater’s possum or its habitat.¹¹⁷

181 I consider that the question of serious or irreversible environmental damage is to be approached in the way contended for by the plaintiffs. VicForests’ approach does not accord with what is required by s 2.2.2.2 or the current definition of ‘precautionary principle’ in the Code.

182 I do not agree that the approach taken in *MyEnvironment* is applicable here. The analysis in that case was informed by the subject matter of the proceeding, the way in which the plaintiff framed its case, and the former definition of the precautionary principle. The proceeding concerned the proposed harvesting of three coupes near

¹¹⁶ [2012] VSC 91 (*MyEnvironment*).

¹¹⁷ *MyEnvironment*, [260]–[309].

Toolangi: Gun Barrel, Freddo and South Col. Harvesting had commenced in Gun Barrel in accordance with a detailed coupe management plan; planning had not been completed for the other two coupes. The ‘starting point’ of MyEnvironment’s case was that ‘the proposed logging of the Toolangi coupes poses a threat of serious or irreversible damage to the environment’.¹¹⁸ That starting point aligned with the definition of the precautionary principle in 2012, which was ‘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’.

183 The precautionary principle is invoked in different ways in this case:

- (a) The subject matter of the proceedings is not a decision or proposal to log specific coupes. The proceedings concern what the Code requires VicForests to do to identify and conserve greater gliders that are present in State forests in East Gippsland and the Central Highlands when planning to harvest timber in those forests, and when conducting its timber harvesting operations.
- (b) The plaintiffs’ case in relation to the precautionary principle does not start with a specific decision or proposal to harvest timber. Their starting point is that there is a serious threat to the greater glider as a species.¹¹⁹ They go on to allege that the conduct of timber harvesting operations in East Gippsland and the Central Highlands generally constitutes a real threat of serious or irreversible damage to the environment, because it will contribute to a continued diminution in numbers of greater gliders.¹²⁰
- (c) The Code now defines the precautionary principle in quite different terms. The current definition does not posit a decision that is in contemplation, as

¹¹⁸ *MyEnvironment*, [273].

¹¹⁹ EEG statement of claim, paras 40AF, 40AI; KFF statement of claim, paras 32, 33.

¹²⁰ EEG statement of claim, paras 40AH, 40AI; KFF statement of claim, paras 34, 35.

was the case when *MyEnvironment* was decided. It simply provides that ‘if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation’.

184 I respectfully agree with the observation of Mortimer J in *Leadbeater’s Possum No 4* that the application of the precautionary principle should not be overcomplicated, otherwise its point may be frustrated or lost.¹²¹ As the Code is now framed, the first question for determination is simply whether there is a threat of serious or irreversible environmental damage – relevantly here, in relation to the greater glider as a species. The threat need not be confined to timber harvesting operations. All threats to the species may be considered in determining whether there is an objective threat of serious or irreversible damage to the species, including ‘direct and indirect threats, secondary and long-term threats and the incremental or cumulative impacts of multiple or repeated actions or decisions’.¹²²

185 As Mortimer J observed, for a listed threatened species, this is not a very difficult threshold to meet – indeed, it is inherent in the listing that there are threats of serious damage to the species.¹²³ By way of background, s 178 of the EPBC Act requires the Minister to establish a list of threatened species, divided into the following six categories: extinct, extinct in the wild, critically endangered, endangered, vulnerable, and conservation dependent. Each of these categories is defined in s 179. Section 179(4) provides:

A native species is eligible to be included in the endangered category at a particular time if, at that time:

- (a) it is not critically endangered; and
- (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

186 The threat to the greater glider as a species is spelled out in detail in the explanatory

¹²¹ *Leadbeater’s Possum No 4*, [847].

¹²² *Telstra*, [130].

¹²³ *Leadbeater’s Possum No 4*, [847].

statement issued by the Commonwealth Minister for the Environment and Water when on 5 July 2022 she moved the southern greater glider from the vulnerable to the endangered category of the list of threatened species maintained under the EPBC Act:

Petauroides volans is considered to have undergone a severe reduction in numbers and is threatened due to habitat loss, disturbance and modification, climate change and predation by, and competition with, native and introduced species.

187 The conservation advice for the southern greater glider was updated when the species' conservation status was changed to endangered. The advice explains that the main factor that made the species eligible for endangered listing was 'an overall rate of population decline exceeding 50 percent over a 21-year (three generation) period, including population reduction and habitat destruction following the 2019-20 bushfires'. The evidence for that assessment is set out at some length in Attachment A to the conservation advice. It includes evidence specific to East Gippsland and the Central Highlands.¹²⁴

188 The reasons for the dangerous population decline are elaborated upon in the body of the conservation advice. Under the heading 'Disturbance ecology' the following information appears:

The greater glider is particularly sensitive to forest clearance (Tyndale-Biscoe & Smith 1969a) and to intensive timber harvesting (Kavanagh & Bamkin 1995; Kavanagh & Webb 1998; Kavanagh & Wheeler 2004; Mclean et al. 2018), although responses vary according to landscape context and the extent of tree removal and retention (Kavanagh 2000; Taylor et al. 2007).

Large hollow-bearing trees are in rapid decline in some landscapes (Lindenmayer et al. 2017a,b) primarily due to timber production practices and bushfires that prevent trees growing to an age when they might produce hollows (Lunney 1987; Lindenmayer et al. 2018b). Site-level, tree-level (e.g. size, extent of decay) and landscape factors all appear to influence the rate of collapse of hollow-bearing trees. Lindenmayer et al. (2018a) found that the probability of collapse of hollow-bearing trees in remnant 1 ha patches increased with an increasing amount of logged or burned areas in the surrounding landscape (within a 2 km radius), most likely due to altered wind patterns from a reduction in forest cover. The decline in hollow-bearing trees is a concern for recovery as the greater glider is dependent on this habitat

¹²⁴ Conservation advice, 39–40, 43.

feature, and the development of hollows in suitable tree species can take over a century (Mackowski 1984). Additionally, the abundance of hollow-bearing trees may be an overestimate of the actual number that are suitable for occupation by wildlife, as only one in every 3–5 hollow-bearing trees within montane ash forests is occupied by arboreal marsupials (Lindenmayer et al. 1990b, 1993). A decline or loss of hollow-bearing trees reduces the numbers of greater gliders in the landscape (McLean et al. 2018).

Greater gliders are sensitive to fragmentation (McCarthy & Lindenmayer 1999a,b; Lindenmayer et al. 2000; Eyre 2006; Taylor & Goldingay 2009). Although greater gliders have small home ranges, their low reproductive rate and sensitivity to disturbance means they tend to become locally extinct in small and fragmented habitat patches. Greater gliders disperse poorly across vegetation that is not native forest, and so do not readily recolonise isolated sites from which they have been lost (Pope et al. 2004). In a study of remnant patches <1 ha to >50 ha in size, Youngentob et al. (2013) found that the probability of occurrence of greater gliders increased as the area of remnant habitat increased. It is difficult to identify the smallest patch size used, as this likely varies across the range depending on vegetation type, quality, connectivity and other environmental factors. Greater gliders have been found in habitat patches <10 ha in some fragmented and remnant forest patches in the southern part of their geographic range (Pope et al. 2004; Lindenmayer 2002), but may require larger habitat patches in Queensland (Eyre 2006).

The greater glider is sensitive to bushfire (Lunney 1987; Andrews et al. 1994; Lindenmayer et al. 2011; McLean et al. 2018) and is slow to recover following major fires (Kavanagh 2004). Substantial losses or declines of greater glider populations have been documented after fires (see Table 1), through direct mortality and indirect impacts on habitat (McLean et al. 2018).

Over the longer term, repeated disturbance such as intense or too-frequent fires degrades greater glider habitat by changing the composition, structure and nutrient profile of forests. Fire can increase or decrease the amount of tree hollows depending on the fire regime, age and species of the dominant trees, and disturbance history. Fire can destroy live and dead hollow-bearing trees, particularly in young forests because smaller diameter trees have a lower capacity to survive burning (Gibbons & Lindenmayer 2002). Fire can also result in extensive losses of dead hollow-bearing trees (Lindenmayer et al. 2012), though these are less preferred by greater gliders. Eyre et al. (2010) found that the density of such trees was substantially reduced by both low-frequency and high-intensity fires (wildfire), and by high-frequency and low-intensity burns associated with stock grazing management. Too-frequent fires can change the floristic composition and nutritional profile of glider habitat if a fire returns before the dominant trees preferred by gliders can mature and reproduce (Lindenmayer et al. 2013, Au et al. 2019). A positive feedback loop may also occur as dense regrowth is at higher risk of burning at high severity (Taylor et al. 2014).

Greater glider populations are slow to recover and recolonise burnt sites following fire and may take decades to return (Andrew et al. 2014; Lumsden et al. 2013; Vic SAC 2015; Lindenmayer et al. 2021), due to the low reproductive rate of the species and its limited dispersal capabilities. Habitat fragmentation can compound the impact of fires by hampering the recolonisation ability of

greater gliders. Recovery depends on there being no further major fires in the interim (Vic SAC 2015). Major bushfires in 2003, 2006–2007 and 2009 burnt much of the species' range in Victoria, and further fragmented its distribution as evidenced by surveys and species records (Lumsden et al. 2013; Vic SAC 2015). Since the 2009 fires, spotlighting records of greater gliders (southern and central) in the Kinglake East Bushland Reserve and nearby areas have significantly declined and not yet recovered (C Cobern 2015. pers comm 9 November). Unburnt areas provide critical refuges for greater gliders in regions heavily impacted by fires, as they may be the only areas with the requisite habitat attributes within extensive landscapes for many years (Lumsden et al. 2013; Chia et al. 2015).

189 The conservation advice also states that, given its endangered status, all populations of the greater glider are important for the conservation of the species, because areas where it has become locally extinct are not readily recolonised. Key threats to the greater glider are identified to be 'frequent and intense bushfires, inappropriate prescribed burning, climate change, land clearing and timber harvesting', with synergies between these threats.

190 In short, the southern greater glider has been listed as endangered because the species is at risk of extinction. This is a form of environmental damage that is both serious and irreversible.

191 For completeness, I add that I would have found a threat of serious or irreversible harm to the greater glider even if I had framed the inquiry as VicForests submitted I should. The conservation advice identifies timber harvesting as a current and future threat to the southern greater glider, of major consequence. That assessment was based on the following evidence:

The sensitivity of greater gliders (southern and central) to timber harvesting has been well documented. Although some habitat across the species' range is found in conservation reserves (Smith & Smith 2018, Wagner et al. 2020), where timber harvesting is excluded and the removal of HBTs¹²⁵ is subject to constraints, prime habitat coincides largely with areas suitable for timber harvesting (Braithwaite 1984). There is a progressive decline in numbers of HBTs in some production forests, as harvesting rotations become shorter and dead stags collapse, and HBTs are not being replaced due to lack of recruitment (Ross 1999; Ball et al. 1999; Lindenmayer et al. 2011, 2012).

The degree of impact depends on forest type and timber harvesting intensity,

¹²⁵ HBT is used as an abbreviation for hollow-bearing trees.

with larger declines in more heavily logged sites (Tyndale-Biscoe & Smith 1969b; Lunney 1987; Kavanagh et al. 1995; Kavanagh & Webb 1998; Kavanagh 2000; McLean et al. 2018). In the Central Highlands of Vic, where clearfelling is undertaken, Lindenmayer et al. (2017b) found that the rate of loss of HBTs greatly exceeded the rate of recruitment. The area of clearfelled forest adjacent to wildlife corridors was also found to increase the chance of collapse of HBTs, possibly due to the greater exposure of stems to elevated wind speeds at corridor edges. However, models investigating the impacts of forest disturbance on the greater glider (southern and central) in the same area found that timber harvesting in the surrounding landscape was not a significant covariate influencing the probability of occurrence of the species (Lindenmayer et al. 2020).

Recovery of subpopulations following timber harvesting is slow. Subpopulations in south-east NSW had not recovered 8 years after timber harvesting in sites retaining 62%, 52% and 21% of the original tree basal area (Kavanagh & Webb 1998). In the regrowth Mountain Ash forests (Central Highlands) of Vic, greater gliders (southern and central) were absent post-timber harvesting until the forests were >38 years old (Macfarlane 1988).

Greater Gliders can persist, albeit likely in lower numbers, following harvesting. Kavanagh (2000) found that, in production forests in south-east NSW, subpopulations could persist post-timber harvesting if 40% of the original tree basal area was retained, provided (adjoining) riparian vegetation was also protected. An analysis overlaying all detections (from the Victorian Biodiversity Atlas and VicForests Species Observations layer) made post-harvest in timber harvesting areas in Vic since 1980, found that the species can persist in timber harvesting regrowth areas of very young age (VicForests 2021).

The impacts of timber harvesting on greater gliders can be mitigated by landscape-level management strategies that retain habitat corridors and HBTs (Eyre 2006; Woinarski et al. 2014). In 2019, VicForests began moving away from clearfelling towards variable retention systems, which aim to retain more habitat trees and reduce the use of controlled burns for regeneration post-harvest. Protections for the species in East Gippsland and the Midlands (where Special Management Zones were required) were also revised to retain 40% of the basal area of eucalypts across each coupe where ≥ 5 greater gliders per km² are identified.

Under the new Victorian Forestry Plan, harvest rates will reduce from 2024, leading up to a cessation of all native forest timber harvesting by 2030 (VicForests 2021).

However, cumulative impacts of the 2019-20 bushfires, ongoing prescribed burning, timber harvesting and climate change will continue to put pressure on remaining greater glider habitat. Fire-logging interactions likely increase risks to greater glider populations.

192 The ecological evidence at trial was entirely consistent with what is said about the impact of timber harvesting in the conservation advice. Overall, the evidence left

me in no doubt that VicForests' timber harvesting operations in East Gippsland and the Central Highlands present a threat of serious or irreversible harm to the greater glider as a species.

- 193 Associate Professor Wardell-Johnson and Dr Wagner agreed that major threats to southern greater gliders arise from climate change, forest fires, and timber harvesting. They said that the effects of these threats vary across both temporal and spatial scales but that they could cause serious or irreversible damage.¹²⁶ There was some disagreement about the hierarchy of the threats, and the extent to which logging affects fire severity. Dr Wagner ranked timber harvesting as a lower threat, and did not consider it to contribute to the intensity of forest fires. Associate Professor Wardell-Johnson emphasised the synergistic relationship between the different threats, with each contributing to the others, and drew attention to a recent study that found that intensive logging had exacerbated the impact and extent of the 2019-20 fires.¹²⁷ Despite these differences, the two ecologists agreed that timber harvesting operations threaten the viability of greater gliders at the landscape scale. They also agreed that the extent of the threat depends on the intensity of timber harvesting at the individual coupe level. Where clearfall harvesting is employed, any greater gliders present in the harvested area will probably die as a result of the harvesting; less intense harvesting methods improve their prospects of survival.
- 194 I have not overlooked the results of VicForests' post-harvest survey program, which were the subject of evidence from Michael Ryan, a forest scientist in VicForests' biodiversity team. Since July 2019, VicForests has conducted post-harvest surveys of selected coupes in the Dandenong, Central and North-East FMAs, at intervals of three, six and twelve months after harvesting. The focus of the survey program is to determine whether greater gliders have persisted in a particular coupe and its immediate surrounds. It has not attempted to estimate greater glider density in the

¹²⁶ **Joint report** of Associate Professor Grant Wardell-Johnson and Dr Benjamin Wagner dated 29 April 2022, 19.

¹²⁷ Dr Andrew P Smith, *Review of CIFOA Mitigation Conditions for Timber Harvesting in Burnt Landscapes* (September 2020).

coupe to compare against pre-harvest levels.

195 Mr Ryan has been involved in the program since its inception, and in May 2021 he undertook an analysis of available pre and post-harvest survey data. His conclusion was that the application of VicForests' adaptive harvesting methods resulted in greater glider populations persisting in or adjacent to most harvest areas, provided there is no major crown scorch caused by post-harvest regeneration burns. He presented these findings at the 2021 National Conference of Forestry Australia. His conference presentation and the spreadsheet of post-harvest survey data that informed it were in evidence.

196 Associate Professor Wardell-Johnson was asked to comment on Mr Ryan's conclusions, and did so in his third report dated 21 April 2022. Associate Professor Wardell-Johnson could find no basis for the conclusions in the spreadsheet or the presentation. He commented that the aims, design and data associated with the surveys provide more questions than answers, and that the data needed considerable cleaning and collation before analysis would be possible. After elaborating on these comments, Associate Professor Wardell-Johnson concluded:¹²⁸

At face value, Mr Ryan's conclusions profoundly overturn a vast array of established scientific theory and empirical evidence generated by highly respected scientists over decades (papers referred to and reviewed in previous affidavits). No doubt, there will be considerable scientific scrutiny of these data in due course. However, at present there is no basis to make any conclusions as to whether or not logging of any form (the transects traversed several silvicultural operations, sometimes in the one coupe) has or does not have any effect on SGGs, and what the nature of that effect may be.

197 Mr Ryan was cross-examined at some length about the basis for his conclusions. By the end of that cross-examination it was clear that his conclusions were, at best, preliminary hypotheses based on incomplete data. The spreadsheet was no more than a data dump. There was no way of telling from the data if the same transects had been surveyed before and after harvesting, and Mr Ryan's evidence was that

¹²⁸ Report of Associate Professor Grant Wardell-Johnson dated 21 April 2022, [23] (**Third Wardell-Johnson report**).

the transects did not always correspond. Nor did the spreadsheet reveal if the post-harvest detections were in the harvested areas of the coupe, or in areas that had been retained. Like Associate Professor Wardell-Johnson, I do not doubt Mr Ryan's commitment or capacity to carry out post-harvest surveys.¹²⁹ However, I do not consider it possible to draw any conclusions from his data about the effect of harvesting on greater glider numbers in the harvested area. I am unable to place any weight on his conclusion that VicForests' adaptive harvesting methods resulted in greater glider populations persisting in or next to harvested coupes.

198 It is the case that VicForests harvests approximately 2,500 hectares of State forest in an average year, and that the current Victorian government policy is to cease all timber harvesting in native forests by 2030. VicForests was at pains to point out that, over that time, it will harvest only a small proportion of remaining glider habitat. The unstated premise of that submission was that any greater gliders that may die as a result of that harvesting are expendable. I do not accept that premise. Both ecologists were of the view that intensive timber harvesting of areas of State forest that are highly suitable greater glider habitat over the next eight years would be likely to cause serious or irreversible environmental damage at the landscape scale.¹³⁰ The greater glider is a threatened species that has suffered a dangerous decline in numbers over the last two decades, in part due to intensive logging of its habitat. Against that legacy, the destruction of individual gliders cannot be considered in isolation; the effect of intensive timber harvesting on the species is additive and cumulative.

199 It follows that I also do not accept VicForests' submission that the engagement of the precautionary principle requires proof that the way in which VicForests proposes to log each individual coupe poses a separate and distinct risk of serious or irreversible environmental damage to the greater glider at the landscape scale.

¹²⁹ Third Wardell-Johnson report, [13].

¹³⁰ Transcript, 13 May 2022, 444:12-445:21, 446:10-447:17 (Wardell-Johnson); 454:5-455:26 (Wagner).

The plaintiffs in these proceedings have framed their cases at a more general level, in contrast with cases such as *Brown Mountain* and *MyEnvironment*. Further, approaching the question in that way tends to obscure the cumulative effect of timber harvesting across the landscape over time, and its interaction with other threats such as climate change and fire. It also begs the question of what measures VicForests should take, in planning and conducting timber harvesting operations in East Gippsland and the Central Highlands, to avoid the risk of greater gliders becoming extinct. That question is considered as part of Issue 5, below.

Lack of scientific certainty?

200 The plaintiffs pleaded that there was a lack of full scientific certainty as to the threat of serious or irreversible damage to the greater glider, including uncertainty as to:¹³¹

- (a) the magnitude and speed of the future decline in the southern greater glider population;
- (b) the extent of the emerging threat posed by extreme droughts and higher temperatures (including overnight temperatures) associated with climate change, on quality or availability of food and increased morbidity or mortality due to heat stress;
- (c) the extent of the emerging threat posed by changes in the composition of tree species in forest stands;
- (d) the effects of climate change on future wildfire frequency and intensity;
- (e) the mechanism behind the recent sharp decline in the southern greater glider population; and
- (f) the extent of genetic decline caused by declining populations and increased isolation.

201 Having regard to the ecological evidence and the updated conservation advice for

¹³¹ EEG statement of claim, para 40AM; KFF statement of claim, para 39.

the greater glider, I am satisfied that there is a lack of scientific certainty about each of these matters.

202 VicForests did not contend otherwise. Indeed, it accepted that the expert evidence was to the effect that the effect of timber harvesting operations on greater gliders, including their susceptibility to edge effects, was the subject of scientific uncertainty, particularly given the ongoing and synergistic effects of timber harvesting, climate change and bushfires.¹³²

203 I find that the precautionary principle is engaged in relation to the greater glider. VicForests therefore bears the burden of demonstrating that its timber harvesting operations in East Gippsland and the Central Highlands will not cause serious or irreversible damage to the species.¹³³ Unless that burden is discharged, VicForests cannot postpone proportionate measures to avoid that threat.

204 I consider next whether VicForests is applying the precautionary principle to the conservation of greater gliders. The question of whether VicForests applies the precautionary principle to the detection of both greater gliders and yellow-bellied gliders is considered separately, at Issue 9.

Issue 5: Is VicForests applying the precautionary principle to the protection of greater gliders?

205 Section 2.2.2.2 requires VicForests to apply the precautionary principle to the conservation of biodiversity values when planning and conducting timber harvesting operations in State forest. The Code obliges VicForests to conserve biodiversity values in those parts of State forest that are allocated to it for timber harvesting. At this stage of the analysis it is not to the point that other Victorian government agencies are also applying the precautionary principle in relation to greater gliders by, for example, reserving areas of State forest in which timber harvesting operations are not permitted. The question for determination is what measures VicForests should take to prevent environmental degradation due to its

¹³² Defendant's closing submissions dated 14 June 2022, [253].

¹³³ *Brown Mountain*, [199]; *Leadbeater's Possum Appeal*, [180].

timber harvesting operations.

206 The measures that VicForests currently takes to conserve greater gliders are set out at [165] to [175] above. The plaintiffs contend that these measures are inadequate. They say that the precautionary principle requires VicForests to protect any greater glider that is detected, by excluding from harvesting a circular area with a radius of 240 metres around the location of the sighting.

207 The exclusion areas that the plaintiffs claim are required for the protection of greater gliders are based on Associate Professor Wardell-Johnson's evidence. His opinion was that the conservation of the southern greater glider is assisted by reserving from logging additional areas of suitable habitat in each forest block occupied by southern greater gliders. He considered that an additional level of protection is required to prevent local extinction of this species from forest blocks managed for timber production.¹³⁴

208 In Associate Professor Wardell-Johnson's first report, he opined that any confirmed record of a southern greater glider in suitable habitat in forest blocks managed for timber production should be the target of conservation efforts. This is in part because of the long timeframe required to re-develop the structure of the forest as suitable habitat for the southern greater glider after intensive logging — a period of 200 years or more. It is also due to the high risk of local extinction of the species within reserved old-growth remnants in typical forest blocks managed for timber production.¹³⁵

209 In Associate Professor Wardell-Johnson's opinion, an area of 18 hectares around any confirmed sighting of a greater glider should be reserved from logging — that is, a circular area with a radius of 240 metres centred on the known location of the greater glider. His rationale for that recommendation was:¹³⁶

¹³⁴ First Wardell-Johnson report, [20].

¹³⁵ First Wardell-Johnson report, [166]–[167].

¹³⁶ First Wardell-Johnson report, [168]–[169].

SGGs¹³⁷ have a minimum home range of approximately 1.5 ha (Kavanagh & Wheeler 2004; Pope et al., 2004), defined by scent-marking trees, and they use up to 18 den sites (Cronin 2008). Male home ranges rarely overlap, but female home ranges often overlap those of males and other females (Cronin 2008). Unlike Yellow-bellied Gliders, SGGs are generally solitary outside of the breeding season, and once established, do not travel beyond their home range. A home range of 1.5 ha corresponds to a radius of approx. 70 m. Assuming a circular home range and an observation anywhere from the edge to the middle of this home range, the minimum radius of the home range of an SGG may extend approx. 140 m in any direction from that sighting. Therefore, each confirmed sighting of a SGG in suitable habitat, corresponds with an area of approx. 6.15 ha.

To limit the impacts of edge effects (e.g., Lindenmayer et al., 1993; Nelson et al., 2013), a buffer of 100 m should be established in suitable habitat from road building, logging, tending, activities associated with regeneration (e.g., burning), or other activities likely to be detrimental to this species. Thus, the home range plus buffer will be approx. 18 ha of suitable habitat surrounding the observation. In other words, the confirmed sighting of a SGG in suitable habitat should form the centre of 18 ha of this habitat set aside from management activity.

- 210 Associate Professor Wardell-Johnson clarified that his recommendation to retain 18 hectares of habitat around a confirmed greater glider sighting assumed that the surrounding harvested area would be clearfelled – that is, there would be no more than 10% basal area retention in the area to be logged. On that basis, he had recommended a buffer of 100 metres around the greater glider’s home range, because of their high sensitivity to the edge and fragmentation effects generated by intensive logging operations and their aftermath. Adding this 100 metre buffer to the 140 metre home range, Associate Professor Wardell-Johnson recommended a total reservation of 240 metres around a greater glider sighting. He accepted that if there is significant basal area retention in the logged area – at least 50% in high quality habitat, and 60% or more in lower quality habitat – there is less need for a buffer.
- 211 The concepts of ‘edge effects’ and ‘habitat fragmentation’ assumed some importance in Associate Professor Wardell-Johnson’s recommended approach. He explained

¹³⁷ SGG is used by Associate Professor Wardell-Johnson as an abbreviation for southern greater glider.

the two concepts as follows:¹³⁸

Edge effects are changes in population or community structures that occur at the boundary of two or more habitats (see for example Wardell-Johnson & Williams 2000). Areas with small habitat fragments exhibit especially pronounced edge effects that may extend throughout the range. Note that edge effects can be positive, negative or neutral, depending on the particular species or attribute being considered. For SGGs and YBGs,¹³⁹ edge effects are invariably negative, as these species are both mature forest dependent and hollow-dependent (see Kavanagh et al., 2004; Loyn 2004).

Habitat Fragmentation is a process whereby an expanse of habitat is transformed into many smaller patches of smaller total area, isolated from one other by a matrix of habitats unlike the original (Fahrig 2003). A fragmented landscape is characterized by a strong contrast between vegetation patches and their surrounding matrix, commonly occurring in formerly forested areas (Fischer & Lindenmayer 2007). Fragmentation can be caused by natural processes such as fires and volcanic activity, but is now more commonly caused by human impacts. In the context of mature forest dependent species such as SGGs and YBGs, intensive logging is a significant fragmentation process. This is because, although the forest regenerates and can potentially recover, the long timeframe required for the forest to pass through *hostile*, *unsuitable* and *transitional* stages following logging, to again become suitable habitat for these species provides a strong local extinction pressure. Because of the major *structural* impacts of *intensive* logging in forests, the retention of isolated seed or habitat trees only marginally negates the impacts of fragmentation for mature-forest dependent and large-hollow dependent species.

212 In relation to the conclusion of a study by Dr Kavanagh in 2000, that ‘Greater Glider populations can be maintained at or near pre-logging levels when at least 40% of the original tree basal area is retained [throughout] logged areas and when the usual practice of retaining unlogged forest in riparian strips is applied’, Associate Professor Wardell-Johnson said:¹⁴⁰

Unfortunately, this outcome has not generally been borne out in practise as landscapes subject to intensive logging over extensive areas become increasingly fragmented. This is partly because of the edge effects formed by individual logging operations and because follow-up fire management can damage or destroy retained stems. However, of greater impact is the longer-term (>120 years) fragmentation of mature forest habitat by intensive logging,

¹³⁸ First Wardell-Johnson report, [43]–[44]. Dr Wagner accepted these explanations, in his overall agreement with the ‘good and comprehensive summary’ given by Associate Professor Wardell-Johnson on the ecology, threats, and current and appropriate conservation measures for gliders, as well as on terms and definitions regarding the scientific background: Wagner report, [1] (emphasis in original).

¹³⁹ SGGs and YBGs are used to refer to southern greater gliders and yellow-bellied gliders, respectively.

¹⁴⁰ First Wardell-Johnson report, [176]–[178], [181] (emphasis in original).

carried out extensively. The longer-term stochastic effects generated by extensive areas of intensive logging provides numerous other potentially lethal impacts on SGG populations. That is why the SGG has declined so dramatically in the extensive areas of intensively managed forests in Victoria and NSW. ...

There has subsequently been a pronounced loss (possibly local extinction) in the State forests reported by Kavanagh (2000) and surrounds, as logging proceeded at landscape scale. Presumably some animals were killed in the logging operation, while others were subsequently killed by predation (see Tyndale-Biscoe & Smith 1969), or died from starvation or exposure at the sites, due to fragmentation and edge effects generated by the logging activity as it progressed across the landscape. Thus, starvation, predation and exposure have immediate serious effects on populations of SGGs in their impacted habitat.

These effects are particularly pronounced in a situation where any retained vegetation is not aligned with the requirements of the species being protected (i.e., in this case the SGG). As Kavanagh (2000) also found, *'The presence and absence of particular tree species also influenced the distribution of the Greater Glider. Forests containing Manna Gum E. viminalis and Mountain Gum E. dalrympleana were highly preferred compared to forests with a high proportion of E. obliqua. The presence of E. cypellocarpa appeared to improve the quality of habitat for the Greater Glider in forests dominated by E. obliqua.'* Thus, when retaining vegetation for SGG, it is imperative to retain relevant vegetation (i.e., mature vegetation of the appropriate species composition) where SGGs actually occur.

...

A failure to know where SGGs occur in a proposed coupe means that it is very possible (even likely), that any retained vegetation does not reflect the requirement of the SGGs. In other words, there is some risk that habitat without SGGs, or unsuitable for SGGs, will be retained while habitat containing them, or suitable for them will not. If this occurs, retention of vegetation within the coupe may not provide any protection for this species in this area. Thus, for the intent to retain SGGs within a local region to be enacted, it is necessary to survey the entire proposed coupe using an appropriate methodology likely to detect them (should they be present). Once their locations are known, it becomes possible to take action to avoid a real threat of serious or irreversible damage to the environment. This would require exclusion from logging, an approximately circular area of approximately 240 metres radius centred on the confirmed SGG sighting.

- 213 Dr Wagner agreed that additional protection is required to prevent local extinction of greater gliders from forest blocks managed for timber production.¹⁴¹ However, he expressed reservation about the suggested 18 hectare exclusion area for each glider detected in a coupe. He said:

¹⁴¹ Wagner report, [1].

62. Professor Wardell-Johnson's suggested approach of setting aside 18 ha per confirmed observation of SGG may be problematic where detections are made in areas not entirely composed of suitable habitat. This may especially be the case in mature mixed-species forests of East Gippsland, composed of favourable and unfavourable tree species or previously disturbed habitat.

63. In such conditions, a basal-area based approach to protecting SGG habitat may be more suitable within the context of timber harvesting. While retaining at least 40% of the initial basal area may suffice in some scenarios (Kavanagh, 2000; Wagner et al., 2021b), precaution must be taken to adequately assess the spatial distribution of feeding and nesting resources within the area. If resources are dispersed, more habitat features and therefore basal area must be retained to protect and sustain a local SGG population.

64. Given the proposed approach is based on the location of SGG detections, a concern would be about areas within the coupe containing suitable habitat but where SGGs were not detected but may be present. Depending on the silvicultural system applied, the impact of timber harvesting in these areas can be serious and irreversible, while a targeted retention of habitat features across the coupe area would preserve SGG habitat more broadly.

65. Such an approach could therefore look as follows: Any SGG detection could be placed in a retention patch equal to the size of its average home range in mature forests (~2.6 ha, see Henry, 1984; Kehl & Borsboom, 1984; Comport et al., 1996; Kavanagh & Wheeler, 2004; Pope et al., 2004; G. C. Smith et al., 2007). The remainder of the coupe area is subjected to a >60% selective aggregated retention across the coupe area to protect suitable habitat features and avoid their dispersal through more intense harvesting. These features should be hollow-bearing trees, favourable foraging species and potential recruitment hollow-bearing trees.

66. Furthermore, it is important to retain connectivity to other suitable habitat (e.g. other retention patches for SGG protection and nearby undisturbed mature forest) to ensure gene-flow and dispersal of individuals in and out of the retained patches. For example, riparian strips 100 m or greater in width were found to be effective for maintaining arboreal marsupials in harvested areas (Goldingay & Kavanagh, 1991; Goldingay & Kavanagh, 1993; Lindenmayer et al., 1993; Kavanagh & Bamkin, 1995; Kavanagh & Webb, 1998).

214 Dr Wagner did not agree with Associate Professor Wardell-Johnson that greater gliders have a high degree of edge and fragmentation sensitivity, referring to findings of glider populations persisting in highly fragmented landscapes. He also pointed out literature that indicated that greater gliders can recover and use disturbed areas relatively quickly, and that young forest may not be entirely 'hostile' habitat for the species.¹⁴²

¹⁴² Wagner report, [67]–[69].

215 However, like Associate Professor Wardell-Johnson, Dr Wagner agreed that the severity of edge effects and fragmentation would vary depending on the intensity of logging next to retained habitat. During cross-examination, Dr Wagner accepted that a more intensive silvicultural method than 60% basal area retention would require a larger buffer to preserve the greater gliders in the retained habitat. If the surrounding forest were to be clearfelled, he agreed that Associate Professor Wardell-Johnson's recommendation would be appropriate. In that scenario, it would also be necessary to maintain a connection between the retained area and other suitable glider habitat.

216 In summary, the ecologists recommended two alternative measures for protecting greater gliders from destruction by timber harvesting operations in their habitat.

- (a) One approach is to retain a circular area of approximately 18 hectares of suitable habitat centred on a confirmed greater glider sighting. This approach allows for intensive timber harvesting outside of the exclusion area.
- (b) The second approach is to retain a smaller area corresponding to the home range of any greater glider detected within the coupe. Dr Wagner gave an area of 2.6 hectares, although the average maximum home range of a greater glider is between 3 and 4.1 hectares. Within the remainder of the coupe, at least 60% of the basal area should be retained, protecting suitable habitat features such as hollow-bearing trees and feed trees. This approach provides greater protection for undetected gliders.

Both approaches involve maintaining connections between retained areas of habitat and other suitable glider habitat. One effective means of doing this is to retain riparian strips at least 100 metres wide along waterways.

217 These two alternative approaches are entirely consistent with the measures recommended in the recent conservation advice for the greater glider.¹⁴³ The

¹⁴³ Discussed at [186]–[189] above.

conservation and management priorities in relation to timber harvesting stated in that advice are:¹⁴⁴

Establish, maintain and enforce effective prescriptions in production forests to support populations of the greater glider (southern and central). This includes, but is not limited to: appropriate levels of habitat retention, timber harvesting exclusion and timber harvesting rotation cycles; maintenance of wildlife corridors between harvested patches; maintenance of vegetation buffers around habitat patches excluded from harvesting; protection of existing hollow-bearing trees with appropriate buffers; adequate recruitment of hollow-bearing trees; maintaining preferred food tree species as dominant canopy trees; and minimal use and adequate containment of regeneration burns. Clearfelling should be avoided, as well as timber harvesting in climate or post-fire refuges.

218 Of course, the precautionary principle requires a proportionate response, in order to avoid serious or irreversible damage to the environment ‘wherever practicable’. Measures to avoid damage should not go beyond what is appropriate and necessary to achieve that objective, and a reasonable balance must be struck between the cost burden of the measures and the benefit derived.¹⁴⁵

219 VicForests’ case in relation to proportionality was almost all directed to the safety and feasibility of the plaintiffs’ proposed survey protocol. It said very little in relation to the proportionality of the protection measures recommended by either ecologist. Neither measure is obviously disproportionate; both are practical and effective to achieve the objective of conserving greater gliders, and are based on relevant research.

220 That said, Associate Professor Wardell-Johnson’s proposed measure appears likely to have a greater impact on VicForests’ ability to sell and supply timber from State forests. Ms Dawson considered that imposing a buffer with a radius of 240 metres centred on every sighting of a greater glider would be likely to render a large proportion of coupes in the Central Highlands and East Gippsland unviable or not able to be harvested.¹⁴⁶ That is because the buffer may affect the ability to access a

¹⁴⁴ Conservation advice, 18–19.

¹⁴⁵ *Brown Mountain*, [207]–[208], [211]; *Leadbeater’s Possum Appeal*, [178].

¹⁴⁶ Dawson affidavit, [124]–[127].

coupe or move harvesting equipment around it, or because there will be insufficient remaining volume to justify harvesting.¹⁴⁷

221 No evidence or submission was directed to the proportionality of the protection measures proposed by Dr Wagner, in particular retaining 60% of the basal area in harvested areas. There was no suggestion that it would not be viable to harvest in that way. In fact, Ms Dawson referred during cross-examination to a current project that is examining the potential to apply selective harvesting in a very substantial area in the east of the State.¹⁴⁸

222 For those reasons, I consider Dr Wagner's approach to be the more proportionate of the two.

223 VicForests does not currently take either of the measures recommended by the expert ecologists for the protection of greater gliders. Leaving for later the question of pre-harvest surveys, the actions that VicForests takes to conserve greater gliders that have been detected within a coupe scheduled for harvest are inadequate and, in many cases, unlikely to be effective. They are also not 'consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on forest ecology and conservation values',¹⁴⁹ as that monitoring and research was explained in the evidence of Associate Professor Wardell-Johnson and Dr Wagner.

224 I note the following matters:

- (a) VicForests only applies the 40% retention prescription where three or more greater gliders are detected per spotlight kilometre. The evidence revealed no scientific basis for this detection threshold.
- (b) Similarly, in the East Gippsland FMA, VicForests only sets aside 100 hectares

¹⁴⁷ Dawson affidavit, [129].

¹⁴⁸ Transcript, 16 May 2022, 563:16–21.

¹⁴⁹ Code, s 2.2.2.2.

of suitable habitat where surveys have detected more than ten greater gliders per spotlight kilometre. Again, I could discern no scientific basis for this detection threshold in the evidence. Where lower densities of greater gliders are detected, it may be the case that no habitat is set aside. For example, in Wolpertinger coupe, in the Bendoc region of East Gippsland, where seven greater gliders were detected in two of the three surveys conducted, VicForests did not plan to set aside the coupe as suitable habitat for those gliders.¹⁵⁰

- (c) Where a greater glider has been detected, VicForests does not necessarily set aside any area of habitat centred on the location of the detection, in order to preserve the glider's home range. The proposed HCV map for Wolpertinger coupe is one example,¹⁵¹ with greater glider detections dotted around the edge of the habitat that VicForests plans to retain, exposing the gliders to the edge effects described by Associate Professor Wardell-Johnson. In East Gippsland, the 100 hectares of suitable habitat that must be retained under cl 4.2.1 and Table 13 of the Standards need not bear any relationship to the gliders' home ranges.
- (d) The 40% retention prescription in the Greater Glider Action Statement is wholly inadequate for the protection of greater gliders within a coupe. The 2000 study by Dr Kavanagh, on which the prescription is apparently based, recommended at least 40% basal retention in addition to the retention of riparian buffers. The 40% retention prescription involves retention of 40% of the basal area of eucalypts across the entire coupe, including riparian buffers. In addition, the 40% retention prescription can be applied without reference to the location of a glider's home range, and so may not preserve this critical habitat.

¹⁵⁰ Gunn affidavit, [81]–[95]. See also exhibit JMG-1 to the Gunn affidavit, 347–353, 372.

¹⁵¹ Exhibit JMG-1 to the Gunn affidavit, 372.

- (e) VicForests' variable retention harvesting methods were not shown to be effective to conserve greater glider populations in harvested coupes. VicForests led no evidence that its variable retention systems were developed by reference to 'relevant monitoring and research' or the 'advice of relevant experts and relevant research in conservation biology and flora and fauna management'.¹⁵² The high point was a reference to a literature review of similar systems internationally and in Tasmania, conducted by a forest consulting firm.¹⁵³ To date there has been only rudimentary evaluation of the impact of variable retention harvesting on greater gliders, in the form of VicForests' post-harvest survey program. As discussed, no reliance can be placed on a conclusion drawn from that program that greater gliders persist in coupes logged using variable harvesting.¹⁵⁴
- (f) Far from demonstrating that variable retention harvesting is effective to conserve greater gliders, the available evidence is that it is of no short or medium term benefit to them.¹⁵⁵
- (g) The plaintiffs sought to demonstrate that the retained basal area of eucalypts in the harvested area of four coupes harvested using the VR1 harvesting method was between 8 and 11%.¹⁵⁶ Both ecologists considered a basal area retention of 10% to be in effect clearfall harvesting.¹⁵⁷ Accepting that there is some margin for error in the plaintiffs' calculations, the retained basal area that is planned in all four coupes is much lower than Dr Wagner considered necessary to conserve greater gliders – generally 60% or more.

¹⁵² Code, ss 2.2.2.2–2.2.2.3.

¹⁵³ Paul affidavit, [97]–[98]. The southern greater glider occurs only in Victoria and New South Wales.

¹⁵⁴ See [194]–[197] above.

¹⁵⁵ Third Wardell-Johnson report, [47]–[53].

¹⁵⁶ Calculations of retained unlogged areas and percentage basal area retention area in harvest area, based on HCV worksheet data for Empire State, Mount Rushmore, Camp David and White Hill coupes in the Central Highlands; Plaintiffs' closing submissions, [161]–[164].

¹⁵⁷ Transcript, 13 May 2022, 452:16–23 (Wardell-Johnson), 455:22–26 (Wagner); 487:22–31 (Wardell-Johnson).

225 The shortcomings of VicForests' current approach are illustrated by the case study of Rookery coupe, which VicForests planned to harvest using VR1 and VR2, in accordance with the operations map reproduced at **Figure 3** and an accompanying operations plan. The coupe was surveyed by DELWP as part of the FPSP, along an east-west transect roughly through the centre of the coupe. The survey detected numerous greater gliders within the coupe. The locations of those detections are shown as yellow stars on the operations map.

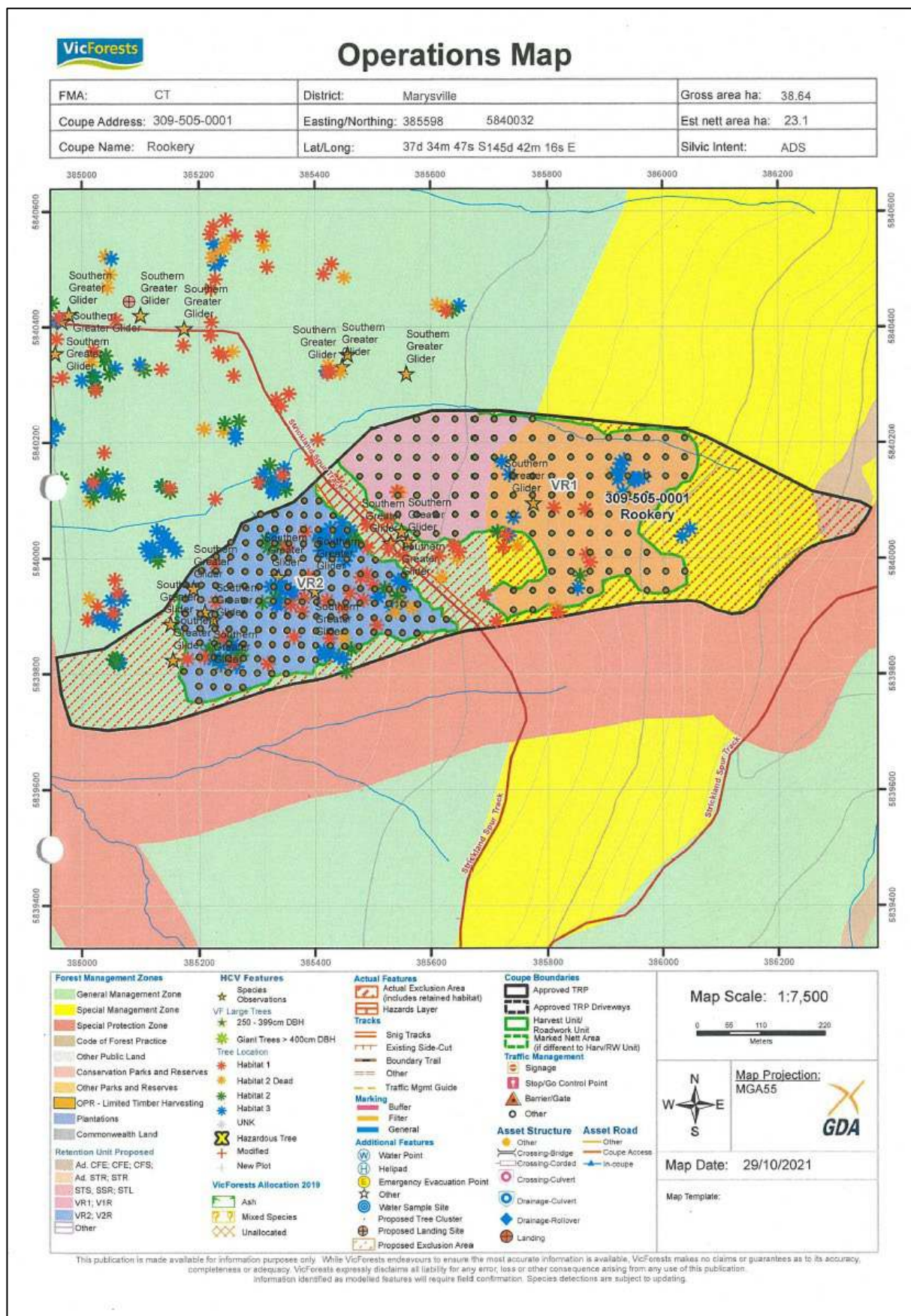


Figure 3: Rookery operations map, tendered by VicForests.

226 Associate Professor Wardell-Johnson was asked whether VicForests' proposed harvesting plan for Rookery coupe provides an effective method of preventing serious or irreversible damage to the environment as a result of timber harvesting operations in Rookery, and addressing risks to greater gliders in the coupe. His opinion was that it does not, in part because of uncertainty about the actual locations of the gliders in and around the coupe.¹⁵⁸ Dr Wagner agreed that the proposed levels and areas of retention are inappropriate to protect southern greater gliders in the coupe.¹⁵⁹ He pointed out that the proposed retention patches do not align with the observations made during the survey.¹⁶⁰ Dr Wagner said that the proposed use of VR1 and VR2 systems would lead to 'severe decreases in population size and density',¹⁶¹ and said that much higher retention levels are needed to protect the greater gliders observed to be in Rookery:¹⁶²

77. The five SGGs observed in the area proposed for VR2 and the one observation in VR1 (and associated individuals in those areas) will not be adequately protected due to the dispersion of habitat resources at 40% retention.

78. Given the high densities of SGGs in the Rookery Coupe and the eucalypt species composition there, much higher retention levels will be required to avoid losing high numbers of individuals in the area and keep the stand suitable habitat to sustain a large local population into the future.

79. Therefore, if timber harvesting is to occur in the proposed coupe, a 60% aggregated retention should be a minimum to keep a population of SGGs across the coupe and the planned retention patches should be laid out to adequately cover the SGGs observed during the spotlighting survey at Rookery Coupe.

227 VicForests has almost universally adopted variable retention harvesting as its harvesting approach.¹⁶³ Ms Dawson confirmed that it has no concrete plans at present to move to selective harvesting.¹⁶⁴

¹⁵⁸ First Wardell-Johnson report, [186]–[188].

¹⁵⁹ Wagner report, [72].

¹⁶⁰ Wagner report, [75].

¹⁶¹ Wagner report, [74].

¹⁶² Wagner report, [77]–[79].

¹⁶³ See [69]–[70] above.

¹⁶⁴ Transcript, 16 May 2022, 563:11–29.

228 VicForests' current approach falls well short of what the precautionary principle requires for the conservation of greater gliders. The ecological evidence was clear - greater gliders that live in coupes that are harvested in accordance with VicForests' current practices will probably die as a result of the harvesting operations.

Issue 6: What measures does VicForests take for the conservation of yellow-bellied gliders?

229 The measures that VicForests takes for the detection and protection of yellow-bellied gliders are similar to, although not as extensive as, those taken in relation to greater gliders.

230 As to detection, VicForests relies on DELWP's FPSP spotlight surveys where available. In East Gippsland, DELWP surveys for yellow-bellied gliders at the same time as greater gliders, in accordance with the SLCP method described at [157] above. Yellow-bellied gliders are more vocal creatures, and so may be heard as well as seen. They are also more mobile, and so the SLCP method requires a conservative approach to be taken to separate out likely duplicate observations. Where they are heard but not seen, the SLCP guidelines instruct observers to plot the approximate location of each individual, using the approximate magnetic bearing to the animal from the observer together with the time of each observation. The SLCP guidelines also require post spotlight transect call playback, after a spotlighting survey during which yellow-bellied gliders are neither seen nor heard. This involves a ten minute call playback sequence conducted within the coupe boundary, with spotlights turned off. If a response call is heard, the observers are to attempt to estimate the animal's position and record the observation.

231 VicForests staff or contractors conduct surveys in coupes in East Gippsland where no FPSP survey has been conducted, and may do additional surveys where there are high conservation values present in the coupe. The VicForests Targeted Fauna and Flora Species Survey Procedure sets out the required survey method for the detection of yellow-bellied gliders:

Survey Effort: Surveying should involve a 10 minute dusk listen, followed by a multi-species call playback, which may include YBG calls. YBGs often respond well when owl calls are played as they are highly territorial. Call-playback should then be followed by a spotlight survey involving a slow, quiet walk (no slower than 500 m/hr) along a marked transect of total 1 km length, 200 m width (100 m either side) through areas of suitable habitat. The survey detection distance is increased for the species because of its propensity to loud vocalisations and spotlight-shyness resulting in predominantly aural detections (DSE survey standards, 2011). Surveys are best conducted when temperatures are warm (>9 C), with no rain, fog or bright moonlight. Wind should be calm (<15 km/h).

Although surveys can be carried out across all seasons, they are best done during the warmer months from Spring to Autumn and during the breeding season when YBGs are likely to be more active. Surveys should be repeated twice (on different nights) under optimal conditions (DSE survey standards 2011). A third survey should be completed if either of the first two attempts were not under optimal conditions.

Other methods or features that may result in a species management action: Yellow-bellied Gliders are known to feed on the sap of various eucalyptus species (Table 1), using their oversized incisor teeth to make distinctive cuts into the trunk of the trees they feed on. These incisions often make a distinctive 'V' shapes, indicating their presence, but these markings are not enough on their own to result in a positive presence record. Feeding sign may however identify areas of suitable habitat that should be surveyed at night.

- 232 The spotlight surveys for greater gliders and yellow-bellied gliders are conducted at the same time along the same transects. Both DELWP and VicForests survey a one kilometre transect within a coupe.
- 233 As to protective measures, habitat trees are retained as required by cl 4.1.1.1 and Table 12 of the Standards.¹⁶⁵ In addition, Table 13 of the Standards prescribes a management action where a 'relative abundance' of yellow-bellied gliders – that is, more than five per spotlight kilometre – is detected in the East Gippsland FMA. In that event, VicForests must apply a protection area of approximately 100 hectares of 'suitable habitat'.
- 234 The Table 13 prescription for yellow-bellied gliders in East Gippsland also requires the application of a protection area of approximately 100 hectares of suitable habitat where substantial populations are located in isolated or unusual habitat. As with

¹⁶⁵ See [165]–[167] above.

greater gliders, there is a question whether VicForests is currently observing this requirement.¹⁶⁶

235 There are no Table 13 prescriptions in respect of yellow-bellied gliders for the Central Highlands FMAs. VicForests does not specifically survey for yellow-bellied gliders in the Central Highlands, although they may be detected during spotlight surveys for greater gliders. In the Central Highlands, VicForests does not apply any protection area in a coupe where a population of yellow-bellied gliders is detected.

Issue 7: Is the precautionary principle engaged in relation to yellow-bellied gliders?

236 For the reasons I have already given:

- (a) VicForests has a substantive, overarching obligation under s 2.2.2.2 of the Code to apply the precautionary principle to the conservation of biodiversity values when planning and conducting timber harvesting operations in State forests.¹⁶⁷
- (b) The yellow-bellied glider species is a biodiversity value for the purposes of the Code.¹⁶⁸
- (c) The precautionary principle will be engaged in relation to yellow-bellied gliders if there are threats of serious or irreversible damage to the species, about which there is a lack of scientific certainty.¹⁶⁹

237 The yellow-bellied glider is a listed threatened species under the EPBC Act, in the vulnerable category. It is inherent in this listing that the species is 'facing a high risk of extinction in the wild in the medium-term future', because it has been assessed to meet one or more of the prescribed criteria.¹⁷⁰ This alone might have been a sufficient basis to conclude that there are threats of serious and irreversible

¹⁶⁶ See [169] above.

¹⁶⁷ See [115]–[118], [176] above.

¹⁶⁸ See [152] above.

¹⁶⁹ See [181]–[185] above.

¹⁷⁰ EPBC Act, s 179(5); *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth), reg 7.01 – Criteria for listing threatened species.

environmental damage in relation to yellow-bellied gliders, specifically a risk of extinction in the wild in the medium term. However, the conservation advice that accompanied the listing of the yellow-bellied glider as a threatened species was not in evidence, and so there remains a question why the species was listed as threatened.

238 That question is answered by the ecological evidence, and the agreement between Associate Professor Wardell-Johnson and Dr Wagner about the current threats to yellow-bellied gliders.¹⁷¹ To recapitulate, yellow-bellied gliders face threats from loss and fragmentation of habitat, and loss of hollow-bearing and feed trees, as a result of logging. The effects of logging are compounded by intense wildfire and the increasing incidence of drought associated with climate change. Associate Professor Wardell-Johnson explained these threats as follows:¹⁷²

Because of their social organisation, seasonal pattern of their movements within a relatively large home range, and requirement for large numbers of large hollows as den sites (see Kavanagh et al. 2004; Loyn 2004; Cronin 2008), YBGs are at high risk of local extinction. This risk is particularly high in the context of the fragmentation effects of intensive logging carried out over extensive areas in the Central Highlands and in East Gippsland [in] Victoria. This risk is exacerbated by interactive effects and the impacts of global warming (e.g., the increasing incidence of large-scale, high intensity fires – see IPCC 2022).

Dr Wagner did not disagree with this explanation.¹⁷³

239 I find that there are threats of serious and irreversible damage to yellow-bellied gliders as a species. As discussed, I do not consider that the precautionary principle is only engaged if VicForests' timber harvesting operations in East Gippsland and the Central Highlands present such a threat.¹⁷⁴ However, had it been necessary, that is the finding I would have made on the evidence before me.

240 As they did in relation to southern greater gliders, Associate Professor Wardell-

¹⁷¹ See [88] above.

¹⁷² First Wardell-Johnson report, [156].

¹⁷³ Wagner report, [57]–[61].

¹⁷⁴ See [181]–[184], [199] above.

Johnson and Dr Wagner agreed that major threats to yellow-bellied gliders arise from climate change, forest fires, and timber harvesting. They said that the effects of these threats vary across both temporal and spatial scales but that they can cause serious or irreversible damage.¹⁷⁵ While there was a difference of view about which of the threats is most serious, the ecologists agreed that their effect is cumulative and that their combined effect can reduce habitat suitability exponentially. They also agreed that the damage at a landscape scale depends on the intensity of the timber harvesting method that is used at the local scale — the more intensely an area of forest is logged, the more gliders are likely to die in the short term, and the longer it will be before gliders can return to the area.

241 As Dr Wagner put it, serious and irreversible damage at the landscape scale may be avoided by applying appropriate silvicultural techniques, with selective harvesting probably having a low impact.¹⁷⁶ On the other hand, clear felling poses a threat of serious or irreversible environmental damage. I have concluded that VicForests' current timber harvesting methods in East Gippsland and the Central Highlands are closer to clearfall harvesting than to selective harvesting.¹⁷⁷ On that basis, its timber harvesting operations in those areas present a risk of serious and irreversible environmental damage in relation to yellow-bellied gliders.

242 For the reasons given earlier, in relation to greater gliders, this conclusion is not affected by the fact that VicForests harvests about 2,500 hectares of State forest in an average year, and that all timber harvesting in Victorian native forests is scheduled to cease by 2030. The effect of timber harvesting on yellow-bellied gliders as a species is additive and cumulative.¹⁷⁸

243 VicForests accepted that there is a lack of scientific certainty about the effect of timber harvesting operations on both greater gliders and yellow-bellied gliders,

¹⁷⁵ Joint report, 19.

¹⁷⁶ Transcript, 13 May 2022, 436:9–437:3, 439:15–23.

¹⁷⁷ See [223]–[227] above.

¹⁷⁸ See [198] above.

given the ongoing and synergistic effects of timber harvesting, climate change, and bushfires.¹⁷⁹

244 I find that the precautionary principle is engaged in relation to the yellow-bellied glider. The effect of that finding, in accordance with the approach taken by Osborn J in *Brown Mountain*, is that the burden shifts to VicForests to show that its timber harvesting operations in East Gippsland and the Central Highlands will not cause serious or irreversible damage to the species.¹⁸⁰

245 The next issue for consideration is whether VicForests is applying the precautionary principle to the protection of yellow-bellied gliders. As foreshadowed, I will consider separately what the precautionary principle requires VicForests to do in order to detect both greater gliders and yellow-bellied gliders, at Issue 9.

Issue 8: Is VicForests applying the precautionary principle to the protection of yellow-bellied gliders?

246 The measures that VicForests currently takes to conserve yellow-bellied gliders are set out at [229] to [235] above. Again, the plaintiffs dispute the adequacy of these measures. They contend that the precautionary principle requires VicForests to protect any yellow-bellied glider that is detected, by excluding from harvesting a circular area of 38 hectares of suitable habitat centred on a family group of three or more yellow-bellied gliders.

247 The exclusion areas that the plaintiffs claim are required for the protection of yellow-bellied gliders are based on Associate Professor Wardell-Johnson's opinion that 'any confirmed record of a group or family of YBGs in suitable habitat in forest compartments managed for timber production should be the target of conservation efforts'.¹⁸¹ He proposed that any confirmed sighting of a family group of at least three yellow-bellied gliders in suitable habit should form the centre of 38 hectares of habitat set aside from timber harvesting operations — a circular area with a radius

¹⁷⁹ Defendant's closing submissions dated 14 June 2022, [253].

¹⁸⁰ *Brown Mountain*, [199]; *Leadbeater's Possum Appeal*, [180].

¹⁸¹ First Wardell-Johnson report, [160].

of 250 metres, including a 100 metre buffer. He explained his rationale for proposing that 38 hectares be set aside:¹⁸²

162. Assuming a circular and minimum home range of 20 ha, each confirmed sighting of a family group of at least three YBGs in suitable habitat, corresponds to a radius of approx. 250 m. To account for this species in the context of timber production, areas occupied by family groups of YBGs will need to be reserved from logging that include areas of suitable habitat in each forest compartment so managed.

163. To limit the impacts of edge effects (e.g., Lindenmayer et al., 1993; Nelson et al., 2013), a buffer of 100 m should be established in suitable habitat from road building, logging, tending, activities associated with regeneration (e.g., burning), or other activities likely to be detrimental to this species. Thus, the home range plus buffer will be approximately 38 ha of suitable habitat surrounding the observation of the family group. In other words, the confirmed sighting of a family of YBGs in suitable habitat should form the centre of 38 ha of this habitat set aside from management activity.

164. It is recognised that the uncertainty of home range boundaries in relation to detections of YBGs may lead to greater edge effects than are desirable in such a set aside. However, given the greater mobility of YBGs compared with SGGs, and the larger set aside associated with YBGs (see below), the uncertainty of home range boundaries is not considered as critical a consideration for an action than it is for SGGs (see below).

248 Dr Wagner agreed that if a family of yellow-bellied gliders is detected within suitable habitat composed of nesting and favourable feeding trees a large circular reserve would contribute to them surviving the negative effects of timber harvesting operations.¹⁸³ There were some differences in his approach to preserving the species' habitat:¹⁸⁴

58. However, a more targeted approach protecting important habitat features in areas that are not composed of entirely suitable habitat will be required. YBGs may find nesting space within the area they were detected but traverse the forests further to access adequate amounts of feeding resources. A retention of sap-feed trees and hollow-bearing trees will be required within proposed logging coupes occupied by YBG populations and given their large home-ranges and behaviour of traveling beyond their home-range boundaries, this retention should be applied throughout the management area, rather than only surrounding the observations.

59. Habitat features for YBGs can easily be identified and then retained when surveying the forest proposed for timber harvesting. As such, the distinct V-

¹⁸² First Wardell-Johnson report, [162]–[164].

¹⁸³ Wagner report, [57].

¹⁸⁴ Wagner report, [58]–[61].

shaped scratch mark on feed trees identifies foraging habitat and mature trees of large sizes are most likely to contain hollows.

60. Findings suggest YBG populations may not be impacted by timber harvesting as severely as species such as SGGs due to their large home-range sizes (Kavanagh & Bamkin, 1995; Kambouris et al., 2014). A retention of all sap-feed trees and 15 sap-feed trees within 100m of an identified sap-feed tree as outlined by management prescriptions in areas of NSW may therefore be adequate (Kambouris et al., 2014) across the coupe area, alongside a protection of hollow-bearing trees for nesting.

61. Furthermore, it is important to retain connectivity to other suitable habitat to ensure gene-flow and dispersal of individuals in and out of the retained patches. For example, riparian strips 100 m or greater in width were found to be effective for maintaining arboreal marsupials in harvested areas. (Goldingay & Kavanagh, 1991; Goldingay & Kavanagh, 1993; Lindenmayer et al., 1993; Kavanagh & Bamkin, 1995; Kavanagh & Webb, 1998).

249 In their joint report, the ecologists identified the following areas of agreement as to appropriate silvicultural treatments in coupes proposed for logging in areas of native forest that include yellow-bellied gliders:¹⁸⁵

- Variable retention is an appropriate silvicultural treatment to allow biodiversity recovery and should be the default in the native forests of Victoria.
- Where ... YBGs are detected and populations are present, a set aside (retention patch) should be established around individual observations of these species.
- ...
- Connectivity of retained habitat patches to one another and habitat outside the areas subjected to logging or timber harvesting needs to be ensured to allow population dispersal
- The location of surrounding habitat and populations should be known when planning habitat retention and connectivity in the coupe area.

250 They disagreed concerning the area of retention patches that should surround an individual observation, and appropriate silvicultural treatments outside retention patches. In the joint report, Associate Professor Wardell-Johnson maintained that an area of up to 38 hectares for a family group of yellow-bellied gliders should be set aside from logging. However, he acknowledged that a smaller set-aside around gliders' home range may suffice if — as Dr Wagner argued — variable retention

¹⁸⁵ Joint report, 28-9.

harvesting, at the rate of at least 60%, is used for the remainder of the coupe.

251 During their concurrent evidence, the ecologists agreed that it is difficult to identify the home range of yellow-bellied gliders because they are more mobile and have a larger home range than greater gliders, with seasonal variations in their feeding patterns. Despite that difficulty, Associate Professor Wardell-Johnson's view was that the retained area should reflect the habitat that the gliders live in, surrounded by a substantial buffer if clearfall harvesting is used outside the retained area. He also emphasised the importance of connectivity between areas of habitat across the landscape, including through dedicated stream zones. Dr Wagner was unable to put a number on the area that should be reserved for a group of yellow-bellied gliders. His preferred approach was to identify and retain their feed trees, and the recruitment trees around each feed tree, and to retain 60% of the basal area across the harvested area of the coupe. This approach targets the features of glider habitat within the logging operation, rather than trying to identify a specific area to set aside from logging.

252 There are therefore two alternative measures that can be taken to conserve yellow-bellied gliders present in an area of forest that is scheduled for harvesting.

(a) One approach, favoured by Associate Professor Wardell-Johnson, is to retain a circular area of approximately 38 hectares of suitable habitat around a family group of three or more yellow-bellied gliders. This approach requires a high degree of confidence about the location of the gliders' home ranges, and hence depends on comprehensive pre-harvest surveys. It allows for intensive timber harvesting outside of the retained area of habitat.

(b) The second approach, put forward by Dr Wagner, is to identify and retain the feed trees of yellow-bellied gliders, as well as recruitment trees around each feed tree and hollow-bearing tree within a coupe. Across the harvested area of the coupe, at least 60% of the basal area should be retained. This approach is less dependent on locating gliders' home ranges, and is more likely to

conserve undetected gliders. However, it does not support intensive timber harvesting in any part of the coupe.

Both of these approaches depend on maintaining connectivity between areas of suitable glider habitat, including by retaining riparian strips along waterways.

253 Neither of these measures is obviously disproportionate; both are based on relevant research and are practical and effective to achieve the objective of conserving yellow-bellied gliders. VicForests addressed the question of proportionality only indirectly, by focusing on the safety and feasibility of the plaintiffs' proposed survey protocol. I infer that this is because a more rigorous survey effort is needed to support Associate Professor Wardell-Johnson's recommended approach. There was no suggestion that the measures proposed by Dr Wagner are disproportionate. I prefer Dr Wagner's approach as the more proportionate of the two available approaches.

254 VicForests' existing timber harvesting practices do not include either of these measures for the protection of yellow-bellied gliders. Aside from the concerns about the adequacy of VicForests' survey efforts, the actions that VicForests takes to conserve yellow-bellied gliders that are detected within a coupe are not likely to be effective. The limited measures that VicForests does take are not consistent with relevant monitoring and research, as required by s 2.2.2.2 of the Code.

255 I note the following:

- (a) The detection of yellow-bellied gliders in a coupe scheduled for harvest in the Central Highlands FMAs does not result in VicForests retaining any area of habitat for those gliders.
- (b) In the East Gippsland FMA, VicForests only sets aside 100 hectares of suitable habitat where surveys have detected a 'relative abundance' of yellow-bellied gliders — that is, more than five per spotlight kilometre. For example, in Wolpertinger coupe, in the Bendoc region of East Gippsland, four yellow-

bellied gliders were detected in the first two surveys conducted, and two in the third, which were not enough to trigger the prescription.¹⁸⁶ The basis for the detection threshold of five per spotlight kilometre was not explained by the ecologists, or by other evidence. It was Associate Professor Wardell-Johnson's opinion that an area of habitat should be retained where a family group of three or more yellow-bellied gliders is detected.

- (c) Where the detection threshold is triggered in East Gippsland, the 100 hectares of suitable habitat that VicForests sets aside is not necessarily centred on where the yellow-bellied gliders have been detected.¹⁸⁷ An illustration is the proposed operations map for Tiger coupe, which was the subject of my interlocutory ruling in *Environment East Gippsland Inc v VicForests (EEG No 1)*.¹⁸⁸ In that instance, there are recorded detections of yellow-bellied gliders outside the proposed protection area, in the area planned to be harvested.
- (d) While VicForests' Habitat Tree Survey Guidelines direct attention to hollow-bearing trees, its pre-harvest habitat tree surveys do not presently attempt to identify and plot the locations of sap-feed trees used by yellow-bellied gliders.¹⁸⁹ According to Dr Wagner, these trees can be identified by a distinctive V-shape that yellow-bellied gliders make with their jaws when feeding. These marks are noted in VicForests' survey procedure for yellow-bellied gliders, as an indicator of the species' presence that may identify areas of suitable habitat to be surveyed at night.¹⁹⁰ However, there is no direction to identify and note the location of these trees so that they can be set aside from harvesting.
- (e) VicForests' variable retention harvesting methods were not shown to be

¹⁸⁶ Gunn affidavit, [81]–[95]. See also exhibit JMG-1 to the Gunn affidavit 347–353, 372.

¹⁸⁷ The features of 'suitable habitat' for the purposes of the Table 13 prescription are considered separately at Issue 12.

¹⁸⁸ [2021] VSC 569, [16]–[17] (*EEG No 1*).

¹⁸⁹ See [56] above.

¹⁹⁰ See [231] above.

effective to conserve yellow-bellied glider populations in harvested coupes. VicForests did not seek to demonstrate that its variable retention systems were developed by reference to ‘relevant monitoring and research’ or the ‘advice of relevant experts and relevant research in conservation biology and flora and fauna management’.¹⁹¹ Nor was there any suggestion that VicForests had attempted to evaluate the impact of variable retention harvesting on yellow-bellied gliders.

- (f) To the contrary, the available evidence is that variable retention harvesting is of no short or medium term benefit to gliders.¹⁹²
- (g) As discussed in relation to greater gliders, variable retention harvesting as it is practised by VicForests may involve the retention of as little as 10% of the basal area in the harvested area of a coupe, the equivalent of clearfelling.¹⁹³ Both VR1 and VR2 harvesting methods are much more intensive than the 60% basal area retention recommended by Dr Wagner for the conservation of yellow-bellied gliders. Associate Professor Wardell-Johnson considered that the use of VR1 and VR2 harvesting methods proposed in Wolpertinger coupe in East Gippsland would not effectively address risks from logging operations, and that gliders inhabiting the harvestable area of the coupe would almost certainly die as a direct result of the logging operation – from predation, starvation, or exposure.¹⁹⁴

256 Regardless, VicForests has adopted variable retention harvesting as its almost universal harvesting method.¹⁹⁵ While it is exploring the viability of selective harvesting in an area in the east of the State, it has no concrete plans to change its reliance on variable retention harvesting.¹⁹⁶

¹⁹¹ Code, ss 2.2.2.2–2.2.2.3. See [224](e) above, in relation to greater gliders.

¹⁹² Third Wardell-Johnson report, [47]–[53].

¹⁹³ See [224](g) above.

¹⁹⁴ Third Wardell-Johnson report, [39]–[40].

¹⁹⁵ See [69]–[70] above.

¹⁹⁶ Transcript, 16 May 2022, 563:11–29 (Dawson).

257 VicForests is not applying the precautionary principle to the conservation of yellow-bellied gliders in East Gippsland or the Central Highlands. I am satisfied based on the ecological evidence that yellow-bellied gliders that live in coupes that are harvested in accordance with VicForests' current practices will probably die as a result of the harvesting operations.

Issue 9: Is VicForests applying the precautionary principle to the detection of gliders?

258 The measures that VicForests takes to detect both greater gliders and yellow-bellied gliders in coupes scheduled for harvest are set out at [155] to [164] and [229] to [232] above. The plaintiffs contend that these surveys are inadequate, and that the precautionary principle requires VicForests to undertake more thorough pre-harvest surveys to detect any greater gliders and yellow-bellied gliders that may be present in a coupe.

259 The plaintiffs went further, saying that VicForests should undertake surveys for gliders in accordance with the following survey protocol, or a method that is no less effective:

1. Subject to paragraphs (2) to (5) below, surveys must comply with the criteria set out in the document published by the Department of Environment, Land, Water and Planning titled 'Forest Protection Survey Program Survey Guideline – Spotlighting and Call Playback (V4.1)'.
2. Surveys targeting Greater Gliders must be conducted along transects set 50 m apart, with deviations to the minimum extent necessary so as to:
 - (a) avoid safety hazards such as hanging limbs, hazardous trees, holes, thorn bushes, and flowing water; and
 - (b) avoid impenetrable vegetation, where a transect cannot be located through that vegetation by reasonable understorey trimming during pre-survey daytime marking out of transects.
3. Deviations from the 50m transect pattern should be designed so as to maximise the area of survey coverage.
4. Transects must be located so as to enable coverage of the entire area to be surveyed (other than where deviations are required as set out in paragraph 2 above), on the assumption of a visible range either side of transect of 25m for Greater Gliders and 150m for Yellow Bellied

Gliders.

5. Each transect must be surveyed three times.

260 VicForests accepted, in line with the ecological evidence, that in order to adequately plan for habitat retention and appropriate silvicultural methods, it is necessary to know where greater gliders and yellow-bellied gliders are within a coupe. They also acknowledged that single survey transects may be insufficient to reveal the location of gliders throughout an entire coupe.¹⁹⁷

261 However, VicForests maintained that what is required in order to determine the location and home range of gliders in a coupe will necessarily vary depending on the characteristics of each coupe. It said that there is no standard approach to surveying that can be prescribed at the level of detail put forward by the plaintiffs. It also rejected the plaintiffs' survey protocol for reasons of safety and feasibility. Ms Dawson's unequivocal evidence was that VicForests would not conduct surveys in accordance with the plaintiffs' survey protocol, even if that meant that timber harvesting operations in East Gippsland and the Central Highlands would cease.

262 It is logical to start by considering the ecological evidence about survey methods. I will then consider the proportionality of the proposed survey protocol, specifically its safety and its feasibility.

Ecological evidence – survey methods

263 The plaintiffs' survey protocol was based on the evidence of Associate Professor Wardell-Johnson, who provided his opinion about the appropriate survey methods to be applied in order to identify greater gliders and yellow-bellied gliders in coupes in the Central Highlands and East Gippsland. That opinion was, in full:¹⁹⁸

134. Considerable research has been undertaken on appropriate survey methods to detect SGGs, YBGs and CBPs¹⁹⁹ (e.g., Lindenmayer et al., 2001;

¹⁹⁷ Defendant's closing submissions dated 14 June 2022, [180]; Joint report, 13.

¹⁹⁸ First Wardell-Johnson report, [134]–[150].

¹⁹⁹ CBPs is used to refer to common brush-tailed possums, which are the subject of Table 13 prescriptions in East Gippsland and initially formed part of EEG's pleaded case. This aspect of EEG's claim was formally abandoned on the first day of the trial: Transcript, 9 May 2022, 40:25–41:10.

Chick et al., 2020; Cripps et al., 2022), particularly in Victoria. Chick et al., (2020) have provided survey guidelines for spotlighting and recording of arboreal mammals in Victoria. These guidelines are valid and reliable as a sampling procedure, and have been used to detect levels of abundance used to trigger particular management actions, such as designation of protection areas (Chick et al., 2020). Thus, up to three repeat surveys are used along the same 1 km long transect, in the most appropriate habitat, by two independent observers at ideal detection times, under suitable weather conditions (see also Cripps et al., 2021) to obtain a reliable minimum population of SGGs and YBGs in the particular area surveyed. The transect takes about 10 minutes per 100 metres (plus recording time).

135. The approach advocated by Chick et al. (2020) is a suitable sampling procedure and satisfies requirements for validity and reliability to identify whether the requirements for a protection area of approximately 100 ha in East Gippsland set out in Table 13 of the Standards are triggered (i.e., Question 5c).

136. However, spotlighting detects only a subset of the actual population of any given species (e.g., Goldingly & Sharpe 2004) in an area. For example, only 25% of squirrel gliders present were detected, even with 9-12 census periods (Goldingly & Sharpe 2004). The percentage of the population detected is much higher with the sampling procedure adopted in Chick et al., (2020) and tested by Cripps et al., (2021) for YBGs and SGGs. Thus, the approach advocated in Victoria is well designed, repeatable and effective (i.e., it is valid and reliable) at recording a sample of the target species (i.e., SGG, YBG, CBP).

137. However, while a repeated, single 1 km long transect will have a high probability of detecting SGGs, YBGs and CBPs along that transect (should they be present), the program is designed to minimise chances of double counting, rather than detecting all individuals in a given area (other than along the transect surveyed). Hence a reliable minimum estimate is obtained of the sampled population. Cripps et al., (2021) confirmed the importance of using two independent observers (15-20 minutes apart) on the same transect to derive minimum population estimates of this sample. The overall approach is not, however, designed to detect abundance (or indeed presence) in any but the sampled area.

138. Given that the detectability of SGGs and CBPs is poor beyond 25 m from a transect (and beyond 150 m for YBGs), there is a high likelihood of not detecting some SGGs or CBPs that are present in any area (e.g., a proposed logging coupe) that is anywhere, more than 50 m wide (i.e., more than 25 m off the transect; or YBGs if > 300 m wide) using the procedure recommended by Chick et al. (2020). Thus, in circumstances where it is important to determine presence anywhere in a given area (e.g., in a proposed logging coupe), as well as numbers present of SGGs, YBGs or CBPs, this survey approach must be modified accordingly.

139. Thus, the approach advocated by Chick et al. (2020) is insufficient of itself to enable assessment of whether or not it would be possible to prevent serious or irreversible damage to the environment arising from destruction of SGGs or their habitat as a result of timber harvesting operations in the Central Highlands and East Gippsland (i.e., Question 5b).

140. Because of the damaging impacts of edge effects on SGGs and YBGs (e.g., Lindenmayer et al., 1993; Nelson et al., 2013), it is important to consider the impacts of road building, logging, tending, activities associated with regeneration (e.g., burning), or other activities likely to be detrimental to these species where they occur. It is also necessary to consider the unintended consequences of such activities on surrounding tenures and landscapes (e.g., adjacent reserves, buffers and national parks).

141. If a goal is to prevent serious or irreversible damage to the environment arising from destruction of SGGs or their habitat as a result of timber harvesting operations in the Central Highlands and East Gippsland, then additional survey effort is required. This survey effort is required to determine whether or not SGG in particular (but also CBPs, and possibly YBGs), occur in the particular area of any potential coupe that is likely to be subject to intensive logging operations.

142. Therefore, to determine the spatial patterns of SGGs prior to disturbance, it is necessary to spotlight for SGGs using a repeated series of transects set 50 m apart in any proposed coupe that is anywhere more than 50 m wide prior to any operations. Further, to provide information that enables locations to be determined, and hence conservation of this species, these surveys should also be conducted 50 m into surrounding habitat. This survey would be parallel with the proposed coupe boundary, 50 m into surrounding vegetation. This survey should include all vegetation types and all management histories on publicly managed land (e.g., State Forest, National Park).

143. This approach will provide a high chance of detecting SGGs and CBPs within 75 m of the proposed boundary of the coupe, although it is recognised that some animals beyond 75 m from the edge could be deleteriously affected by the edges created in logging operations.

144. This survey effort would need to be prior to commencement of roading and harvesting operations in the Central Highlands and East Gippsland, as required by cl 2.2.2.4.

145. For the purposes of conservation of SGGs, YBGs and CBPs, it is more important to err on the side of potentially double counting, than to err on the side of a failure to detect when these species are present. Thus, three repeat surveys (rather than up to three repeat surveys) should also be conducted in these transects. Other components of survey technique as recommended by Chick et al. (2020) are considered appropriate for assessment of SGGs in Victorian forests. These include matters of OH&S such as undertaking surveys during calm weather and avoiding traversing dangerous areas such as overhanging 'widow-makers'. These surveys enable an understanding of the location of SGGs in relation to any proposed logging or associated operation.

146. Note that the necessity for accurate knowledge of the whereabouts of SGGs (as well as YBGs and CBPs) becomes most urgent under circumstances that are likely to impact adversely on populations of these species. This includes proposals to intensively log areas that include these species and associated suitable habitat. Thus, a failure to know where these species occur in any proposed coupe means that it is very possible (even likely), that any retained vegetation may not be relevant to their requirements. In other words,

where there are attempts to manage logging operations within the context of SGGs or YBGs, there is some risk that unsuitable habitat or habitat without SGGs or YBGs may be retained, while habitat containing them or suitable for them will not, despite the best intentions to cater for their requirements. If this occurs, retention of vegetation within a coupe may not provide any protection for these species in the particular intensively managed area.

147. YBGs are detectable approximately 150 m from survey transects. Therefore, this species is detectable at some distance by a transect following the boundary of any proposed coupe, or approximately through the centre of most coupes. Should they be detected beyond the boundary of that proposed coupe, appropriate management intervention can be implemented to prevent edge effects and unintended consequences.

148. It is recognised that spotlighting at the intensity required to provide adequate survey for the presence or abundance of SGGs (or CBPs) over any given area (e.g., proposed logging coupes), raises issues in implementation. These include OH&S, as well as detection capacity, particularly in areas of dense regrowth (such as following the 2019/20 Black Summer fires). These issues are resolved by recognition that survey is required to ensure coverage of a given area, rather than being carried out as a bureaucratic exercise. In other words, there will be circumstances where straight-line surveys traversing the entire length of a coupe will not be possible, but that alternatives exist. Under such circumstances, it is important that surveyors are aware of all access points to the proposed coupe and that they plan accordingly to ensure adequate survey coverage. Further, surveyors must be sufficiently experienced in spotlighting and be equipped with appropriate mobile-based digital vegetation and topographic information of the proposed coupe.

149. As recommended by Chick et al. (2020), all survey lines will be traversed and taped during daylight hours prior to spotlight surveys being undertaken. Further, in areas where recent regrowth or dense understorey vegetation precludes line of site into the canopy, strategic understorey vegetation trimming or changes of survey position may sometimes be required. Appropriate clothing, equipment, training and care must always be associated with spotlight surveys in tall forest.

150. In conclusion, if there is intent to retain SGG, YBGs and CBPs within local forest compartments within the context of the timber industry, it is necessary to survey entire proposed coupes using a relevant and appropriate methodology that is likely to enable their detection, should they be present. This additional survey effort has potential to enable the prevention of serious or irreversible damage to the environment arising from destruction of SGGs or their habitat as a result of timber harvesting operations in the Central Highlands and East Gippsland. Once the locations of these animals are known, management actions, such as set asides, can be taken to prevent serious or irreversible damage in the context of the logging operation. This survey effort is required prior to the commencement of roading and harvesting operations, as required by cl 2.2.2.4.

264 Dr Wagner was asked whether there was anything in that part of Associate Professor Wardell-Johnson's first report with which he did not agree, or which he

considered to be incomplete or incorrect. His response was:²⁰⁰

80. While I agree that the current survey guidelines can only detect subsets of the SGG population within a coupe and additional survey efforts may be needed to determine distribution of individuals across the coupe, I have some concerns about the proposed systematic survey methodology and implications about the distribution of SGGs across the coupe.

81. A systematic survey on multiple transects following the coupe boundary and placed 50 meters apart could lead to an increase in double detections and therefore bias the assumptions about population density within the coupe. Assuming good detection rates up to 25 meters from the transect, SGGs that do not move from their position during the survey may be double counted from transect to transect. It may be possible to identify double counted individuals by comparing survey results from the different transects, but it will be hard to determine these in many cases.

82. Even if double counts can be avoided, it is questionable whether an entire coupe can be surveyed in one night, to then compare the detected numbers with surveys from another night. It would likely require large survey teams to survey each transect at a favourable time and good weather conditions. If the transects can't be completed within one night and at the same time, a true abundance still can't be determined because during another survey period the same individual could be observed elsewhere (as it moved across its home range) or not observed at all. The subject of detectability is further complicated if understorey vegetation is dense, as discussed by Professor Wardell Johnson in Paragraph 149.

83. Therefore, a true abundance within the coupe area will be hard to determine with any survey design. Transect surveys, especially in densely populated coupes can nevertheless give an appropriate measure of density and dispersion within the surveyed area.

84. Nevertheless, I would still agree that more than one transect may be required, especially where high densities of SGGs are detected, but the transect can't cover the entire coupe length or area.

85. The results from the SGG survey in the Rookery coupe can serve as an example here: Detections were made uniformly in the western part of the coupe until about half of the transect. This would suggest SGGs are distributed uniformly in that part of the coupe, even beyond visibility on the transect. This should be sufficient evidence to inform management decisions and determine that low retention rates may not be appropriate here if harvesting is to be conducted.

86. The second half of the transect had fewer observations, with a single observation made near the end of the transect. This raises questions whether this last observation is a sign of a lower density subpopulation in that area of the coupe, or if additional survey effort would reveal another area with a high density of SGGs, if the survey would continue eastwards.

²⁰⁰ Wagner report, [80]–[89].

87. In the case of the Rookery coupe, the area that was not surveyed in the east of the coupe was chosen for patch retention, although the abundance of animals is unclear. Especially if such an area is chosen to be excluded from harvesting, additional surveys should be conducted to ensure they provide protection for the local SGG population, before any management decisions are made.

88. Survey design should also be dependent on the shape of the proposed coupe. Large square areas will require multiple transects to make assumptions about animal abundance and density across the coupe area, whereas long coupe shapes may be covered with fewer transects following the shape of the coupe but spanning its length.

89. Advanced survey methods such as double-observed distance sampling (Cripps et al., 2021) on multiple shorter transects allow for better density estimations by calculating the exact location of the animal to the observer/transect and not relying on raw counts. Such methods could be used to improve abundance estimates in forest coupes.

265 In their joint report, the ecologists agreed that:²⁰¹

- (a) Current survey guidelines are adequate to detect threshold occurrence and density levels of greater gliders and yellow-bellied gliders to determine 100 hectare protection areas in East Gippsland as provided in Table 13 of the Standards;
- (b) Knowledge of where in a coupe greater gliders and yellow-bellied gliders occur is required in order to adequately plan for habitat retention and other silvicultural regimes at the coupe level; and
- (c) Single survey transects are insufficient to reveal the locations of greater gliders and yellow-bellied gliders within proposed coupe areas.

266 They disagreed concerning how to improve the current survey guidelines to better inform management, and the approach to conducting additional survey transects within the coupe area to reveal abundance and density patterns before planning protection areas and habitat retention. Their respective positions were.²⁰²

²⁰¹ Joint report, 13.

²⁰² Joint report, 14–15.

Grant Wardell-Johnson's response

Rookery coupe provides an excellent example of the failure to adequately survey for HCVs such as YBGs and SGGs in the context of coupe planning for logging operations. In the absence of effective coupe surveys, it is impossible to know where HCVs such as the gliders are and where their home ranges might be. A failure to adequately survey will result in poor planning and management decisions. Therefore, adequate survey is required. I have provided a set of guidelines on how such survey may be conducted [1GWJ136-146]. Dr Wagner has also provided a set of guidelines. The point is that whatever method is used (and there may be numerous adequate alternatives), it must be valid and reliable and able to determine where in the coupe and in the immediate vicinity of the coupe HCVs such as YBGs and SGGs occur. Adequate, repeatable survey provides the knowledge required for coupe planning, including the size and placement of internal and adjacent set asides, in the context of VR.

Benjamin Wagner's response

Both Professor Wardell-Johnson and I provide approaches to better determine the abundance and density of SGGs or YBGs across a coupe area and therefore provide better information as to where habitat retention is needed [BW 84-87, 1GWJ136-146]. We both agree that in the case of the Rookery coupe, the coupe area has not been adequately surveyed to determine how subpopulations of SGGs are spatially distributed and therefore if areas selected for habitat retention actually contribute to the protection of the species [BW 72-79, 1GWJ186-197]. While I think that a systematic survey across the entire coupe area may not be feasible [BW 81-83], I still suggest that multiple transects are needed to better inform management about where habitat needs to be retained [BW 84]. The amount and length of survey transects should be dependent on the shape and area of the proposed coupe and surveys need to be conducted wherever suitable habitat features exist [BW 59, 88].

267 Survey methods were discussed during the ecologists' concurrent evidence. Associate Professor Wardell-Johnson's starting position was, in short, that the survey method 'doesn't matter, as long as we know where in the coupe and immediately adjacent to the coupes, the gliders are'.²⁰³ He said that, while he had recommended transects at 50 metre intervals, he was 'perfectly fine' to find alternative approaches to detecting gliders; the precise method does not matter, as long as the entire coupe is surveyed.²⁰⁴

268 Dr Wagner highlighted an alternative method for detecting greater gliders, known as double observer distance sampling. He said that this method gives a more precise

²⁰³ Transcript, 13 May 2022, 457:12-14.

²⁰⁴ Transcript, 13 May 2022, 457:21-458:14.

density estimate based on one survey.²⁰⁵ He also noted that visual detection of yellow-bellied gliders is more difficult, because they are highly mobile and, being territorial, might follow an observer around. Vocal detection using call play back may be a better way to locate the core habitat of yellow-bellied gliders, along with day time surveys to locate sap-feed trees.²⁰⁶

269 I draw two conclusions from this evidence.

270 First, VicForests' current approach to detecting greater gliders and yellow-bellied gliders is considerably less than the precautionary principle requires.²⁰⁷ The ecologists agreed – and VicForests accepted – that to plan properly for habitat retention and appropriate silvicultural methods, it is necessary to know where in a coupe gliders occur. VicForests' practice of limiting the survey effort to a one kilometre transect in a coupe, often from an existing road or track, is inadequate for this purpose. It leaves most parts of a coupe unsurveyed, with the result that VicForests plans and conducts timber harvesting operations without knowing whether gliders live in those parts of the coupe and, if so, the location of their habitat – the home ranges of greater gliders and the feed trees and hollow-bearing den trees used by yellow-bellied gliders. Without that knowledge, it is not possible for VicForests to retain the habitat that is essential for the conservation of those gliders. This knowledge gap is most concerning in relation to greater gliders, which have small home ranges and disperse poorly across hostile habitat, and are very likely to die as a result of intensive logging in and around their home ranges.

271 Second, while the plaintiffs' survey protocol is an effective way to detect and locate gliders within a coupe, it is not the only effective way to do so. Other methods available include double observer distance sampling and, in the case of yellow-bellied gliders, call play back and daytime surveys for sap-feed trees and den trees.

²⁰⁵ Transcript, 13 May 2022, 460:9–461:3.

²⁰⁶ Transcript, 13 May 2022, 461:21–462:13 (Wagner).

²⁰⁷ VicForests' current survey practices are described at [155]–[164] above, in relation to greater gliders, and at [230]–[232] above, in relation to yellow-bellied gliders.

The selection and spacing of transects to be walked during spotlight surveys will depend on the shape, topography and other characteristics of each coupe. As Associate Professor Wardell-Johnson observed, the precise survey method does not matter as long as the entire coupe is surveyed.

Safety

272 As mentioned, Ms Dawson's evidence was that VicForests will not conduct surveys in accordance with the plaintiffs' survey protocol, even if the Court were to order that timber harvesting operations could not take place in East Gippsland and the Central Highlands unless those surveys were done. The primary reason for VicForests' rejection of the plaintiffs' survey protocol was Ms Dawson's belief that to conduct surveys in that way will give rise to acute safety risks for VicForests staff and contractors, in the form of potential injuries, increased risk of driving incidents, and fatigue. She was particularly concerned about the requirement to survey transects set 50 metres apart in every coupe, which she said would require VicForests staff and contractors to move through dense and often dangerous terrain at night. She considered that this would expose them to a serious risk of injury due to lack of visibility, fatigue, falling limbs, animals and weather over long periods of time and in very large areas of forest. Based on advice from Jason Hellyer, VicForests' General Manager of People, Safety and Culture, Ms Dawson regarded those risks as unacceptable.²⁰⁸

273 Mr Hellyer considered night time surveys of every coupe at 50 metre transects to pose an unacceptable risk to VicForests' staff, due to the risks associated with walking repeated mandated pathways through the forest at night when visibility is poor. He said that surveying from a road or existing track is safer, because there is better visibility, the forest canopy is reduced, and there is less likely to be thick undergrowth.²⁰⁹

²⁰⁸ Dawson affidavit, [116]–[121]; affidavit of Jason Hellyer dated 5 April 2022, [35]–[37], [39]–[41] (**Hellyer affidavit**).

²⁰⁹ Hellyer affidavit, [36], [39].

274 Ms Dawson's position, and the advice from Mr Hellyer that informed it, was not consistent with VicForests' own job safety analysis for foot-based work. Mr Hellyer explained that VicForests' staff identify, assess and control risks through job safety analyses, which VicForests develops through a consultative process to ensure that a particular activity can be undertaken safely. This allows the activity to be examined logically, step by step, so that all hazards associated with the activity can be identified and assessed, and control measures can be documented. Once a hazard is identified, it is rated using the risk rating matrix. A hazard that is rated as 'low' can be managed by routine procedures; where the hazard is rated 'medium' the activity needs to be managed and its performance monitored; if the risk rating is 'high' attention is needed to manage the hazard and the responsibilities specified; immediate action must be taken where the risk rating is 'extreme'.

275 VicForests has a job safety analysis for foot-based work, which was last updated in August 2020. The overall risk rating that it gives for foot-based tasks carried out in the forest environment is 'high'. The analysis then breaks down foot-based work into the various activities associated with it. These are listed in a table, each with corresponding hazards, risk ratings, risk control measures, and persons responsible for implementing them. The activities listed include walking through forest and surveying at night time, as follows:

Activity	Hazards	Risk rating	Risk Control measures	Who is responsible?
Walking, including on uneven surfaces and logs	Slips, trips and falls from wet ground, wet logs or thick undergrowth resulting in a musculoskeletal injury	Medium	<ul style="list-style-type: none"> • Climbing on or walking along logs should be avoided at all times. • Ensure good footing by wearing appropriate footwear. If practicable wear spiked boots in wet conditions. • Assess route, steep or uneven terrain for the best method of traversing prior to beginning work. • Where possible or reasonably practicable avoid climbing over or through slash and / or windrows. 	All staff

Activity	Hazards	Risk rating	Risk Control measures	Who is responsible?
			<ul style="list-style-type: none"> • Where possible or reasonably practicable avoid working in wet, snow or icy conditions. • Working alone should only be undertaken in compliance with the Staff Movements Monitoring and Working Alone Instruction. • Take care with footing when visibility of ground hazards such as wombat holes or wet debris is obscured by thick undergrowth or ground cover such as blackberries. • Carry appropriate communication device, SPOT messenger and first aid kit. 	
	Musculoskeletal injury from incorrect ergonomic practices	Low	<ul style="list-style-type: none"> • Undertake stretching exercises prior to commencing walking and as a cool down on return to the vehicle. • Avoid carrying excessive equipment. • Use an appropriate back pack or surveyor's jacket for carrying equipment and water. 	All staff
	Sun burn or skin cancers from UV exposure	Medium	<ul style="list-style-type: none"> • Wear sunscreen, appropriate PPE, long sleeved shirts and pants, sunglasses and hard hat (with neck flap if wanted). 	All staff
	Being struck or crushed by falling trees or limbs	Low	<ul style="list-style-type: none"> • Undertake a Site Safety Survey when working at a new site or where conditions have changed since previous visit. • Continually inspect work areas and paths ahead for potential aerial hazards such as hung-up branches, spars, dead and live retained trees and avoid working beneath them where possible. • Wear hard hat at all times. • Do not work under canopy on excessively windy days or on days following heavy snow falls. • Refer to Dangerous (salvage) 	All staff

Activity	Hazards	Risk rating	Risk Control measures	Who is responsible?
			stand risk matrix at the end of this document	
	Stings, bites or allergies from biological agents	Medium	<ul style="list-style-type: none"> • Be aware of any allergies that you or any team members have. Know appropriate treatments and carry any relevant medications. • Wear long pants and shirt minimising area of unprotected skin. • Carry all appropriate medications including antihistamines and an epipen if required. • Carry appropriate first aid treatments including snake bite bandages. • Use insect repellent if required. • Consider wearing gaiters. 	All staff
	Heat exhaustion, dehydration or hypothermia from severe environmental conditions	Low	<ul style="list-style-type: none"> • Schedule work for an appropriate time of day. • Take regular breaks. • Carry sufficient water and food. • Wear clothing appropriate to the weather conditions. 	All staff
	Eye injuries from elevated understorey	Low	<ul style="list-style-type: none"> • Assess the risk due to elevated understorey. • Wear eye protection at all times unless able to prove unnecessary through a Site Safety Survey (SSS). 	All staff
	Injuries sustained from falling from heights	Medium	<ul style="list-style-type: none"> • Avoid walking on elevated areas and do not walk on areas above 2m high unless they are an engineered structure ie, a bridge. • Wear spiked boots where appropriate. • Be aware of mine shafts in relevant areas, do not walk or drive over tailings mounds and depressions, mark-off and record the location of shafts 2m or more in depth. Report to DELWP and record in VicForests's Hazard Layer. 	All staff
Surveying	Slips, trips	Low	<ul style="list-style-type: none"> • Where possible scout sites 	All staff

Activity	Hazards	Risk rating	Risk Control measures	Who is responsible?
from roads at night	and falls from the edge of road, obstacles on the road or overhead hazards		during daylight to become familiar with the road and obstacles prior to undertaking night time surveys. Mark these if necessary as watch outs. <ul style="list-style-type: none"> • Work in pairs to observe hazards including the edge of road which may have steep drop offs. • Check overhead hazards prior to undertaking spot light, call play back or thermal assessments from a fixed position. 	involved in night time surveys
Surveying off road in forests at night. (Most hazards remain the same as per normal field survey but can be exacerbated by poorer vision and colder conditions especially in winter)	Disorientation is a greater hazard at night as common landmarks are not as evident. This is especially the case with the operator of the thermal camera	Medium	<ul style="list-style-type: none"> • Where possible scout sites during daylight to become familiar with the site and the path to be taken for night time surveys. • Work in pairs to watch out for obstacles. • Where possible mark the path to be taken during daylight. • Use a compass and GPS to assist in navigation. 	All staff involved in night time surveys

276 As can be seen, the hazards of concern to Ms Dawson and Mr Hellyer, and more besides, are identified in the job safety analysis, together with appropriate controls to address those hazards. None of the hazards is rated to be higher than a medium risk. While the overall risk rating for foot-based work in the forest is high, it is clearly not regarded by VicForests as an unacceptable risk. The evidence was that VicForests staff currently undertake foot-based spotlight surveys through forest at night.²¹⁰ Mr Ryan's evidence included a helpful video explaining how this is done by VicForests, and the safety precautions that they take. The precautions described were consistent with the job safety analysis set out above, and included marking out

²¹⁰ Ryan affidavit, [35]; Zadro affidavit, [18]–[20].

during daylight hours the path that is to be walked at night.

277 Mr Hellyer expected that conducting surveys in accordance with the plaintiffs' survey protocol would result in a 'significant increase' in the number of injuries to VicForests' staff and contractors.²¹¹ This expectation was based on a figure he gave of over 50% of injuries to VicForests' staff coming from foot-based work, which had risen to 73% over the previous 12 months. This figure did not include injuries sustained by the contractors who do all of VicForests' road building and timber harvesting work, and did not give an accurate picture of the extent of injuries associated with foot-based activity across VicForests' workforce.²¹² Mr Hellyer's expectation of an increased number of injuries was based on a false premise, and appeared to me to be exaggerated.

278 Further, Ms Dawson's position was not supported by the opinions of two health and safety experts who were asked to consider the plaintiffs' survey protocol.

279 Kim Flanagan, who was called by the plaintiffs, is a consultant in occupational health and safety risk. His opinion was that VicForests could conduct surveys in accordance with the plaintiffs' survey protocol without breaching its occupational health and safety obligations.²¹³ He said that 'surveying and spotlighting can be performed safely by conducting a formal risk assessment of the hazards, rating the risks as low, medium, high and extreme, then mitigating and controlling those risks'.²¹⁴

280 David Bennett, a risk and compliance manager with considerable experience in the forest industry, provided a report for VicForests.²¹⁵ He examined VicForests' job safety analysis for foot-based work, and concluded 'that VicForests has conducted a thorough review of the risks and hazards associated with foot-based surveys [and

²¹¹ Hellyer affidavit, [40].

²¹² Transcript, 12 May 2022, 384:20–385:30, 387:22–388:14.

²¹³ Report of Kim Flanagan dated 21 January 2022, [1.1] (**Flanagan report**).

²¹⁴ Flanagan report, [9.1].

²¹⁵ Report of David Bennett dated 6 April 2022 (**Bennett report**).

has] implemented appropriate controls', and that its current survey practice is 'consistent with best practice in the forest industry'.²¹⁶ In Mr Bennett's opinion, VicForests' survey method is safer than the plaintiffs' survey protocol, both because it allows surveyors to walk along preformed roads and tracks, and because the plaintiffs' protocol would involve 'an increased exposure to the hazards related to walking through a natural forest at night'.²¹⁷

281 Mr Flanagan and Mr Bennett conferred on 27 April 2022, and produced a joint report.²¹⁸ They agreed that it is possible for the plaintiffs' survey protocol to be conducted safely.²¹⁹ They disagreed about its relative safety, compared to VicForests' survey method. The joint report set out the reasons for this disagreement:²²⁰

Mr Flanagan disagrees that the VicForests Survey Method is safer than the Plaintiff's Survey protocol. This is because he believes that a good change management process would identify any increased risk due the increased number of surveys. Whereas, Mr Bennett asserts that the increased effort required to survey the same area of forest increases the likelihood that known hazards in forest environments will eventuate in injuries to the workers conducting the work.

282 Mr Flanagan was cross-examined about his view that a good change management process could be applied to reduce the likelihood of injuries associated with an increased survey effort. He explained that a change management process can be applied to any workplace where the production or amount of work has increased, perhaps with an increase in the number of staff doing the work. It involves looking at the relevant work process, identifying every single risk associated with it, and measures to mitigate and control those risks. It also involves ensuring that the people who do the work are properly inducted and trained. He said:²²¹

[T]he risks that have been identified by VicForests are not unique to VicForests. They are mitigated and controlled every day in other organisations. There are

²¹⁶ Bennett report, [5.16], [5.18].

²¹⁷ Bennett report, [6.7]–[6.8], [6.13]–[6.14].

²¹⁸ Joint report of Kim Flanagan and David Bennett dated 27 April 2022 (**OHS joint report**).

²¹⁹ OHS joint report, [2.1.7].

²²⁰ OHS joint report, [2.2.1].

²²¹ Transcript, 11 May 2022, 217:7–16.

surveys conducted in every other State of Australia by a lot of other departments and they are conducted safely. So I think if there was a good change management process on ... the increased work that has to be conducted, it can be done through a change management process with proper risk analysis.

283 I accept Mr Flanagan's opinion that an increase in VicForests' night time survey activity can be managed to mitigate and control the risk of increased injuries, by the implementation of a proper change management process. This would include engaging additional staff or contractors to undertake the work, and ensuring that they are properly trained. VicForests is already building its survey capacity.²²² I have no doubt that VicForests could, if it chose, implement a change management process to mitigate and control the risk of increased injuries from increased survey activity. Mr Hellyer told me that he was very practised and accredited in change management, and had applied change management principles to VicForests' safety management system. He said that he would 'leave no stone unturned' to do that in respect of the plaintiffs' survey protocol, if that were necessary.²²³

284 I find that Ms Dawson and Mr Hellyer's safety concerns were overstated and inconsistent with VicForests' existing job safety analysis and with the expert evidence. Mr Hellyer's position appeared to be informed by a longstanding commitment to injury reduction by getting 'boots out of the forest' and 'contractors off the ground into machines where they are protected'.²²⁴ While I accept that this commitment is genuine, it is misplaced in relation to pre-harvest survey work that, at present, must necessarily be conducted on foot in the forest at night. If there is technology available that can reliably detect gliders in their forest habitat, VicForests is yet to explore it.²²⁵

Feasibility

285 Ms Dawson said that a further reason why VicForests will not conduct the surveys in accordance with the plaintiffs' survey protocol is the huge increase in labour that

²²² Paul affidavit, [109].

²²³ Transcript, 12 May 2022, 404:2-15.

²²⁴ Transcript, 12 May 2022, 405:13-27.

²²⁵ Transcript, 16 May 2022, 601:17-602:19 (Dawson).

would be required, with the need to employ and train additional staff, which would incur substantial expense. She said that the level of additional labour and time required to physically do the work would mean that timber harvesting operations would be substantially delayed and would be likely to be unprofitable.²²⁶ The evidence did not bear out these assertions.

286 The spotlight surveys that VicForests currently conducts are estimated to cost approximately \$3,000 per survey per coupe.²²⁷ Prices for a spotlight survey conducted in accordance with the SLCP method vary between contractors and forest districts, at between \$1,900 and \$3,400 for an eight hour day. As I have found, the limited scope of these surveys means that they are ineffective to identify the presence and location of greater gliders and yellow-bellied gliders in a coupe, and do not meet VicForests' obligations under ss 2.2.2.2 of the Code.

287 The plaintiffs obtained estimates from surveying consultants of between \$75 and \$180 per hour. Using those rates, they estimated that the cost of surveying an average 36 hectare coupe in accordance with their survey protocol would be between \$7,425 and \$17,820 per coupe.²²⁸

288 Allowing some additional time to mark out transects during daylight, and taking the higher end of the estimated cost range, it would cost VicForests in the order of \$20,000 per coupe to conduct pre-harvest surveys in accordance with the plaintiffs' survey protocol. This is \$17,000 per coupe more than it currently spends, when it conducts its own spotlight survey of a coupe.

289 VicForests harvests around 150 to 160 new coupes in a year.²²⁹ VicForests' average annual income from the sale of forest products over the six years to 30 June 2021 was

²²⁶ Dawson affidavit, [121].

²²⁷ Paul affidavit, [110].

²²⁸ Two surveyors conducting three surveys, each taking 16.5 hours — a total of 99 hours per coupe.

²²⁹ Transcript, 11 May 2022, 240:14-16.

\$96,774,500.²³⁰ On that basis, each coupe harvested produces approximately \$600,000 in income.

290 The cost of conducting surveys is one component of VicForests' production expenses. On average, the production expenses incurred by VicForests over the past six years were around 75% of its sales income.²³¹ An extra cost of \$17,000 to \$20,000 per coupe to generate a return of about \$600,000 does not seem disproportionate to the objective of avoiding serious and irreversible damage to the environment, namely the extinction of greater gliders and yellow-bellied gliders.

291 It is the case that conducting more extensive spotlight surveys would require extra people, time, and effort. To survey a single coupe using the plaintiffs' method takes up to three nights. Surveying between 150 and 160 coupes would mean 450 to 480 nights spent in the forest each year, across VicForests' entire operation.

292 However, the evidence indicates that there are people able, ready and willing to do this work. In late 2021, VicForests was able to let six contracts to environmental surveying firms, including in East Gippsland and the Central Highlands, as part of a concerted effort to build its survey capacity.²³² At around the same time, KFF obtained quotes from seven contractors for survey work in the Central Highlands,²³³ and EEG obtained a quote from one contractor to conduct glider surveys in East Gippsland.²³⁴

293 I conclude that it would be feasible for VicForests to survey coupes for greater gliders and yellow-bellied gliders more thoroughly than is its current practice. The

²³⁰ VicForests *Annual Report 2020-21* (21 October 2021), 'A Year In Review: Summary of financial results', 20. The income from the sale of forest products for 2020-21 was below this average, at \$85,576,000.

²³¹ Ibid, averaging the stumpage figures over the six years to 30 June 2021, where 'stumpage' represents income from sale of forest products less production expenses. The figure was higher than 75% in 2020-21, when stumpage was only 17.9% of sales income.

²³² Paul affidavit, [109]. See also Exhibit P40 - Notice to Produce filed by KFF on 10 December 2021, seeking responses to the defendant's request for tender (RFT 2021.3) and the documents responsive to categories 1 and 2 of the Notice to Produce.

²³³ Fifth affidavit of Susan McKinnon dated 28 January 2022, [33]-[35].

²³⁴ Affidavit of Jill Redwood dated 28 January 2022, [2]-[6].

additional cost, labour, time and effort required to implement the plaintiffs' survey protocol, or another method no less effective, is in my view proportionate to the benefit that would be derived – namely, continuing sustainable timber harvesting in a way that conserves two threatened species.

294 In addition, s 2.2.2.4 of the Code requires VicForests to identify whether and where greater gliders and yellow-bellied gliders are present in a coupe, when planning to harvest the coupe. As I find below, at Issues 10 and 11, VicForests is not meeting that obligation in East Gippsland or the Central Highlands.²³⁵ The extra expenditure on surveys would also enable VicForests to achieve compliance with s 2.2.2.4 of the Code, in relation to which there is no question of proportionality.

Conclusions on survey methods

295 In order to apply the precautionary principle to the conservation of greater gliders and yellow-bellied gliders, VicForests must survey the whole of any coupe proposed for harvest which may contain glider habitat. It must do so using a survey method that is likely to detect any gliders that may be present in the coupe, so as to locate the gliders' home ranges wherever practicable. This is necessary in order that their home ranges can be excluded from timber harvesting operations, as the precautionary principle requires.

296 At present VicForests does not survey all of a coupe before harvesting, and so it plans and undertakes timber harvesting operations without knowing where gliders live within the coupe and which parts of the coupe should be retained for their habitat. In order to comply with s 2.2.2.2 of the Code, VicForests needs to undertake much more thorough pre-harvest surveys for greater gliders and yellow-bellied gliders.

297 The survey protocol proposed by the plaintiffs is an effective survey method. It is based on the spotlight survey method already used by DELWP and, with minor modifications, VicForests. Where it is applied, it provides a reasonably reliable

²³⁵ See [304] and [310] below.

method of identifying whether and where gliders are present. The potential for double-counting individual gliders is not a concern, because the purpose of the survey is not to count gliders, but to understand where they and their habitat are located within a coupe.²³⁶

298 However, the plaintiffs' survey protocol is not the only effective way to detect and locate gliders within a coupe. Other methods available include double observer distance sampling and, in the case of yellow-bellied gliders, call play back and daytime surveys for sap-feed trees.

299 The plaintiffs' survey protocol is also highly prescriptive and it may not be safe or practical to apply it in every coupe. The stipulation that surveys targeting greater gliders must be conducted along transects set 50 m apart, with deviations to the minimum extent necessary to avoid safety hazards and impenetrable vegetation, leaves little discretion to the surveyors to determine the safest path to survey the coupe as a whole. These are judgments best made on the ground, having regard to the shape, topography, vegetation density and other features of a coupe.

300 It may also be unnecessary to apply the plaintiffs' survey protocol in every coupe, to its full extent. Coupes that were clearfelled after 1939 would not have to be surveyed for gliders before being logged again, because they are unsuitable habitat in which gliders are unlikely to be present.²³⁷ Surveyors may determine after completing two surveys that they have a sufficiently clear picture of where gliders are present within the coupe, and that there is no need to repeat the survey a third time.

301 I will return to these findings when considering whether to grant the relief sought by the plaintiffs, at Issues 14 and 15.

Issue 10: Is VicForests applying s 2.2.2.4 of the Code in East Gippsland?

302 I considered the proper interpretation of s 2.2.2.4 of the Code at [142] to [152] above.

²³⁶ First Wardell-Johnson report, [145]; cf Wagner report, [81].

²³⁷ Transcript, 13 May 2022, 467:28–468:14, 499:3–500:27 (Wardell-Johnson).

I concluded that it is a mandatory action that requires VicForests, during planning, to identify whether and where the biodiversity values listed in the first column of Table 13 of the Standards, including greater gliders and yellow-bellied gliders, are present in a coupe before undertaking timber operations such as roading and harvesting. Where either of those species is present, VicForests must address risks to them by taking management actions consistent with the Standards. These management actions may be additional to the management actions prescribed in Table 13, where that is needed to address risks to the species.

303 VicForests' current survey practice is described above at [155] to [164], in relation to greater gliders, and at [230] to [232] in relation to yellow-bellied gliders.

304 For the reasons just discussed, VicForests does not meet its obligation to identify whether and where greater gliders and yellow-bellied gliders are present in a coupe, when planning to harvest the coupe. In the East Gippsland FMA, it relies on an FPSP survey undertaken by DELWP, or conducts its own survey, or both. These surveys are limited to a one kilometre transect through the coupe. While this is sufficient to identify whether to apply the Table 13 prescriptions for the gliders, it leaves most of the coupe unsurveyed, and provides incomplete information about whether gliders live in the coupe, and where their home range is located. Without knowing where the gliders are within a coupe, it is not possible for VicForests to take management actions to address risks to them.

305 The measures that VicForests currently takes for the protection of greater gliders are set out at [165] to [175]. The actions that are needed to address risks to greater gliders are described at [216], with two alternative approaches put forward by the ecologists. Both approaches require an understanding of where gliders' home ranges are located throughout a coupe, in order that those areas of habitat can be excluded from harvesting. I consider both approaches to be consistent with the management actions prescribed in Table 13, although there may be some overlap. In particular, where 100 hectares of suitable habitat is set aside for a population of

gliders, that will be sufficient to preserve those gliders' home range from timber harvesting.

306 In East Gippsland, VicForests takes measures to protect yellow-bellied gliders as described at [233] to [235]. The actions needed to address risks to yellow-bellied gliders are described at [252]. The ecologists proposed two approaches, both of which call for an understanding of what habitat or individual trees should be retained for the yellow-bellied gliders that live in a coupe. Again, while there may be some overlap with the Table 13 prescriptions, the management actions identified by the ecologists are consistent with them.

307 For the reasons already given, the management actions that VicForests currently takes to protect greater gliders and yellow-bellied gliders in East Gippsland are not sufficient to address risks to them.²³⁸ Because its survey effort is inadequate, it generally does not have the information needed to determine what areas of habitat should be retained to preserve gliders' home ranges from harvesting.

308 VicForests is not applying s 2.2.2.4 of the Code in East Gippsland.

Issue 11: Is VicForests applying s 2.2.2.4 of the Code in the Central Highlands?

309 I reach the same conclusions in relation the Central Highlands, for similar reasons.

310 As to the identification of gliders and their habitat, the steps VicForests takes to survey for greater gliders in the Central Highlands are the same as in East Gippsland. It does not routinely survey for yellow-bellied gliders in the Central Highlands. This is not sufficient to meet its obligation under s 2.2.2.4 to identify, during planning, whether and where gliders are present in a coupe before the coupe is harvested.

311 As to management actions to address risks to gliders, VicForests takes the same measures in the Central Highlands that it does in East Gippsland, with one

²³⁸ See [223]–[227] in relation to greater gliders, and [254]–[256] in relation to yellow-bellied gliders.

exception. The exception is that Table 13 of the Standards does not require VicForests to set aside protection areas of 100 hectares of suitable habitat in the Central Highlands where a relative abundance of either species is detected, and so VicForests does not take this measure in the Central Highlands. These measures fall short of the actions required to address risks to both species, on either Associate Professor Wardell-Johnson's or Dr Wagner's approach.

312 VicForests is not applying s 2.2.2.4 of the Code in the Central Highlands.

Issue 12: In East Gippsland, is VicForests correctly applying cl 4.2.1.3 of the Standards?

313 In the East Gippsland proceeding, EEG claims that VicForests has failed to apply the mandatory actions prescribed by cl 4.2.1.3 and Table 13 of the Standards in respect of greater gliders and yellow-bellied gliders and will, unless restrained, continue to do so.²³⁹ VicForests disputes these claims.²⁴⁰

The pleadings

314 When the East Gippsland proceeding commenced in May 2021, the *Management Standards and Procedures for timber harvesting operations in Victoria's State Forests 2014 (2014 Standards)* were still in force. At that time, cl 2.1.1.3 of the 2014 Standards provided:

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.

315 There was a dispute between EEG and VicForests about the nature and extent of VicForests' obligation under cl 2.1.1.3. EEG contended that it obliged VicForests to apply to the Secretary of DELWP to create or amend a Special Protection Zone or SPZ of 100 hectares of habitat that was objectively suitable for the detected population of gliders. VicForests maintained that it was obliged only to apply to

²³⁹ EEG statement of claim, paras 31-40AD, 43A-50F, 53B-53DAA.

²⁴⁰ EEG defence, paras 31-40AD, 43A-50F, 53B-53DAA.

DELWP to create or amend a Special Protection Zone, and it was a matter for DELWP whether to amend the FMZS accordingly. It also said that it was for the Secretary of DELWP to determine whether the proposed SPZ was 'suitable habitat'.

316 This dispute was the subject of my interlocutory ruling in *EEG No 1*.²⁴¹ As I noted in that ruling, there could be a significant delay between when VicForests made an application to DELWP and when DELWP updated the relevant spatial layer in the FMZS.²⁴² There was also an unfortunate lack of clarity about whether VicForests or DELWP was responsible for determining whether the area set aside was 'suitable habitat'.

317 EEG made two applications for interlocutory injunctions to enforce what it claimed was the proper application of cl 2.1.1.3. The first, in relation to Alla Turca coupe, was the subject of an undertaking given to the Court by VicForests on 24 May 2021.²⁴³ The second, concerning Tiger coupe, was the subject of an interlocutory injunction granted on 31 August 2021.²⁴⁴ Both the undertaking and the interlocutory injunction remain in operation.

318 The dispute about the operation of cl 2.1.1.3 was resolved in November 2021, when the 2014 Standards were replaced with the Standards that now form Schedule 1 to the Code.²⁴⁵ The current Standards do not contain a cl 2.1.1.3. More significantly, the management actions prescribed by cl 4.2.1.3 and Table 13 were reformulated so that it is now clear that VicForests is responsible for applying a 'protection area' of 100 hectares of suitable habitat, where a relative abundance of greater gliders or yellow-bellied gliders is detected.

319 Following this change, EEG amended its statement of claim to include allegations

²⁴¹ *EEG No 1*, [31]–[38].

²⁴² *EEG No 1*, [35].

²⁴³ Noted in 'Other Matters' in the Order of Gorton J made 24 May 2021.

²⁴⁴ Order of Richards J made 31 August 2021.

²⁴⁵ Further revisions to the Standards in 2022 did not alter cls 2.1, 4.2.1.3, or the relevant Table 13 prescriptions.

that:

- (a) The 'suitable habitat' to be included in a protection area for greater gliders and yellow-bellied gliders must meet various criteria;²⁴⁶
- (b) VicForests is required by cl 4.2.1.3 of the Standards, read in conjunction with the detection criteria in Table 13, (referred to in the statement of claim as the 'Protection Area Provisions'), to apply a protection area of approximately 100 hectares of suitable habitat for greater gliders or yellow-bellied gliders, in each case that the Table 13 detection criteria are satisfied for one of those species;²⁴⁷
- (c) VicForests had failed to comply with cl 2.1.1.3 and other 'SPZ Provisions' of the 2014 Standards in several specific instances, including in relation to Alla Turca and Tiger coupes;²⁴⁸ and
- (d) VicForests is likely to breach the Protection Area Provisions by failing to apply a protection area of approximately 100 hectares of suitable habitat for greater gliders and yellow-bellied gliders, within certain specified coupes and within other coupes in the East Gippsland FMA.²⁴⁹

320 VicForests denies these allegations.²⁵⁰

The evidence

321 The evidence at trial in relation to this issue was less extensive than the pleaded case:

- (a) EEG relied on the opinions of Associate Professor Wardell-Johnson and Dr Wagner as to the criteria for 'suitable habitat' and what amounts to a 'substantial population' located in 'isolated habitat' for the purposes of the Table 13 prescriptions;

²⁴⁶ EEG statement of claim, 38A–38C.

²⁴⁷ EEG statement of claim, 38D.

²⁴⁸ EEG statement of claim, 43A–50F.

²⁴⁹ EEG statement of claim, 53DAA,

²⁵⁰ EEG defence, 38A–38D, 43A–50F, 53DAA.

- (b) Mr Lewis, VicForests' Regional Manager East Gippsland, gave evidence about VicForests' implementation of SPZ and protection areas in East Gippsland, for threshold populations of greater gliders and yellow-bellied gliders, and its applications for SPZs to be created for the protection of yellow-bellied gliders in several coupes;²⁵¹
- (c) Mr Lewis was cross-examined about this evidence, and in relation to whether VicForests had any criteria for determining whether a population of gliders is a 'substantial population in isolated or unusual habitat';²⁵²
- (d) EEG tendered documents relevant to the area of habitat that VicForests proposed to set aside for populations of yellow-bellied gliders detected in various coupes in East Gippsland, including Tiger coupe;²⁵³ and
- (e) EEG served on VicForests a notice to produce documents setting out the procedures, guidelines, or decision-making processes to be followed, and the criteria to be applied by VicForests' staff in determining whether a population of greater gliders or yellow-bellied gliders in the East Gippsland FMA constitutes a substantial population located in isolated habitat for the purposes of Table 13 of the Standards. When EEG called on the notice produce during the trial, senior counsel for VicForests advised that there was nothing to produce.²⁵⁴

322 There was no evidence concerning most of the coupes listed in the relevant paragraphs of EEG's pleading, including Alla Turca coupe. The limited evidence

²⁵¹ Affidavit of Rodney Jason Lewis, [7]–[24], [28] (**Lewis affidavit**).

²⁵² Transcript, 11 May 2022, 328:17–338:17.

²⁵³ Exhibits P9 – Operations Map – Lior; P15 – Email from Tanya Britton to Nigel Reid dated 15 December 2020 and attached maps; P16 – Email from Joshua Zadro to several recipients dated 19 February 2021; P21 – Email from Tanya Britton to Glenn Dooley and Joshua Zadro dated 15 October 2021; P26 – Email from Tanya Britton to James Gunn dated 8 December 2021 with selected attachments; P27 – Email from Tanya Britton to Marc Perri dated 8 December 2021 with selected attachments; P28 – Email from Tanya Britton to Marc Perri dated 22 December 2021 with selected attachments.

²⁵⁴ Transcript, 13 May 2022, 418:22–419:1.

that was tendered in relation to specific coupes is discussed below.

Suitable habitat

323 Associate Professor Wardell-Johnson was asked to describe the principles that must be applied to determine whether habitat is ‘suitable habitat’ for a protection area of approximately 100 hectares for a particular population of greater gliders or yellow-bellied gliders that satisfies one of the detection criteria in Table 13 of the Standards. He was also asked about the principles that must be applied to determine which habitat should be included in such a protection area, where there is more than 100 hectares of suitable habitat available.

324 While Associate Professor Wardell-Johnson provided separate answers in respect of greater gliders and yellow-bellied gliders, the two answers were in substance the same. In relation to each species, he identified ten principles to guide locations and boundaries of protection areas for the species in East Gippsland. The principles were grouped as follows:²⁵⁵

- (a) Overall approach – Principle 1;
- (b) Survey records and habitat attributes – Principles 2 to 4;
- (c) Size and shape considerations – Principles 5 and 6;
- (d) Management history – Principles 7 and 8; and
- (e) Boundary considerations – Principles 9 and 10.

325 The ten principles described by Associate Professor Wardell-Johnson for greater gliders were:²⁵⁶

Principle 1 (Precaution, prevention and future proofing). Choice of location, composition, boundaries and management of the protection area should always be guided by the location of populations of the SGG to provide greatest opportunity for persistence.

²⁵⁵ First Wardell-Johnson report, [60], [85].

²⁵⁶ First Wardell-Johnson report, [89], [91], [93], [95], [97], [99], [101], [103], [105], [107].

Principle 2 (Presence of SGGs). A protection area should include all recent verifiable records of SGGs in the immediate vicinity.

Principle 3 (Habitat components). A protection area should include structurally diverse forest, evidenced by (for example) large, mature trees and records of other mature forest dependent species, with few or no signs of previous intensive logging activity.

Principle 4 (Vegetation type). A protection area should include suitable mature forest of appropriate overstorey tree species composition for SGGs.

Principle 5 (Size and shape considerations). A protection area should have minimum edge effect (i.e., be round or square, rather than linear) wherever edges are hostile, and maximum distance from edges to SGG records.

Principle 6 (protection areas in fragmented landscapes). In extensively and intensively modified zones (i.e., > 50% modified or proposed to be modified to hostile habitat within 1 km of a coupe centre), any remnant of mature forest within 1 km of this point connected to habitat including a threshold number of SGGs, regardless of fire history, is to be designated as a protection area.

Principle 7 (Logging history). A protection area should be mature forest and include no hostile habitat and a minimum area (<15% as a continuous block) of immature (50-100 years-old) regrowth.

Principle 8 (Fire history). A protection area can include up to 15% of mature forest impacted by recent intense wildfire where other conditions are met. Once SGGs have again established, the entire protection area can be habitat of a single age-since-fire.

Principle 9 (Boundary context). The boundaries of a protection area should be suitable habitat. Therefore, secure reserved mature forest should be prioritised as protection area boundaries.

Principle 10 (Boundary conditions). The boundaries of a protection area should not act as a passageway or be likely to act as conduits for weed invasion, erosion, pest animals or pathogens, and be of mild slope and distant from streams.

326 The same ten principles were described for suitable habitat for yellow-bellied gliders, except that they referred to 'YBGs' rather than 'SGGs'.²⁵⁷

327 Associate Professor Wardell-Johnson acknowledged that there would be circumstances where all ten principles could not be met. In that case, he said that Principles 2 and 3 should be considered the minimum requirement, guided by Principle 1. In circumstances where a protection area is not the ideal size, shape or

²⁵⁷ First Wardell-Johnson report, [64], [66], [68], [70], [72], [74], [76], [78], [80], [82].

configuration, Principles 6 and 1, in conjunction with Principles 2 and 3, should prioritise actions.²⁵⁸ He emphasised the need for a precautionary approach to forest management, to provide the best opportunity for the sustainability of populations of both species of glider.²⁵⁹

328 Where more than 100 hectares is available for a protection area, Associate Professor Wardell-Johnson considered that placement and design of the protection area should be based initially on Principles 2 and 3, but should integrate all principles, guided by Principle 1.²⁶⁰

329 Dr Wagner agreed with Associate Professor Wardell-Johnson's principles, in relation to both greater gliders and yellow-bellied gliders.²⁶¹ He added some considerations of his own, by way of elaboration rather qualification.²⁶²

330 In their joint report, the ecologists expressed agreement about the importance and characteristics of approximately 100 hectare protection areas set aside in East Gippsland for highest quality habitat for threshold numbers of greater gliders and yellow-bellied gliders in the context of timber production. They summarised their areas of agreement on this question as follows:²⁶³

- The importance of PAs²⁶⁴ for both YBGs and SGGs and the importance of establishing PAs where a threshold number of animals have been observed during surveys.
- The importance of mature forest, including components in the form of tree hollows and adequate feeding resources within the PA.
- The importance of riparian areas within PAs, providing microclimatic and disturbance refugia.
- The importance of connectivity to habitat outside of the PA.
- In general, the creation of large edges or fragmentation should be

²⁵⁸ First Wardell-Johnson report, [61], [86].

²⁵⁹ First Wardell-Johnson report, [62], [87].

²⁶⁰ First Wardell-Johnson report, [83], [108].

²⁶¹ Wagner report, [9], [16].

²⁶² Wagner report, [10]–[12], [17]–[21].

²⁶³ Joint report, 6.

²⁶⁴ PA is an acronym used to refer to 'protection area'.

avoided in the setting aside of PAs for arboreal wildlife.

- 331 While the ecologists agreed that hostile habitat should be avoided if at all possible, there was a minor disagreement between them about the proportion of hostile habitat that could be included within a protection area.²⁶⁵ Associate Professor Wardell-Johnson considered that 15% was the maximum, while Dr Wagner thought this would not always be attainable. This disagreement did not detract from their agreement in relation to the ten principles, which Associate Professor Wardell-Johnson recognised could not be satisfied in all cases.
- 332 VicForests made limited submissions in relation to the criteria for determining a protection area of approximately 100 hectares of suitable habitat. It did not contend that Associate Professor Wardell-Johnson's ten principles were incorrect, inappropriate, or impractical to apply. It said that they were intended to guide decisions rather than form an 'irreducible minimum' content of the concept of suitable habitat.
- 333 I find that the ten principles articulated by Associate Professor Wardell-Johnson provide a sound scientific basis, informed by relevant research, to guide decisions about the location, composition and shape of a protection area of approximately 100 hectares of suitable habitat for a relative abundance of greater gliders or yellow-bellied gliders.

Substantial population in isolated habitat

- 334 Associate Professor Wardell-Johnson was also asked to provide his opinion as to the minimum populations of greater gliders and yellow-bellied gliders that could be described as 'substantial', and the characteristics that define habitat as 'isolated'.
- 335 He considered a population of at least three southern greater gliders in an area of at least ten hectares to be substantial.²⁶⁶ He said that a substantial population of yellow-bellied gliders is a population of at least three individuals in an area of at

²⁶⁵ Joint report, 8-9; Transcript, 13 May 2022, 520:19-25, 521:4-8 (Wagner), 523:26-30 (Wardell-Johnson).

²⁶⁶ First Wardell-Johnson report, [127]; Transcript, 13 May 2022, 512:10-513:9, 525:28-526:3.

least 30 hectares of habitat.²⁶⁷

336 In both cases, Associate Professor Wardell-Johnson's opinion was that isolated habitat is a patch of suitable habitat surrounded by hostile habitat — that is, land cleared of forest or intensively logged less than 50 years ago, and other vegetation types such as heathland, shrubland, woodland or dry sclerophyll forest.²⁶⁸ Forest that was intensively logged between 50 and 120 years previously would not, of itself, support a population of either species, but may provide food trees and dispersal between areas of suitable habitat for yellow-bellied gliders.²⁶⁹ Habitat is isolated if the width of surrounding hostile habitat is more than 100 metres; the presence of isolated 'feed trees' or 'habitat trees' does not change the isolation, where the vegetation is otherwise hostile.²⁷⁰ Habitat remains isolated if corridors of suitable habitat that connect it to larger areas of suitable habitat are less than 100 metres wide.²⁷¹

337 Dr Wagner considered a substantial population in an area of 100 hectares to be at least 20 greater gliders, and at least two family groups of three or more yellow-bellied gliders.²⁷² Smaller isolated populations would not in his view be genetically viable. He agreed that isolated habitat is suitable habitat surrounded by a gap of 100 metres or more of unsuitable or hostile habitat — with no tall trees within gliding distance.

338 Accepting, as Associate Professor Wardell-Johnson did,²⁷³ that reasonable minds can differ on what amounts to a substantial population of gliders, I prefer Dr Wagner's opinion on this issue. There are two reasons for that preference. The first is that his opinion relates to the 100 hectare protection area to be established around the populations. The second is that he gave greater weight to the need for isolated

²⁶⁷ First Wardell-Johnson report, [111]; Transcript, 13 May 2022, 513:16–23.

²⁶⁸ First Wardell-Johnson report, [112], [128]–[129].

²⁶⁹ First Wardell-Johnson report, [112].

²⁷⁰ First Wardell-Johnson report, [113]–[114], [129]–[130].

²⁷¹ First Wardell-Johnson report, [115], [131].

²⁷² Wagner report, [22], [29]; Transcript, 13 May 2022, 516:28–518:5.

²⁷³ Transcript, 13 May 2022, 523:11–15.

populations to be genetically viable — a source of gliders rather than a sink.

339 Again, VicForests made limited submissions on the question of what amounts to a substantial population of either species of glider in isolated habitat, for the purposes of the Table 13 prescriptions. It emphasised that the language used in Table 13 is ‘substantial populations’ and not ‘substantial population’, and said that the numbers nominated by the ecologists should not be adopted as a uniform approach, given the different harvesting methods that it might use. VicForests accepted that the evidence might reveal guiding principles for identifying substantial populations of gliders in isolated habitat, but said that any such principles should not be taken as an irreducible minimum.

340 I find that ‘substantial populations’ of greater gliders in ‘isolated habitat’ are at least 20 greater gliders within 100 hectares, and ‘substantial populations’ of yellow-bellied gliders are at least two family groups of at least three yellow-bellied gliders within 100 hectares. Isolated habitat is as described by Associate Professor Wardell-Johnson — suitable habitat surrounded by hostile habitat at least 100 metres wide, where any corridors of suitable habitat through the hostile habitat are less than 100 metres wide.

341 EEG tendered an internal VicForests email in relation to Wheel coupe as an example of population of yellow-bellied gliders that met these criteria, where no SPZ or protection area has yet been proposed.²⁷⁴

Tiger, Lior and Power coupes

342 Mr Lewis gave evidence that, in February 2021, VicForests applied to DELWP to create a Special Protection Zone for the protection of a population of yellow-bellied gliders detected in three adjoining coupes — Tiger, Lior, and Power. The proposed area to be set aside from logging is hatched green in **Figure 4** below.

²⁷⁴ Exhibit P21 - Email from Tanya Britton to Glenn Dooley and Joshua Zadro dated 15 October 2021.

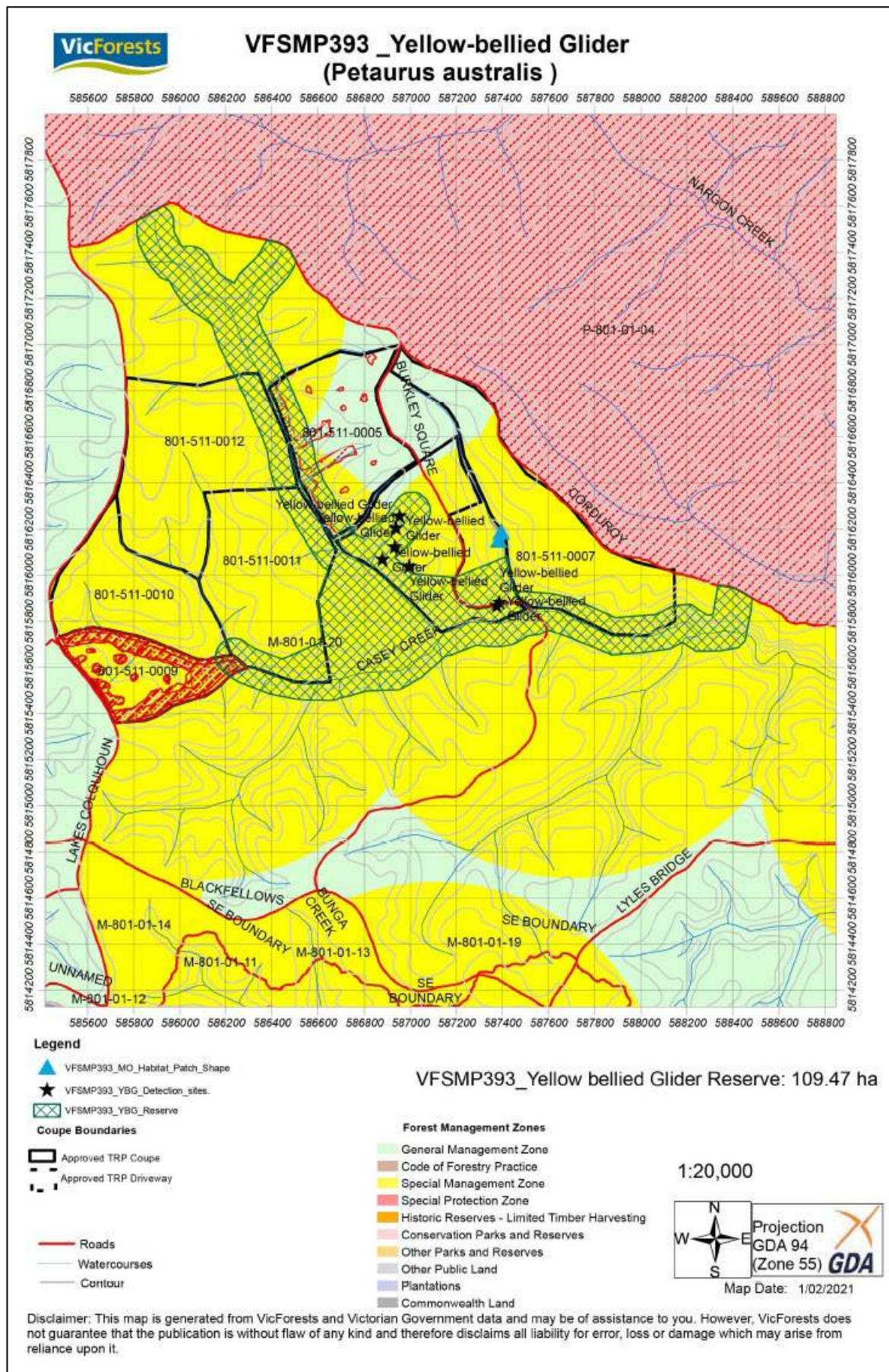


Figure 4: Map of proposed Special Protection Zone for Tiger, Lior and Power coupes, exhibited to the affidavit of Rodney Lewis dated 7 April 2022.

343 According to Mr Lewis, in preparing a draft SPZ or protection area plan, an internal VicForests consultation process takes place across the Operations and Biodiversity teams to ensure the plan is suitably designed. The factors that may be considered and incorporated in the plan include: suitable habitat for the target species; eucalypt species; other flora and fauna present and other protection measures that need to be considered for those species; past disturbance and harvest history; bushfire history; and relevant research or scientific papers.²⁷⁵ Mr Lewis did not explain how these factors had been taken into account in designing the proposed SPZ for Tiger, Lior and Power coupes. Nor is the way in which the factors identified by Mr Lewis influenced the design of the proposed SPZ apparent from the documentation that was submitted by VicForests to DELWP.²⁷⁶

344 I cannot discern from the documentation submitted to DELWP that consideration was given to anything resembling the ten principles identified by Associate Professor Wardell-Johnson in determining the location, composition and shape of the SPZ. The overall impression is that the design was guided by the recovery of merchantable timber, and not by Principle 1 – Precaution, prevention and future-proofing. Two features of the proposed SPZ stand out.

345 First, the odd shape of the proposed SPZ does not accord with Associate Professor Wardell-Johnson's Principle 5. It is linear, rather than round or square. It appears to have been designed around waterways where VicForests is already required to set aside a buffer,²⁷⁷ rather than the existing SPZ immediately to the north-east. There is minimal connection proposed with the existing SPZ, contrary to Principle 9. The proposed SPZ does not have 'minimum edge effect', because the glider detections noted are not a maximum distance from the edges and almost all of the boundaries will be hostile rather than suitable habitat. This would expose the glider

²⁷⁵ Lewis affidavit, [17].

²⁷⁶ Lewis affidavit, RJJL-6 at 19-41.

²⁷⁷ Code, ss 2.2.1.1, 2.2.1.3-2.2.1.4; Standards, cl 3.3.1.1, Table 9 - Minimum widths in metres for buffers (B) and filter (F) strips applicable to various waterway categories, in relation to water quality risk and slope.

population to the edge effects described by Associate Professor Wardell-Johnson in his evidence.

346 Second, there are a number of yellow-bellied glider detections outside the SPZ, within the area that VicForests plans to harvest. This is apparent from the operations map for Lior coupe, which is **Figure 5** below. The proposed SPZ is the red hatched area along the western edge of the coupe. This does not accord with Principle 2, that the area to be reserved from harvesting should include all recent verifiable records of yellow-bellied gliders in the immediate vicinity.

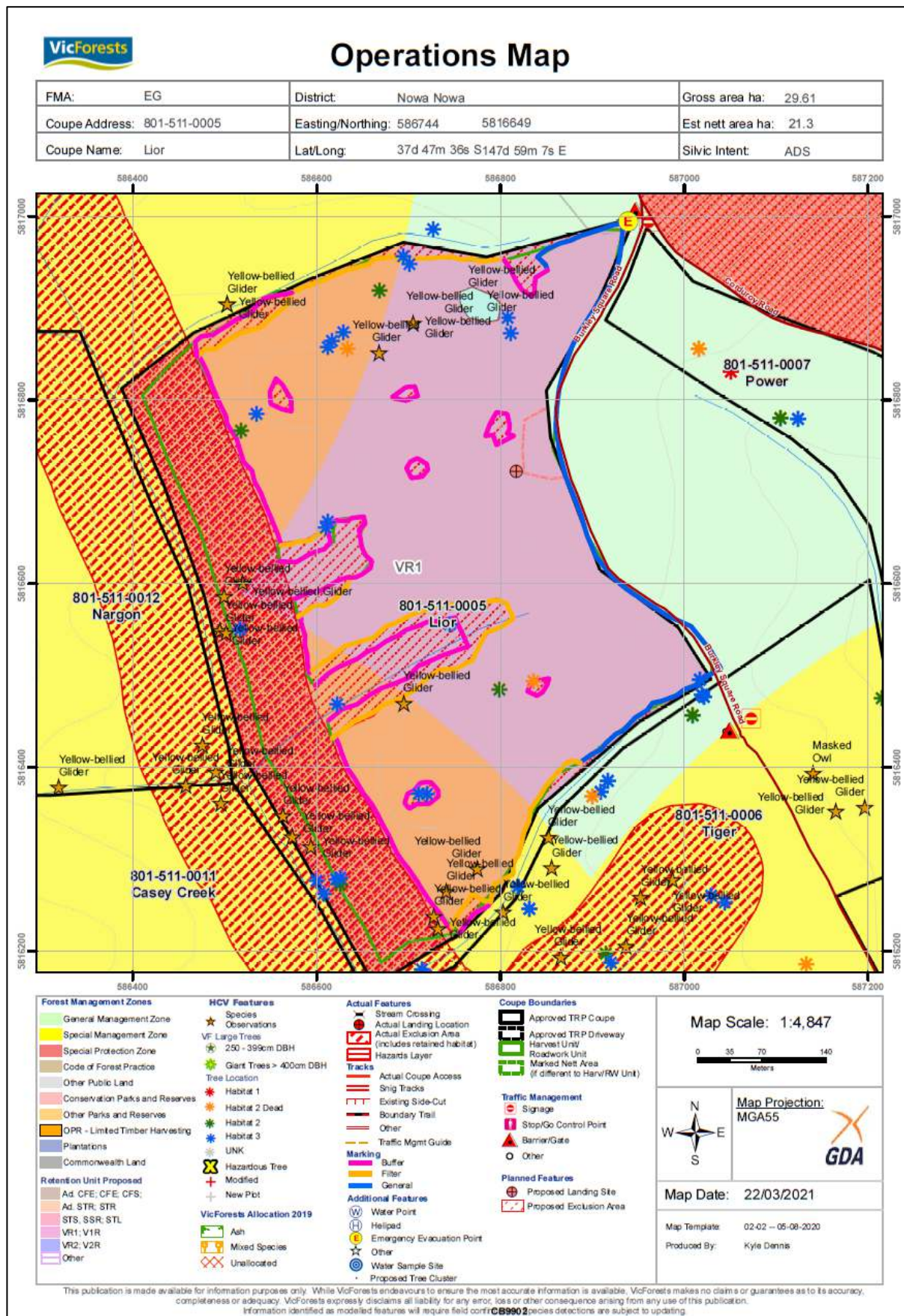


Figure 5: Operations Map for Lior coupe, tendered by the plaintiffs.

347 These observations are consistent with Associate Professor Wardell-Johnson's assessment of the proposed SPZ for Tiger, Lior and Power coupes. He said:²⁷⁸

The SPZ requested as a result of YBG detections in Lior, Tiger and Power coupes does include suitable habitat for YBGs. However, the proposed SPZ would fall short of providing ideal habitat for this species and may in fact create 'sink' habitat. That is because, there are proposed logging coupes all around the proposed SPZ, and because a substantial area of the proposed SPZ is linear habitat, which does not include records of the species. A more appropriate SPZ, taking account the 10 principles prepared to guide the formation of these SPZs would include Tiger and Power coupes, and thus the junction of the two large creeks, and link more strongly to the existing reserve P-801-01-04. This would maximise area to edge ratio, maximise actual habitat and detections and maximise links to other mature forest. I have not got details of logging history, but suspect it would also minimise disturbance history. The current proposal includes a great deal of stream zone habitat (good for many biodiversity values, but not necessarily in itself valuable to YBGs) and includes considerable area of linear reserve (hence high edge to area issues), as well as 10% recently logged (1966) habitat. The alternative would also include substantial stream-zone habitat, but be more directly linked to the conservation of the YBG. Thus, Tiger and Power coupes would not be available for logging, should the SPZ be appropriately designed to conserve the gliders.

348 I find that VicForests' proposed SPZ for the yellow-bellied gliders detected in and around Tiger, Lior and Power coupes is not 'suitable habitat' for those gliders, as required by cl 4.2.1.3 and Table 13 of the Standards.

Proposed SPZs in other coupes

349 Mr Lewis exhibited documentation that VicForests had submitted to DELWP for the creation of yellow-bellied glider reserves in and around four other coupes in East Gippsland:

- (a) Shake Up and Haggis coupes, shown in **Figure 6**;
- (b) Van Halen coupe, shown in **Figure 7**; and
- (c) Petri Kaw coupe, shown in **Figure 8**.

²⁷⁸ Third Wardell-Johnson report, [42].

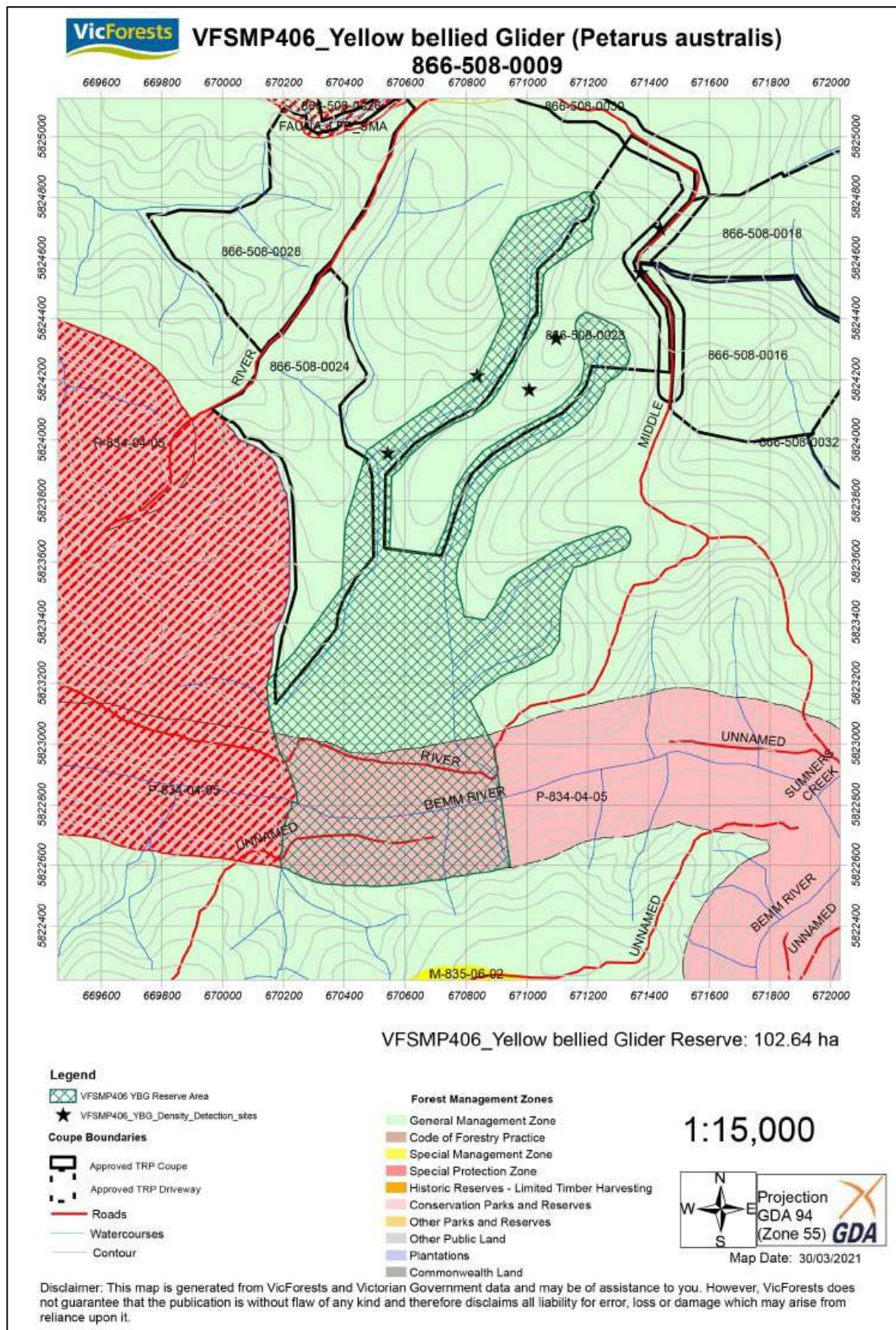


Figure 6: Map of proposed yellow-bellied glider reserve in Shake Up and Haggis coupes, exhibited to the affidavit of Rodney Lewis dated 7 April 2022.

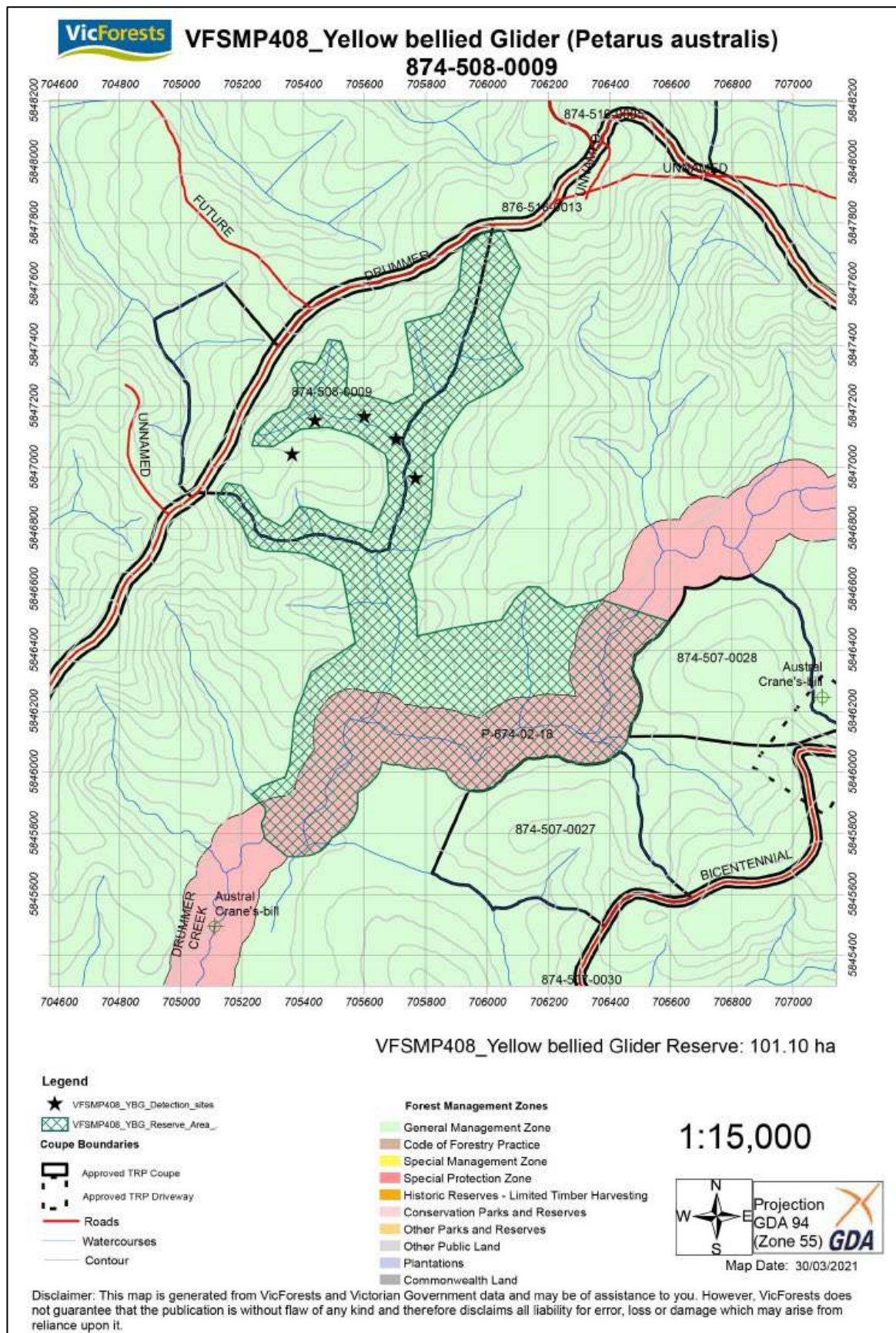


Figure 7: Map of proposed yellow-bellied glider reserve in Van Halen coupe, exhibited to the affidavit of Rodney Lewis dated 7 April 2022.

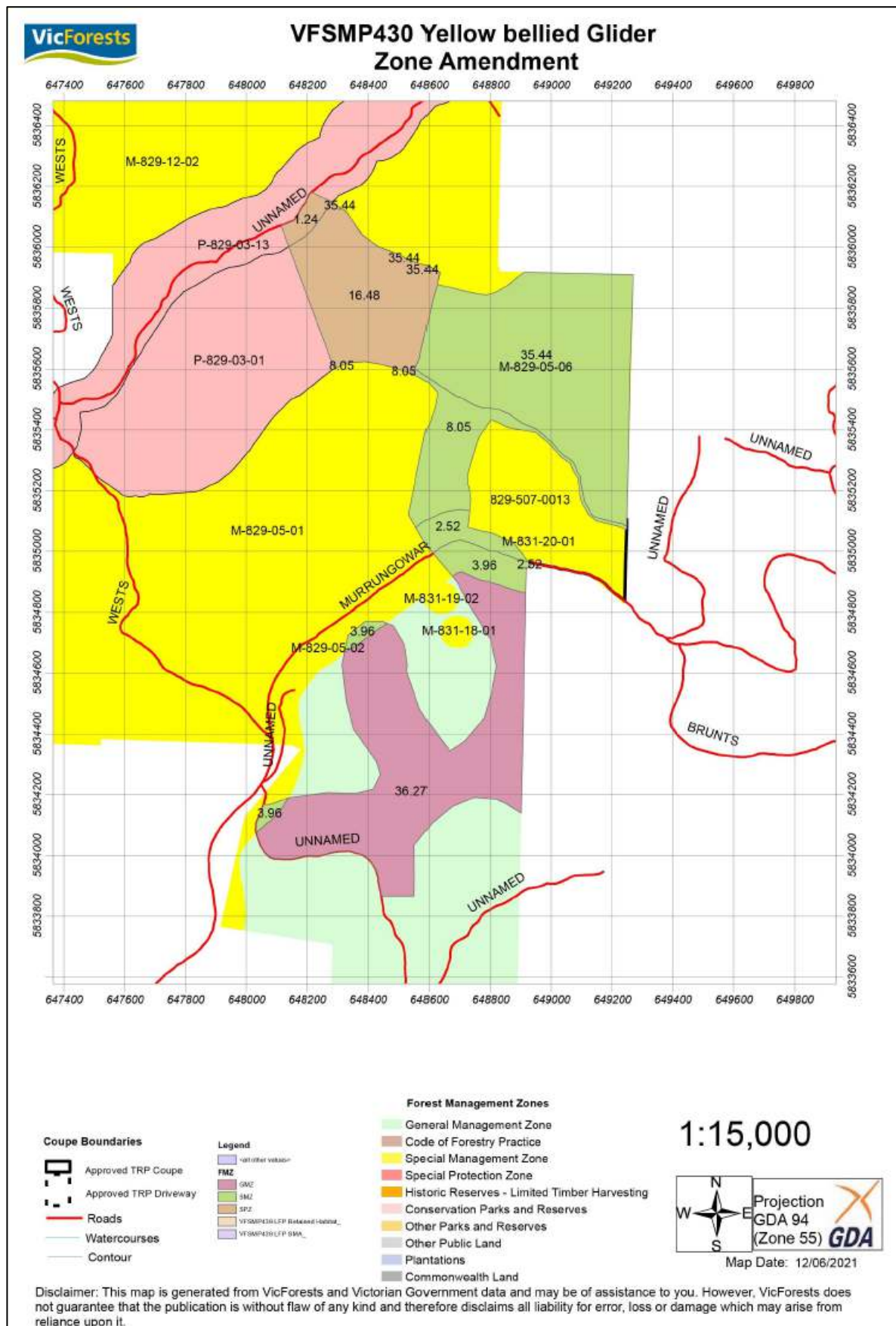


Figure 8: Map of proposed yellow-bellied glider reserve amendment in Petri Kaw coupe, exhibited to the affidavit of Rodney Lewis dated 7 April 2022.

350 Similar patterns emerge from this documentation. The design of the proposed SPZ is not explained by reference to factors identified by Mr Lewis, and they do not accord with Associate Professor Wardell-Johnson's ten principles for determining suitable habitat. In particular, the proposed SPZs are linear, rather than round or square, and their shape does not minimise edge effects. In the cases of Shake Up and Haggis coupes and Van Halen coupe, the glider detections plotted on the map of the proposed reserve are not the maximum distance from the edge — in fact, some are in the area that VicForests proposes to harvest. In all three cases, the proposed SPZ does not appear to be suitable habitat for the detected population of yellow-bellied gliders.

351 Associate Professor Wardell-Johnson's opinion was that all of Haggis and Shake Up coupes and all of Van Halen coupe south of Drummer Road should be included in a proposed SPZ or protection area of suitable habitat for the detected yellow-bellied gliders in those coupes.²⁷⁹ He did not have enough information to assess the proposed SPZ for Petri Kaw, but observed that the shape was 'somewhat unwieldy from a management perspective'.²⁸⁰ He suggested that VicForests might include an impartial ecologist in any team set up to apply the ten principles for identifying suitable habitat. Otherwise, 'it is possible that considerable expenditure and staff time will be expended with little benefit to the gliders'.²⁸¹

Issue 13: Is VicForests likely to misapply cl 4.2.1.3 of the Standards in future?

352 In designing a protection area of 'suitable habitat' and identifying 'substantial populations' of gliders in 'isolated habitat', VicForests should be guided by the 'advice of relevant experts and relevant research in conservation biology and flora and fauna management'.²⁸² The evidence of two such experts, informed by relevant research, is that the location, composition and shape of a protection area of approximately 100 hectares of 'suitable habitat' for a relative abundance of greater

²⁷⁹ Third Wardell-Johnson report, [43]–[44].

²⁸⁰ Third Wardell-Johnson report, [45].

²⁸¹ Third Wardell-Johnson report, [46].

²⁸² Code, s 2.2.2.3.

gliders or yellow-bellied gliders should be guided by the ten principles discussed above.²⁸³ Their evidence also provided criteria for identifying ‘substantial populations’ of gliders in ‘isolated habitat’.²⁸⁴

353 Mr Lewis is VicForests’ Regional Manager East Gippsland. I am satisfied based on his evidence that:

- (a) VicForests currently has no criteria for determining whether a population of gliders detected in East Gippsland is a ‘substantial population’ in ‘isolated habitat’ for the purposes of Table 13.
- (b) VicForests is not guided by the ten principles for determining suitable habitat when designing a protection area of suitable habitat for a threshold population of gliders. In particular, VicForests is not guided by Principle 1 – Precaution, prevention and future-proofing, and it does not seek to include all recent verifiable records of gliders in the immediate vicinity within the protection area, as required by Principle 2. The shapes of all of the proposed SPZs (now called protection areas) that Mr Lewis provided by way of example were unsuitable, being linear rather than round or square, and not designed to minimise edge effects.
- (c) VicForests does not at present intend to apply the ten principles for determining suitable habitat, in its application of the Table 13 prescriptions.²⁸⁵

354 The plaintiffs also tendered some correspondence in relation to a protection area that VicForests applied after the November 2021 amendments to the Code and Standards, in respect of greater gliders detected in Pin Tail and Donkey coupes.²⁸⁶

²⁸³ See [323]–[333] above.

²⁸⁴ See [334]–[340] above.

²⁸⁵ Lewis affidavit, [25](b), [27]; Transcript, 11 May 2022, 328:17–329:12.

²⁸⁶ Exhibits P26 - Email from Tanya Britton to James Gunn dated 8 December 2021 with selected attachments; P27 - Email from Tanya Britton to Marc Perri dated 8 December 2021 with selected attachments; P28 - Email from Tanya Britton to Marc Perri dated 22 December 2021 with selected attachments.

The design of this protection area does not appear to accord with the ten principles. In particular, there are a number of glider detections along the edge of or outside the proposed protection area, and the retained patches do not seem to minimise edge effects or maximise connections with other retained habitat.

355 Primarily on the basis of Mr Lewis' evidence, I am satisfied that VicForests is likely to misapply cl 4.2.1.3 of the Standards in future. The most recent documentation of the protection area in Pin Tail and Donkey coupes reinforces that finding.

356 However, I am not persuaded by the plaintiffs' argument that VicForests is obliged by cl 4.2.1.3 and Table 13 to apply a separate protection area of 100 hectares of suitable habitat for each threshold population of gliders that is detected in East Gippsland.

357 It is clear from other evidence that a protection area designed in accordance with the ten principles can accommodate more than one population of gliders. Greater gliders' average maximum home range is between 3 and 4.1 hectares,²⁸⁷ while a family group of yellow-bellied gliders has a home range of between 20 and 85 hectares.²⁸⁸ The maximum areas that Associate Professor Wardell-Johnson proposed should be set aside from timber harvesting were 18 hectares centred on the home range of a greater glider, and 38 hectares around the home range of a family group of three or more yellow-bellied gliders. These areas were calculated based on the radius of the relevant glider's home range plus a 100 metre buffer. I do not understand Principle 5 – Size and shape considerations to mean that the distance from the edge of the protection area to the recorded glider detections should be more than this radius.

358 The prescription is met so long as a protection area of 100 hectares of suitable habitat is applied for a detected population. The protection area need only be 'suitable habitat' for those gliders; there is no requirement that it be centred on the

²⁸⁷ See [80] above.

²⁸⁸ See [86] above.

population.

Issue 14: Should injunctions be granted?

359 The plaintiffs seek injunctions in each proceeding in the following form:

1. The defendant must not, whether by itself, its servants, agents, contractors or howsoever otherwise, conduct Timber Harvesting Operations in any coupe in the East Gippsland FMA/Central Highlands FMAs unless surveys have been conducted to identify Greater Gliders and Yellow-bellied Gliders in that coupe [or in that coupe and the area 75 metres beyond the boundary of that coupe] in accordance with the Survey Protocol or a protocol that is no less effective in identifying Greater Gliders and Yellow-bellied Gliders.
2. The defendant must not, whether by itself, its servants, agents, contractors or howsoever otherwise, conduct Timber Harvesting Operations within a circular area of radius 240 metres from any Greater Glider sighted in the Central Highlands in the surveys referred to in Order 1, centred on the location of that Greater Glider.
3. The defendant must not, whether by itself, its servants, agents, contractors or howsoever otherwise, conduct Timber Harvesting Operations within a circular area of radius 350 metres from the approximate centre of any sighting of at least three Yellow-bellied Gliders within a 20 hectare area in the Central Highlands in the surveys referred to in Order 1.

360 The term 'Survey Protocol' is defined in Annexure A to the plaintiffs' proposed orders. It is the plaintiffs' survey protocol for carrying out spotlight surveys for greater gliders and yellow-bellied gliders, set out at [259] above.

Plaintiffs' submissions

361 The plaintiffs relied on the principles concerning injunctive relief set out *Brown Mountain*, in which EEG sought injunctions to restrain VicForests from undertaking unlawful logging at Brown Mountain. Those principles were:

- (a) There must be some threatened action or inaction on behalf of the defendant that binds its conscience before equity will intervene by way of injunction against it.²⁸⁹
- (b) It is necessary to identify the legal or equitable rights determined at trial that

²⁸⁹ *Brown Mountain*, [754].

form the potential basis of injunctive relief.²⁹⁰

- (c) The relief should be framed by conditions limiting its impact to what is necessary to avoid the identified unlawful conduct.²⁹¹
- (d) Injunctive relief should be formulated in terms that crystallise in ascertainable obligations.²⁹²

362 The plaintiffs submitted that this was an appropriate case for injunctive relief because, as was the case in *Brown Mountain*, logging in East Gippsland and the Central Highlands will be unlawful unless VicForests complies with ss 2.2.2.2 and 2.2.2.4 of the Code. Here, as in *Brown Mountain*, there is a public interest in the making of an order preventing unlawful logging.

363 The plaintiffs contended that VicForests has, by its conduct, indicated its intention to continue to harvest timber in East Gippsland and the Central Highlands without applying the precautionary principle to the conservation of biodiversity values, as s 2.2.2.2 of the Code requires. In particular, the plaintiffs submitted:

- (a) VicForests has steadfastly refused to carry out surveys in accordance with the plaintiffs' survey protocol, notwithstanding expert evidence that it can be done safely, and the lack of evidence that the cost of doing so outweighs the benefits.
- (b) VicForests' adherence to variable retention harvesting, and its refusal to implement the measures proposed by the plaintiffs, is not consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on ecology and conservation values. The 40% retention prescription, as it is applied by VicForests, is equivalent to clearfelling, which the experts agree will result in the deaths of both glider

²⁹⁰ *Brown Mountain*, [755].

²⁹¹ *Brown Mountain*, [759].

²⁹² *Brown Mountain*, [762].

species.

- (c) VicForests' approach is contradicted by the evidence of experts on both sides. This indicates a lack of careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment and a failure to assess the risk-weighted consequences of various options.

364 The plaintiffs further submitted that VicForests has also, by its conduct in the proceeding, indicated an intention not to comply with s 2.2.2.4 of the Code. It does not intend to take action to identify gliders during planning, or to address risks to those gliders by implementing protection areas.

365 The plaintiffs contended the injunctions they seek would impose ascertainable obligations, and are framed so as to limit their impact to the minimum extent necessary to ensure that forest is not logged unless proportionate measures are taken to locate and protect threatened gliders and their habitat. They submitted that the Court should exercise its discretion to grant the injunctions because:

- (a) VicForests has stridently refused to conduct the relevant surveys, irrespective of orders the Court might make, in the face of evidence from its own experts that refutes the purported grounds for its refusal; and
- (b) VicForests has maintained its insistence on logging the home range of greater gliders and yellow-bellied gliders, using what are effectively clearfell methods. It has maintained a construction of the Code that absolves it from any obligation to protect either species in the Central Highlands or, unless specified detection thresholds are reached, in East Gippsland – contrary to the interpretation of s 2.2.2.2 in *Leadbeater's Possum No 4*, with which the Full Court agreed in *Leadbeater's Possum Appeal*.

366 Anticipating the possibility that they might not succeed in every aspect of their case, the plaintiffs submitted that the Court is not limited by the form of order sought or

pleaded by any party.²⁹³ In reply, they drew attention to a number of authorities for the proposition that the drafting of an injunction to restrain threatened future unlawful conduct ‘requires a practical and sensible evaluative judgment’, and that there are limits to the application of the principle that an injunction should be stated in certain terms.²⁹⁴ They submitted that an injunction that includes some evaluative standard — such as ‘reasonable’ or ‘appropriate’ — might be sufficiently certain, and that an injunction in general terms might be reasonably capable of obedience in a given case.²⁹⁵

367 The plaintiffs also rejected VicForests’ suggestion that they were seeking an injunction to enforce the criminal law. They submitted that the provisions of the Code are essentially regulatory, and are not primarily concerned to create criminal offences.²⁹⁶ They pointed out that the relief that they seek has nothing to do with s 45 of the Timber Act, and said that the injunctions sought could not be described as injunctions to enforce that section. They agreed that an injunction that merely repeats the provisions of a statutory requirement will generally be inappropriate, but said that was not the case here, where the injunctions sought are directed at preventing the precise conduct that is the subject of the proceedings.²⁹⁷

VicForests’ submissions

368 VicForests drew attention to authorities for the proposition that injunctions should be expressed in clear and unambiguous language, so that persons bound are not left

²⁹³ Referring to *Bridgewater v Leahy* (1998) 194 CLR 457, [127] (Gaudron, Gummow and Kirby JJ).

²⁹⁴ Referring to *Director of Consumer Affairs (Vic) v DW International Trading Pty Ltd* [2010] VSC 515, [55]; *Curro v Beyond Productions Pty Ltd* (1993) 30 NSWLR 337, 349; *Bankstown City Council v Alando Holdings Pty Ltd* (2004) 135 LGERA 312, [106].

²⁹⁵ Referring to *Maggbury Pty Ltd v Hafele Australia Pty Ltd* (2001) 210 CLR 181, [104] (Callinan J), and a series of Federal Court decisions applying *Australian Competition and Consumer Commission v Real Estate Institute of Western Australia Inc* (1999) 161 ALR 79, [26], such as *Australian Competition and Consumer Commission v Pacific National Pty Ltd* (2020) 277 FCR 49, [363] (Middleton and O’Byrne JJ).

²⁹⁶ Referring to *Cohen v City of Perth* (2000) 112 LGERA 234, [173].

²⁹⁷ Referring to *Australian Competition and Consumer Commission v Z-Tek Computer Pty Ltd* (1997) 78 FCR 197, 203–4; *Australian Competition and Consumer Commission v Smash Enterprises Pty Ltd* [2011] FCA 375, [16].

to wonder what it is they must not do.²⁹⁸ It argued that the injunctions sought are imprecise, uncertain, and objectionable in form. It posed a number of questions about the terms of the proposed injunctions to seek to demonstrate that difficult issues might arise with their practical application.

369 VicForests also relied on the principle that the Court should refuse to grant an injunction to restrain the breach of a statutory prescription or proscription, where the breach attracts criminal liability.²⁹⁹ It submitted that the Court ought not grant injunctive relief restraining the breach of a statutory prescription or proscription with criminal consequences unless:

- (a) the statutory scheme, properly construed, contemplates the availability of injunctive relief at the suit of a person in the position of a moving party, as an adjunct to the relevant statutory prescription or proscription; or
- (b) there exist exceptional circumstances, which usually would include a history of previous contraventions of the relevant prohibition.

370 VicForests argued that the pre-harvest survey injunction sought by the plaintiffs sought to restrain conduct that is the subject of criminal sanctions for a breach of s 45 of the Timber Act. It said that it was irrelevant that the injunction did not in terms seek to enjoin VicForests from breaching the Code, or s 45, because that was its effect in substance. It went further, saying that the only civil remedy contemplated by the statutory scheme is an injunction at the suit of the Secretary, under s 89(1) of the CFL Act, restraining a person from contravening a 'relevant law', which includes s 45 of the Timber Act. It contrasted the scheme with the

²⁹⁸ *ICI Australia Operations Pty Ltd v Trade Practices Commission* (1992) 38 FCR 248, 259 (Lockhart J), 263 (Gummow J), 268 (French J); *Hogan v Hinch* (2011) 243 CLR 506, [58] (Gummow, Hayne, Heydon, Crennan, Kiefel and Bell JJ); *Real Estate Institute*, [26]; *Animal Liberation (Vic) Inc v Gasser* [1991] 1 VR 51, 57.

²⁹⁹ Referring to *Commonwealth v John Fairfax & Sons Ltd* (1980) 147 CLR 39, 49-50 (Mason J); *Australian Broadcasting Corporation v Lenah Game Meats Pty Ltd* (2001) 208 CLR 199, [49] (Gleeson CJ); *Australian Competition and Consumer Commission v Dataline.Net.Au Pty Ltd (in liq)* (2007) 161 FCR 513, [110], [114].

general standing to seek an injunction given by s 475 of the EPBC Act.

Consideration

371 In considering whether to grant injunctive relief, my starting point is that both plaintiffs have standing to seek equitable relief to secure compliance by VicForests with the Code. Each plaintiff has standing because it has a special interest in preserving the native forests of its region – East Gippsland in the case of EEG, and the Central Highlands in KFF’s case. The standing of both plaintiffs to seek similar relief has previously been ruled on by this Court, and was not disputed by VicForests in these proceedings.³⁰⁰

372 VicForests’ argument that the statutory scheme does not accommodate a grant of injunctive relief at the suit of a private litigant is, in my view, an attempt to revive an argument that I considered and rejected in *Kinglake Friends of the Forest Inc v VicForests (No 4)*.³⁰¹ It also disregards the fact that, in *Brown Mountain*, injunctions were granted to enforce compliance with an earlier version of the statutory scheme that now regulates its timber harvesting activities.

373 In these proceedings, the plaintiffs do not seek injunctions to enforce the criminal law. Section 45 of the Timber Act did not feature in their case. The plaintiffs seek injunctions to preserve the native forests of East Gippsland and the Central Highlands, in which they have a special interest. They specifically seek injunctions in order to secure VicForests’ compliance with provisions of the Code that require it to apply the precautionary principle to the conservation of biodiversity values, to identify biodiversity values during planning, and to take management actions to address risks to those values. The plaintiffs have made out their case that VicForests’ current practices do not comply with these provisions in relation to greater gliders and yellow-bellied gliders, and that it intends to continue those practices in its future timber harvesting operations in East Gippsland and the

³⁰⁰ See [3] above.

³⁰¹ [2021] VSC 70, [27]–[30], [35]–[43]. VicForests’ appeal did not dispute that aspect of my judgment: see *VicForests v Kinglake Friends of the Forest Inc* (2021) 66 VR 143.

Central Highlands. That is a sufficient basis to grant injunctive relief.

374 In any event, I consider that there are exceptional circumstances here that would justify granting injunctions to restrain threatened failures to comply with ss 2.2.2.2 and 2.2.2.4 of the Code, notwithstanding the theoretical possibility that those failures may attract criminal sanctions. Those circumstances are:

(a) My conclusions about the proper interpretation of s 2.2.2.2 of the Code and the application of the precautionary principle accord with those reached by Mortimer J in *Leadbeater's Possum No 4*. VicForests succeeded in its appeal against that judgment, on a single ground of appeal concerning the construction of s 38(1) of the EPBC Act, and the exemption it provides from the operation of Pt 3 the EPBC Act. However, the Full Court rejected all of VicForests' grounds of appeal concerning the interpretation of s 2.2.2.2 and the application of the precautionary principle.³⁰² It also dismissed the grounds of appeal against Mortimer J's findings that VicForests had failed to comply with s 2.2.2.2 in various respects and was unlikely to comply with it in future.³⁰³ Those findings were damning of VicForests' approach to applying the precautionary principle to the conservation of greater gliders.³⁰⁴ They might have been expected to prompt some reflection and adjustment of VicForests' approach – regardless of the precedential value of Mortimer J's judgment.

(b) However, in this proceeding, VicForests' position in relation to s 2.2.2.2 of the Code and the precautionary principle was strikingly similar to its position in the *Leadbeater's Possum* litigation. It maintained that s 2.2.2.2 should be construed narrowly, and that the precautionary principle is only engaged in circumstances where specific timber harvesting operations present a threat of

³⁰² *Leadbeater's Possum Appeal*, [163]–[184] (Ground 7), [185]–[191] (Ground 8), [192]–[197] (Ground 9).

³⁰³ *Leadbeater's Possum Appeal*, [198]–[243] (Grounds 10 to 15).

³⁰⁴ *Leadbeater's Possum No 4*, [943]–[962].

serious or irreversible environmental damage. That position was rejected by Mortimer J and the Full Court, and it has been rejected again in these proceedings.

- (c) More concerning is that VicForests' approach to pre-harvest surveys for greater gliders and its harvesting methods in coupes where they are detected (or may be present) is not substantially different from that found in *Leadbeater's Possum No 4*. Justice Mortimer found that VicForests was not applying the precautionary principle to the conservation of greater gliders, and was not likely to do so in future. I have also found that VicForests' current survey practice and its 'almost universal' use of variable retention harvesting fall well short of what the precautionary principle requires for the conservation of greater gliders. In particular, VicForests still does not thoroughly survey coupes for greater gliders when planning timber harvesting operations.³⁰⁵ It still plans to harvest areas of forest that greater gliders are known to inhabit, in the face of scientific opinion that this is likely to cause the destruction of those gliders.³⁰⁶ It still maintains that variable retention harvesting is a less intensive method that meets its obligation to apply the precautionary principle, when the evidence is that it is not effective to conserve greater gliders.³⁰⁷
- (d) Section 2.2.2.2 and the definition of the precautionary principle in the Code, as amended in November 2021, now contain an explanatory note that instructs VicForests that the precautionary principle is to be understood and applied in s 2.2.2.2 as it was by Osborn J in *Brown Mountain*. That was another case in which it was found that VicForests' plans to log coupes in East Gippsland without conducting pre-harvest surveys did not comply with the

³⁰⁵ See [270], [295]–[296] above; cf *Leadbeater's Possum No 4*, [945]–[949].

³⁰⁶ See [223]–[227] above; cf *Leadbeater's Possum No 4*, [1014]–[1015], [1038].

³⁰⁷ See [224]–[227] above; cf *Leadbeater's Possum No 4*, [954], [1038]–[1076].

precautionary principle in respect of three threatened species.³⁰⁸ Despite the recent clarification of the Code, in these proceedings VicForests maintained that s 2.2.2.2 and the precautionary principle should be understood in a different way, and do not require it to undertake adequate pre-harvest surveys for two other threatened species — greater gliders and yellow-bellied gliders. I have rejected those arguments.

- (e) In these proceedings, VicForests has continued to resist the idea that its responsibility to apply the precautionary principle to the conservation of biodiversity values means — in the case of greater gliders and yellow-bellied gliders — that it should take care that its timber harvesting operations do not kill them by making their habitat unliveable. It does so despite the expert ecological evidence — including that of its own expert, Dr Wagner — that the conservation of these species requires more intensive pre-harvest surveys and less intensive methods of harvesting timber.

375 For all of those reasons, I consider it appropriate to grant injunctive relief.

376 Turning to the terms of the injunctions, it will by now be apparent that I am not minded to grant injunctions in the exact terms sought by the plaintiffs. In particular, I do not consider that the plaintiffs' survey protocol is appropriate for inclusion in an injunction. In addition, I prefer Dr Wagner's approach to the application of the precautionary principle to the conservation of greater gliders and yellow-bellied gliders, as the more proportionate of the two approaches.

377 I propose to grant injunctions to the following effect, to reflect the conclusions I have reached in relation to Issues 5, 8, 9, 10 and 11:³⁰⁹

- (a) VicForests must not, whether by itself, its servants, agents, contractors or otherwise, conduct timber harvesting operations in any coupe in the East

³⁰⁸ The giant burrowing frog, the large brown tree frog, and the spot-tailed quoll: *Brown Mountain*, [501]–[514], [632]–[636].

³⁰⁹ See especially [216]–[222], [252]–[253], [295], [305]–[306], [310]–[311] above.

Gippsland FMA/Central Highlands FMAs that may contain habitat for gliders, unless the coupe has been surveyed using a reasonably practicable survey method that is likely to:

- (i) detect any greater gliders that may be present in the coupe and locate their home ranges; and
 - (ii) detect any yellow-bellied gliders that may be present in the coupe and identify their feed trees and hollow-bearing trees in the coupe.
- (b) VicForests must not, whether by itself, its servants, agents, contractors or otherwise, conduct timber harvesting operations in any coupe in the East Gippsland FMA/Central Highlands FMAs in which greater gliders have been detected unless:
- (i) it excludes the greater gliders' home ranges from timber harvesting operations; and
 - (ii) it retains at least 60% of the basal area of eucalypts in the harvested area of the coupe.
- (c) VicForests must not, whether by itself, its servants, agents, contractors or otherwise, conduct timber harvesting operations in any coupe in the East Gippsland FMA/Central Highlands FMAs in which yellow-bellied gliders have been detected unless it retains at least 60% of the basal area of eucalypts in the harvested area of the coupe, including all identified feed trees and hollow-bearing trees within the coupe.

378 I will ask the parties to prepare draft orders in each proceeding that give effect to my conclusions, taking these proposed orders as their starting point. The draft orders should include definitions of terms such as 'timber harvesting operations', 'coupe', 'East Gippsland FMA' and 'Central Highlands FMAs' (as applicable).

379 Before turning to the plaintiffs' claims for declaratory relief, I should explain why I

have not accepted VicForests' submissions about the form of the injunctions.

380 VicForests took an 'all or nothing' position in relation to injunctions sought by the plaintiffs. It has maintained throughout the litigation that it would not engage in an 'auction' about the adequacy of its survey methods, and that no injunction should be ordered unless the plaintiffs made out their case for injunctions in the form sought in their pleadings. VicForests said that it would be unfair if it transpired that the relief granted was different from the relief sought in the pleaded case that it has attempted to meet.

381 I do not accept that position as a matter of law. Equitable remedies such as injunctions are inherently flexible and can be fashioned to do practical justice between the parties.³¹⁰ As Gaudron, Gummow and Kirby JJ said in *Bridgewater v Leahy*:³¹¹

Once a court has determined upon the existence of a necessary equity to attract relief, the framing, or, as it is often expressed, the moulding, of relief may produce a final result not exactly representing what either side would have wished. However, that is a consequence of the balancing of competing interests to which, in the particular circumstances, weight is to be given.

382 Here, both plaintiffs have a special interest in the preservation of native forests in their region and so have standing to seek equitable relief to secure compliance by VicForests with the Code. They have established that VicForests' current surveying and harvesting practices in East Gippsland or the Central Highlands do not comply with its obligations under s 2.2.2.2 and 2.2.2.4 of the Code, and that VicForests does not intend to change those practices. They have established the necessary equity to attract relief, which may be framed in a way that reflects my findings.

383 Nor do I accept that it would be unfair to VicForests to grant injunctions in a different form from those sought by the plaintiffs. The plaintiffs' pleaded case has never been primarily about the method by which VicForests should conduct

³¹⁰ *Grimaldi v Chameleon Mining NL (No 2)* (2012) 200 FCR 296, [503]. See also *Bateman's Bay Local Aboriginal Land Council v The Aboriginal Community Benefit Fund Pty Ltd* (1998) 194 CLR 247, [24]-[32] (Gaudron, Gummow and Kirby JJ) as to equitable remedies in public law.

³¹¹ *Bridgewater v Leahy* (1998) 194 CLR 457, [127] (Gaudron, Gummow and Kirby JJ).

spotlight surveys or the exact location and dimensions of areas it should exclude from harvesting for the protection of gliders. Their central claim is that VicForests should not log State forests in East Gippsland and the Central Highlands without complying with ss 2.2.2.2 and 2.2.2.4 of the Code in relation to greater gliders and yellow-bellied gliders. Their case throughout has been about the measures that VicForests is obliged by those provisions to take for the conservation of those two species in planning and conducting timber harvesting operations.

384 VicForests has had a full opportunity to meet that case. It presented detailed evidence about its surveying and timber harvesting practices, from witnesses including its Chief Executive Officer, Ms Dawson, its Manager Forest Practices, Mr Gunn, its Director Environmental Performance, Mr Paul, its Manager, Forest Conservation and Research, Mr Fitzpatrick, and its Regional Manager East Gippsland, Mr Lewis. It also presented expert evidence from Dr Wagner, a qualified and experienced ecologist of its own choosing. It made comprehensive written and oral submissions based on that evidence. The conclusions I have reached have taken all of that into account, and the injunctions I propose to grant are in large part based on Dr Wagner's opinions.

385 I have given anxious consideration to the need for injunctive relief to be formulated in terms that give rise to ascertainable obligations.³¹² Both sides referred to a great deal of authority on this question, some of which emphasises the desirability of clarity and certainty in an injunction, and some of which reinforces the need for the remedy to be applied practically and with good sense, leaving room for some evaluative judgment. Ultimately, an injunction is a discretionary remedy that is to be shaped to the particular facts and circumstances of the case, and the extent to which the judgment has resolved the issues to which the injunction relates.³¹³

386 Injunctions to the effect proposed will do practical justice between the parties, and will enable VicForests to continue sustainable timber harvesting operations while

³¹² *Brown Mountain*, [762].

³¹³ *ICI Australia*, 261 (Lockhart J), 263 (Gummow J), 268 (French J);

meeting its legal obligations to conserve greater gliders and yellow-bellied gliders. I do not think that there is any real danger that VicForests will not know what it is and is not permitted to do by the injunctions. It is accustomed to operating within a regulatory scheme that involves matters of degree and subjective judgment.³¹⁴ The findings made in this judgment, and the reasons given for them, clarify two aspects of that scheme – the obligation in s 2.2.2.2 to apply the precautionary principle to the conservation of biodiversity values, and the obligations imposed by s 2.2.2.4 to identify biodiversity values during planning and take actions to address risks to those values.

Issue 15: Should declarations be granted?

387 The plaintiffs seek the following declarations in both proceedings:

Clause 2.2.2.2 and, independently, clause 2.2.2.4 of the Code requires that:

- i. the defendant, during planning and prior to conducting roading or harvesting in any coupe in the East Gippsland FMA/Central Highlands FMAs conduct surveys and/or rely upon surveys that have been conducted to identify Greater Gliders and Yellow-bellied Gliders in that coupe [or in that coupe and the area 75 metres beyond the boundary of that coupe] in accordance with the Survey Protocol or a protocol that is no less effective in identifying Greater Gliders and Yellow-bellied Gliders;
- ii. for each sighting of a Greater Glider:
 1. Timber Harvesting Operations must be excluded from a circular area of radius 240 metres centred on the location of the Greater Glider sighting; and
 2. the area excluded from Timber Harvesting Operations must be protected, by appropriate buffers if required, from damage by regeneration burns; and
- iii. for each sighting of at least 3 Yellow-bellied Gliders within a 20 hectare area:
 1. Timber Harvesting Operations must be excluded from a circular area of radius 350 metres from the approximate centre of the locations of those gliders; and
 2. the area excluded from Timber Harvesting Operations must be protected, by appropriate buffers if required, from damage by

³¹⁴ As discussed in *Leadbeater's Possum Appeal*, [134]–[144].

regeneration burns.

388 I do not consider that declarations in that form are appropriate or necessary, in light of the injunctions to be granted in both proceedings.

389 In addition, in the East Gippsland proceeding, EEG seeks the following declarations in relation to the application of cl 4.2.1.3 of the Standards and the Table 13 prescriptions:

- a. For purposes of the Management Action for the Greater Glider in the East Gippsland Forest Management Area in Table 13 of the Standards, a substantial population in isolated habitat is a population of more than two Greater Gliders located in greater than three hectares of suitable habitat that is surrounded by at least 100 metres width of Hostile Habitat where any corridors of suitable habitat traversing the Hostile Habitat are less than 100 metres in width.
- b. For purposes of the Management Action for the Yellow-bellied Glider in the East Gippsland Forest Management Area in Table 13 of the Standards, a substantial population in isolated habitat is a population of more than two Yellow-bellied Gliders located in greater than 30 hectares of suitable habitat that is surrounded by at least 100 metres width of Hostile Habitat where any corridors of suitable habitat traversing the Hostile Habitat are less than 100 metres in width.
- c. For purposes of both the Management Action for the Greater Glider in the East Gippsland Forest Management Area in Table 13 of the Standards and the Management Action for the Yellow-bellied Glider in the East Gippsland Forest Management Area in Table 13 of the Standards:
 - i. a protection area of approximately 100 ha of suitable habitat must be applied on each occasion that records report the requisite relative abundance and for each occurrence of a substantial population that is located in isolated or unusual habitat; and
 - ii. the words “suitable habitat” refer to habitat which is Suitable Habitat.

390 Two key terms in these proposed declarations are ‘Hostile Habitat’ and ‘Suitable Habitat’, which are defined in the orders sought by EEG as follows:

Hostile Habitat means land cleared of forests and/or plantations and/or forest that was last harvested less than 50 years ago.

Suitable Habitat means habitat that satisfies the criteria set out in Annexure B.

391 Annexure B to the proposed orders sets out criteria drawn from Associate Professor Wardell-Johnson's ten principles:

1. Subject to paragraph 2, Suitable Habitat means habitat which
 - (a) has its location, composition and boundaries determined by the location of populations of the species of Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area to provide the greatest opportunity for their persistence;
 - (b) include all recent records of the particular cluster of Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area, noting that Yellow-bellied Gliders may move around within their home range seasonally;
 - (c) include structurally diverse forest evidenced by large, mature trees, feed trees, and records of other mature forest dependant species with few or no signs of previous intensive logging activity;
 - (d) include mature forest suitable for the Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area, including:
 - (i) favoured species, for Greater Gliders; and
 - (ii) transitions, where possible, from wet sclerophyll to lowland forest, or mature gully forest that includes a variety of overstorey tree species, for Yellow-bellied Gliders;
 - (e) be round or square and not linear in shape with the cluster of Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area located roughly at its centre, that is, as far as possible from its edges;
 - (f) where more than 50% of the habitat within 1 km of the location of the Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area has been modified, or is proposed to be modified to Hostile Habitat, include any remnant of connected mature forest within 1 km of the location of the Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area;
 - (g) comprise mature forest and include no Hostile Habitat, and no more than 15% as a continuous block of land logged between 50 and 100 years ago;
 - (h) include no more than 15% of mature forest impacted by recent intense wildfire;
 - (i) have boundaries adjoining secure reserved mature forest

and/or mature forest along gullies; and

- (j) have boundaries of mild slope, distant from streams, which are not a passageway or likely to act as conduits for weed invasion, erosion, pest animals, or pathogens.

2. Where the area of habitat that satisfies all of the criteria set out in paragraph 1 in respect of the Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area, is less than approximately 100 hectares, then Suitable Habitat means:

- (a) all of the habitat which satisfies all of the criteria set out in paragraph 1 in respect of the Greater Gliders or Yellow-bellied Gliders the subject of the relevant protection area; and
- (b) as much habitat as possible which satisfies the criteria set out in subparagraphs 1(b) and 1(c) guided by paragraph 1(a); and
- (c) if the habitat which satisfies criteria 2(a) and 2(b) above is less than approximately 100 hectares, the remaining habitat comprising the relevant protection area must satisfy as many as possible of the criteria set out in paragraphs 1(d) to 1(j).

392 I do not accept VicForests' submission that the Court is being asked to give an advisory opinion in the form of declarations. There is a real legal controversy between EEG and VicForests about the correct application of the Table 13 prescriptions in relation to both greater gliders and yellow-bellied gliders. The controversy was raised on the pleadings and was the subject of evidence adduced by both parties at trial.³¹⁵ Declarations can be made to determine the controversy, which relates to a concrete situation.³¹⁶

393 I propose to make declarations in the East Gippsland proceeding to the following effect, to reflect my conclusions in relation to Issues 12 and 13:³¹⁷

- (a) For the purposes of both the management action for the greater glider and the management action for the yellow-bellied glider in the East Gippsland FMA in Table 13 of the Standards, a protection area of 100 hectares of suitable

³¹⁵ See [314]–[322] above.

³¹⁶ *Ainsworth v Criminal Justice Commission* (1992) 175 CLR 564, 582 (Mason CJ, Dawson, Toohey and Gaudron JJ); *Bass v Permanent Trustee Co Ltd* (1999) 198 CLR 334, [48] (Gleeson CJ, Gaudron, McHugh, Gummow, Hayne and Callinan JJ).

³¹⁷ See in particular [333], [340], [355]–[358] above.

habitat should be designed having regard to the Suitable Habitat principles.

- (b) For the purposes of the management action for the greater glider in the East Gippsland FMA in Table 13 of the Standards, substantial populations in isolated habitat are at least 20 Greater Gliders located within 100 hectares of suitable habitat that is surrounded by at least 100 metres width of Hostile Habitat where any corridors of suitable habitat traversing the Hostile Habitat are less than 100 metres wide.
- (c) For the purposes of the management action for the yellow-bellied glider in the East Gippsland FMA in Table 13 of the Standards, substantial populations in isolated habitat is at least two family groups of at least three yellow-bellied gliders located within 100 hectares of suitable habitat that is surrounded by at least 100 metres width of Hostile Habitat where any corridors of suitable habitat traversing the Hostile Habitat are less than 100 metres wide.

394 The terms 'Hostile Habitat' and 'Suitable Habitat principles' will be defined in the order, so as to reflect my findings at [333] and [340] above.

395 The parties should take these proposed declarations as the basis for declarations to be included in the draft orders to be submitted in the East Gippsland proceeding.

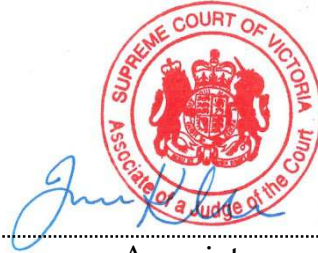
Disposition

396 The parties should confer and attempt to agree on draft orders in each proceeding to give effect to this judgment, with injunctions and declarations to the effect proposed. If agreement cannot be reached, the parties can file short submissions on the appropriate form of the final orders to be made. I will also hear from the parties on the question of costs in each proceeding.

CERTIFICATE

I certify that this and the 161 preceding pages are a true copy of the reasons for judgment of Justice Richards of the Supreme Court of Victoria delivered on 4 November 2022.

DATED this fourth day of November 2022.



Associate