Environment East Gippsland Inc v VicForests [2010] VSC 335 (11 August 2010)

Last Updated: 12 August 2010

IN THE SUPREME COURT OF VICTORIA	Not Restricted

AT MELBOURNE

COMMON LAW DIVISION

No. 8547 of 2009

ENVIRONMENT EAST GIPPSLAND INC — Plaintiff

v

VICFORESTS — Defendant

JUDGE:	OSBORN J
WHERE HELD:	Melbourne
DATE OF HEARING:	1-5, 9-12, 15-18, 23-25 March 2010
DATE OF JUDGMENT:	11 August 2010
CASE MAY BE CITED AS:	Environment East Gippsland Inc v VicForests
MEDIUM NEUTRAL CITATION:	[2010] VSC 335

ENVIRONMENTAL LAW - Brown Mountain East Gippsland - Proposed logging - Standing of conservation group to sue - Code of Practice for Timber Production - Timber allocation order - Timber Release Plan - Forest Management Plan - *Flora and Fauna Guarantee Act* Action Statements - Management Procedures - Obligation to comply with requirements of Action Statements and standards in Forest Management Plan in event of detection of specific fauna species during operations - Obligation to comply with precautionary principle - Presence of endangered fauna species - Long-footed Potoroo - Orbost Spiny Crayfish - New taxon of crayfish - Giant Burrowing Frog - Large Brown Tree Frog - Powerful Owl - Sooty Owl - Spot-tailed Quoll - Greater Glider - Yellow-bellied Glider - Square-tailed Kite - Hollow bearing trees - Provision of retained habitat for Long-footed Potoroo - Provision of Special Protection Zone for exceptionally high densities of Greater Gliders and Yellow-bellied Gliders - Compliance with precautionary principle by way of further surveys for Giant Burrowing Frog, Large Brown Tree Frog, and Spot-tailed Quoll - Review of Powerful Owl Management Area scheme and Sooty Owl Management Area scheme - Review of reserves for Spot-tailed Quoll - Conditional injunctions granted - Sections 3, 4, and 22 *Forests Act 1958*; ss 4, 5, 6, 7, 10, and 31 *Conservation Forests and Lands Act 1987*; ss 1, 4, 5, 6, 13, 14,

15, 16, 17, 18, 19, 37, 38, 39, 40, 43, 44, and 45 *Sustainable Forests (Timber) 2004*; ss 1, 3, 4, 7, 8, 11, 17, 19, and 20 *Flora and Fauna Guarantee Act 1988* - *Bateman's Bay Local Aboriginal Land Council v Aboriginal Community Benefit Fund Pty Ltd* [1998] HCA 49; (1998) 194 CLR 247 - *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; (2006) 67 NSWLR 256.

APPEARANCES:	Counsel	Solicitors
For the Plaintiff	Ms D Mortimer SC with Mr R Niall and Ms P Knowles	Bleyer Lawyers Pty Ltd
For the Defendant	Mr I Waller SC with Mr H Redd	HWL Ebsworth Lawyers, acting as agents for Komesaroff Legal Pty Ltd

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GLOSSARY

ACF Case	*Australian Conservation Foundation v Commonwealth* (1980) 146 CLR 493
Agreed Map	Map taken from set of maps tendered as Exhibit 12
CFL Act	*Conservation, Forests and Lands Act 1987*
Code of Practice	Code of Practice for Timber Production
CREG	Concerned Residents of East Gippsland
DSE	Department of Sustainability and Environment
EEG	the Plaintiff
FFG Act	*Flora and Fauna Guarantee Act 1988*
FFGAS	Action Statement made under the *Flora and Fauna Guarantee Act 1988*
FMA	East Gippsland Forest Management Area
FMP	East Gippsland Forest Management Plan
FMZ	Forest Management Zone
Forests Act	*Forests Act 1958*
GECO	Goongerah Environment Centre
LAM36	Email dated 6 October 2009 from Dr Paul Smith, Director, Biodiversity Policy & Programs, DSE to Mr Miezis, Director Forests, Forests and Parks Division, Department of Sustainability and Environment.
the Minister	Minister for Environment and Climate Change
MPR	Management Procedures for Timber Harvesting, Roading and Regeneration in Victoria's State Forests

Penman Report	Report by Penman and others (2008) Spatial Ecology of the Giant Burrowing Frog (*Heleioporus australiacus*): implications for conservation prescriptions 56 *Australian Journal of Zoology* 179
POMA	Powerful Owl Management Area
the Secretary	Secretary to the Department of Natural Resources and Environment
SFT Act	*Sustainable Forests (Timber) Act 2004*
SMA	Special Management Area
SMZ	Special Management Zone
SOMA	Sooty Owl Management Area
SPZ	Special Protection Zone
Telstra case	*Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; (2006) 67 NSWLR 256
TRP	Timber Release Plan
VicForests	the Defendant

HIS HONOUR:

A Introduction

1 The Errinundra Plateau lies in the interior of East Gippsland and contains areas of old growth forest which are potentially significant both ecologically and as timber resources.

2 The plaintiff ('EEG') seeks to restrain the logging of four coupes of old growth forest located in the valley of Brown Mountain Creek which lies on the edge of the plateau and in part comprises remnant old growth forest.

3 EEG claims that the logging proposed will breach the conditions pursuant to which the defendant ('VicForests') is permitted to lawfully undertake timber harvesting.

4 In particular it contends that the proposed logging will breach VicForests' obligations to provide habitat reserves for endangered species and/or to proceed in accordance with the precautionary principle in respect of habitat preservation for endangered species.

5 VicForests takes issue with EEG's standing to sue.

6 It denies that a number of the endangered species upon the presence of which EEG bases its case have been detected within the Brown Mountain coupes.

7 VicForests says further that the logging which is proposed will take place within a considered framework of management controls within East Gippsland generally and the Brown Mountain area in particular. That framework balances conservation values on the one hand and ongoing timber production within State forests on the other.

8 It contends that the prescriptions which have been developed for logging the coupes coupled with the provision of conservation reserves in the surrounding area will adequately protect the conservation values of the area.

9 It takes the position that it is for the Department of Sustainability and Environment ('DSE') to stipulate any further requirements for habitat retention by way of Special Protection Zones ('SPZ'), and that unless DSE does so, VicForests is entitled to undertake logging in accordance with permissions it currently holds.

10 VicForests also takes issue with the content of the legal obligations which EEG asserts.

11 I accept that the approvals which VicForests holds for timber harvesting at Brown Mountain, have been obtained within the overall framework of a scheme of land use allocation which has placed very substantial areas of East Gippsland within conservation reserves. Such reserves effectively surround the valley of Brown Mountain Creek.

12 I also accept that the approvals have been granted following the application of a considered forestry planning process, which has addressed the characteristics of the coupes in question within a framework of management zones and harvesting prescriptions which seek to minimise impact upon biodiversity values.

13 Nevertheless I have ultimately come to the view that the evidence establishes the detection of the Long-footed Potoroo within the coupes and that the detections trigger a requirement under the relevant controls for the provision of a Special Management Zone ('SMZ') and habitat retention area. The relevant requirement is stipulated in an Action Statement made under the Flora and Fauna Guarantee Act 1988.

14 I have also concluded that the evidence establishes the presence of exceptionally high densities of Greater Gliders and Yellow-bellied Gliders within the coupes and that the detection of these exceptional densities triggers a further requirement under the relevant controls for the provision of an SPZ or SPZs. The relevant requirement is stipulated in a standard stated in the East Gippsland Forest Management Plan and adopted as a condition by the terms of the relevant approvals for timber harvesting.

15 I have further concluded that the requirements of the Code of Practice for Timber Production mean that VicForests must comply with the precautionary principle when conducting timber harvesting and that the application of the precautionary principle in accordance with the relevant controls requires:

(a) the completion of further field surveys in respect of two species of endangered frogs – the Giant Burrowing Frog and the Large Brown Tree Frog, and in respect of the Spot-tailed Quoll; and

(b) the completion of re-evaluations currently underway with respect to management area provisions relating to the Powerful Owl and Sooty Owl and in the event of detection of the Spot-tailed Quoll the completion of a review of the system of reserves for the Spot-tailed Quoll within the East Gippsland area.

16 I have also concluded that injunctions should be granted in order to give effect to the conclusions I have reached with respect to individual species.

17 Before I explain my reasons for these conclusions and address their consequences I will deal first with some preliminary matters, namely:

• The parties;

• The background to the dispute; and

• EEG's standing.

18 I will then analyse the statutory framework within which the dispute arises, examine the evidence relating to the particular species and conservation values upon which EEG bases its case and state my conclusions.

B The parties

19 EEG was incorporated in August 1991 to take over the activities of an unincorporated association known as Concerned Residents of East Gippsland ('CREG'). CREG had commenced its activities in 1982 and had involved itself with environmental issues in East Gippsland over the ensuing period.

20 EEG's objects include promoting conservation values, environmental awareness about East Gippsland, and sustainability, making representations to government about land use and management, and undertaking research relevant to these matters.

21 EEG's activities include the conduct of surveys and research within State forests, production of newsletters containing information about environmental issues in East Gippsland, and involvement in media debate concerning forest issues. It runs ecology camps including camps for substantial numbers of people in the Brown Mountain area. It makes submissions to government at both State and Federal level concerning environmental issues and has been invited by government to comment on relevant environmental issues.

22 It has about 420 members.

23 EEG was awarded the Parks Victoria Environment and Sustainability Award in 2008. The purpose of that award was as follows:

Parks Victoria Environment and Sustainability Award

The Environment and Sustainability Award acknowledges individuals, groups and organisations that show a proven passion and dedication to reducing environmental impacts in regional and rural areas. By implementing environmental, land care and sustainability practices on their properties or within the local community, land owners and the broader community have shown increased commitment to raising awareness, knowledge and understanding of environmental issues, which will in turn help to protect the planet's vital resources. This Award will recognise individuals, groups and organisations that aim to improve our patterns of consumption and environmental behaviour. They are environmentally conscious and understand that future generations will be dependant on the environment, and their actions will encourage sustainable and responsible development in the future.[1]

24 VicForests is constituted pursuant to s 14 of the State Owned Enterprises Act 1992 by order of the Governor in Council gazetted on 28 October 2003.

25 The order states in part:

(2) The particular purpose of establishing VicForests is to create a statutory body to undertake the management and sale of timber resources in Victorian State forests on a commercial basis.

(3) The functions of VicForests are to:

(a) undertake the sale and supply of timber resources in Victorian State forests, and related management activities, as agreed by the Treasurer and the Minister, on a commercial basis;

(b) develop and manage an open and competitive sales system for timber resources; and

(c) pursue other commercial activities as agreed by the Treasurer and the Minister.

(4) For the purpose of performing its functions, VicForests may:

(a) acquire or dispose of real or personal property;

(b) enter into contracts and agreements;

(c) employ staff;

(d) do all such other things necessary or convenient to be done for or in connection with, or as incidental to the performance of its functions.

(5) VicForests must operate its business or pursue its undertakings as efficiently as possible consistent with prudent commercial practice.

(6) VicForests must be commercially focused and deliver efficient, sustainable and value for money services.

(7) VicForests must operate in a framework consistent with Victorian Government policy and priorities.[2]

26 It can be seen that the order emphasises the intention that VicForests operates commercially by reference to the commercial basis of its particular purpose, the requirement that it operate as efficiently as possible consistent with prudent commercial practice, and the further requirement that it must be commercially focussed. As against these matters however it must operate in a framework consistent with Victorian government policy and priorities generally.

27 The order also provides for the creation of an independent board of directors and a series of financial matters.

28 VicForests was established after the release in 2002 of the State policy entitled ‘Our Forests Our Future’. That policy referred to the fact that the National Competition Policy Review of the Forests Act 1958, pointed to the need to reinforce the separation between the role of governmental commercial functions and its policy and regulatory roles in forest management.

29 The policy stated the intention to transparently disentangle the commercial objectives from the regulatory functions of government by the creation of a separate commercial forest service entity.

C Background to the dispute

30 In the 1980s an area of forest in East Gippsland known as Brown Mountain, which is situated between the Errinundra National Park and the Snowy River and Alpine National Parks, was assessed and listed as part of an old growth forest National Estate Area by the Commonwealth Heritage Commission.[3]

31 The Brown Mountain area lies within forest block 840 known as 'Brodribb' designated as part of the East Gippsland Forest Management Area ('FMA'). It is coloured green on the map below.

Agreed Map 5

32 Compartment 502 of forest block 840 contains the four proposed logging coupes in issue in this proceeding, shaded green on the map below.

Agreed Map 6

33 The Brown Mountain coupes lie within a valley approximately 450 hectares in area down which Brown Mountain Creek runs from south to north. The coupes fall within a triangular area generally bounded by Legges Road to the west, Errinundra Road to the east and the vicinity of Postman Track to the south. Coupe 26 is towards the northern end of the triangular area, coupes 15 and 19 extend across the mid portion of the triangular area and coupe 27 adjoins the head of Brown Mountain Creek at the base of the triangular area. Coupe 27 is traversed by Postman Track and lies both on the north and the south sides of the road.

34 Coupe 15 is 43.4 hectares in area and coupe 19 is 21.5 hectares. Coupe 26 is 21.4 hectares in area and coupe 27 is 5 hectares.

35 The northern and southern boundaries of both coupes 15 and 19 are substantially defined by subsidiary water courses running into Brown Mountain Creek. The coupes are outlined in blue on the map below.

36 The map also shows the topography of the area, the relationship of the coupes to Brown Mountain Creek, the access road network and the adjoining areas (coloured in two shades of pink) which are protected from logging.

37 An area reserved at the northern end of the triangular area which I have described is known as the Gap Scenic Reserve.

Agreed Map 12

38 More detailed maps of the coupes were produced in evidence by Mr Lachlan Spencer but it is unnecessary to reproduce them.

39 Since the 1980s, the logging of the Brown Mountain area has been the matter of public controversy.

40 Nevertheless extensive logging has occurred of the area to the east of the triangular area I have described. Substantial logging has also occurred within that triangular area save for the coupes now in issue, as well as within the area to the west which is now subject to reservation for conservation purposes.

41 The map below shows the areas previously logged coloured blue. The darkest colour blue denotes areas logged since 2000. The next darkest area was logged in the 1990s and the three successively lighter shades of blue denote logging in each decade back to the 1960s.

Agreed Map 11

42 In the 1990s, local residents including members of EEG marked out a walking track at Brown Mountain which they named ‘The Valley of the Giants Old Growth Forests Walk’.[4] This track traversed coupes 15, 19 and 20. EEG has utilised this walk for the purpose of ecology camps in the Brown Mountain area. The walk is delineated on the map below by a black dashed line. The walk ran over the three coupes in the middle section of the Brown Mountain Creek valley. The map also numbers the coupes in issue more clearly.[5] During the hearing of the proceeding the coupes were referred to by the last two digits in the numbers attached to them.

Exhibit JR10: Map taken from the affidavit of Jill Redwood sworn 28 August 2009

43 In December 1995, the East Gippsland Forest Management Plan (‘FMP’) was published, which provided a management framework for timber harvesting in East Gippsland.

44 Conservation parks and reserves were established both to the immediate north and south of the triangular area containing the coupes now in issue.

45 In 2006, the State Government committed itself to the amplification of the conservation parks and reserves within the broader area, as part of the Labor Party's electoral policy.

46 In April 2007, EEG participated in a public consultation process and objected to timber release plan ('TRP') proposals relating in part to the Brown Mountain area. The objection stated in part:

The three Brown Mt coupes are extremely controversial. This is in the area that is being considered for the Old Growth Walks. The forest between Legge [sic] Road and Errinundra Road contains a high number of large old trees which have been photographed and GPSd. The proposed walk is perfectly situated to allow easy access for visitors wanting to experience old growth. This main access to the Errinundra National Park must not be clearfelled. We ask that these coupes be taken right off the schedule. The forest here will become another hot spot for direct action if they are to receive bulldozer treatment.[6]

47 In July 2007, a TRP was approved and logging of coupe 20 (immediately to the south of coupe 19)[7] commenced in October 2008. The coupe was named 'the Walk' by officers of VicForests. The logging of coupe 20 was the subject of on-site protest and of other protest and submissions to the State Government. By January 2009, coupes 15 and 19 were scheduled to be logged.

48 In January 2009, Ms Jill Redwood, a committee member of EEG, emailed the results of a fauna survey carried out at Brown Mountain to two officers of DSE. The report detailed the results of nocturnal surveys for arboreal mammals and large forest owls carried out in coupe 15 by Dr Rohan Bilney.

49 The survey detected an exceptionally high density of arboreal mammals including Greater Gliders and Yellow-bellied Gliders, and a number of owl species including the Powerful Owl and Sooty Owl.

50 Other survey information relating to the Orbost Spiny Crayfish was also supplied to DSE. In late January 2009, Ms Redwood was advised by Dr Stephen Henry, East Gippsland Biodiversity Manager, DSE that a moratorium had been placed on logging at Brown Mountain.

51 Between January and March 2009, DSE undertook surveys at Brown Mountain. The results of these surveys were summarised in a written report completed in April 2009 but not made public until August 2009. The conclusions of the report were:

The survey program produced the following key results:

1. Sufficient Greater Gliders and Yellow-bellied Gliders were detected to achieve the thresholds for a high density population of these species as stipulated in the 'Conservation Guideline – Arboreal Mammals' within the *East Gippsland Forest Area Management Plan*.
2. No Long-footed Potoroos were detected.
3. No Orbost Spiny Crayfish were detected.

Spotlight surveys were conservative estimates of the numbers of animals actually present. The consistent detection of high numbers of Greater Gliders and Yellow-bellied Gliders confirms that the site supports a high density population.

Given the relatively short amount of time available for the surveys of Long-footed Potoroo and the presence of nearby records and suitable habitat, it is possible that a more intensive and longer survey may record the species at the site.

Further survey may also detect Orbost Spiny Crayfish, however, the habitat was considered to be sub-optimal for the species.[8]

52 On 29 January 2009, EEG sent a letter to the Minister for Environment and Climate Change ('the Minister') requesting that an interim conservation order be made pursuant to s 26 of the Flora and Fauna Guarantee Act 1988 to conserve critical habitat of the Long-footed Potoroo, Spot-tailed Quoll, Sooty Owl, Powerful Owl and Orbost Spiny Crayfish at Brown Mountain. The request foreshadowed the supply of a report from Dr Charles Meredith in support of the application. Further letters advising of this request were sent to the Secretary of DSE and the Federal Minister for Environment, Heritage and the Arts.

53 On 15 April 2009, EEG received a letter from Mr Cameron McDonald, Director Strategy and Corporate Affairs at VicForests, which referred to the survey submitted on behalf of EEG and responded in the following terms:

As you would be aware, VicForests' timber harvesting operations and associated activities must be undertaken in accordance with all relevant legislation, the Allocation to VicForests Order 2004 (as amended) and the approved Timber Release Plan (as amended). Harvesting therefore only takes place in areas considered by DSE to be 'available', which includes the coupes in which your nocturnal surveys have been undertaken.

I assume the purpose of these surveys is to demonstrate that the density of arboreal mammals has exceeded the trigger level outlined in the East Gippsland Forest Management Plan (EGFMP) and therefore these areas should be declared Special Protection Zones (SPZs).

It is important to consider the following points before such a decision is taken:

- The EGFMP has two main aims – the balanced use and care of State forest and most significantly, the provision of an environment in which native flora and fauna can flourish, while the region's timber industry can continue to invest and add value to its products. All the management strategies, the zoning scheme and other actions described in Plan are designed to fulfil these two main aims.
- VicForests considers that the reservation of a comprehensive, adequate and representative area for biodiversity conservation as outlined in the EGFMP to be a very effective method to provide both a high level of biodiversity protection as well as some certainty with respect to the area and volume available for timber production, and therefore to the industries and communities which depend on that area and volume.
- Regarding the implementation of 'Conservation Guideline for Arboreal Mammals' in the EGFMP, the contribution of national parks and other conservation reserves must be taken into account towards meeting the needs of threatened or sensitive species.

- The Plan also states, ‘Any refinements of management guidelines or to the zoning scheme must also be made in an objective, systematic manner to avoid disruption to the forward planning and conduct of timber harvesting. A multi-disciplinary approach is essential to this process’.
- The EGFMP provides DSE with flexibility regarding refinements or amendments to the Plan’s zoning scheme – in other words, DSE does not automatically have to create an SPZ if any triggers set in the Conservation Guidelines are met.
- The Regional Forest Agreement (RFA), to which the Victorian Government is a signatory, requires that if amendments to the Comprehensive, Adequate and Representative reserve system are made, an equivalent area must be made available for harvesting.

Relating these points to the areas in question, VicForests considers that the enormous area of park and reserves in that part of the East Gippsland Forest Management Area (FMA), including much of the additional 41,000 hectares of icon areas and old growth forest to be added to the reserve system as part of the ALP 2006 election policy, to be more than sufficient for the long-term protection of the species listed in your surveys.

About 78% of the publicly-owned native forest in East Gippsland FMA will not be harvested, as it is either reserved or is unsuitable for timber harvesting. The remaining 22% of the forest is used to support the industry, workers and communities in East Gippsland and further afield, and an industry which produces carbon-friendly, renewable products.

As DSE is responsible for the overall management of State forest, including the creation or amendment of forest zoning, any decision regarding the creation of new SPZs as a result of survey findings rests with DSE. In this case, VicForests will, however, be arguing very strongly that there is no basis for creation of new SPZs in these areas due to the very large system of dedicated reserves nearby, reserves that contain significant areas of habitat similar to that found in the areas you surveyed. VicForests will also argue that the Plan does not mandate the creation of additional SPZs, and that if an SPZ is created, the RFA requires that an equivalent area must be made available to the industry.[9]

54 On 25 April 2009, EEG sent a letter to the Minister and to VicForests joining issue with the contents of Mr McDonald’s letter. Further correspondence ensued between EEG and the Minister during May, July and August 2009.

55 On 18 June 2009, a briefing paper prepared by Mr Lee Miezis, Director Forests, Forests and Parks Division, DSE, was submitted to the Minister by Dr Appleford, Executive Director, Forests and Parks Division. It was also endorsed by the Secretary of the Department, Mr Peter Henry. The briefing note recommended that no SPZ be created at Brown Mountain Creek but timber harvesting be allowed under modified prescriptions.

56 On 12 August 2009, EEG forwarded reports from Dr Meredith to the Minister and to the Secretary of DSE in support of its application that an interim conservation order be made. The report concluded that the study area at Brown Mountain constituted critical habitat for the Long-footed Potoroo, the Sooty Owl, the Orbost Spiny Crayfish and the Large Brown Tree Frog.

57 On 19 August 2009, the solicitors for EEG sent a letter to the Minister expressing concern at the Minister's failure to make an interim conservation order and requesting notice before any logging took place at Brown Mountain.

58 On 20 August 2009, a letter was received by EEG from an officer of DSE advising that the question of an interim conservation order was under consideration.

59 EEG replied with a further letter to that officer pressing its case for an interim conservation order.

60 On 21 August 2009, the Minister released a media statement recording a decision to create further reserves in the Brown Mountain area, but to otherwise permit the logging of a number of contentious coupes subject to additional habitat protection measures. This decision was directly responsive to the briefing paper prepared by Mr Miezis which I have referred to above.

PERMANENT PROTECTION FOR BROWN MOUNTAIN AREA

Friday, 21 August 2009

The Brumby Labor Government will protect a further 400ha of the Brown Mountain area, including the mountain summit, as part of the establishment of old growth and icon reserves in East Gippsland, Environment Minister Gavin Jennings said today.

Mr Jennings said that the inclusion of the large area around Brown Mountain would form part of a significant, unbroken link between the Errinundra and Snowy River national parks.

'This area of Brown Mountain contains significant natural values, including old growth forests, that will now be protected forever,' Mr Jennings said.

Mr Jennings said the Brumby Labor Government would finalise the establishment of more than 41,000ha of new conservation reserves in East Gippsland, providing an unprecedented level of protection for old growth and icon forests in Victoria.

The 400ha of new protected area at Brown Mountain would be in addition to the 100ha already protected as part of The Gap Scenic Reserve, incorporating the northern slopes of the Mountain.

'This will be a wonderful outcome for the protection of these magnificent forests. However, the Government also recognises that, with the new levels of protection, comes a responsibility to ensure the timber industry has a sustainable supply of timber into the future,' Mr Jennings said.

Mr Jennings said an area containing a number of contentious timber harvesting coupes around Brown Mountain Creek, to the east of Brown Mountain, would remain available to harvesting as they did not meet the standard of old growth warranting inclusion in the reserve.

He said VicForests would be allowed to recommence timber harvesting at Brown Mountain under modified conditions designed to provide greater protection to the area.

Mr Jennings said the significant additional habitat protection measures, including extra wide 100 metre streamside buffers and the protection of hollow-bearing habitat trees identified by biodiversity officers, would be put in place at Brown Mountain Creek area even though no threatened species were found during fauna surveys of the area.

'Biodiversity experts conducted a series of surveys in the area to determine if any threatened species were present', he said.

'The surveys conducted by DSE staff included specific surveys for Long-footed Potoroo and Orbost Spiny Crayfish. They found no threatened species, despite claims to the contrary.'

Mr Jennings said the biodiversity teams did locate a high-density population of Greater Gliders and Yellow-bellied Gliders along Brown Mountain Creek.

'These species are both common across Victoria – and extend throughout the eastern States up to Queensland – and suitable habitat is well represented in conservation reserves in Victoria,' he said.

Mr Jennings said the gliders' presence triggered a DSE review to determine the need for the creation of a Special Protection Zone to protect the species' habitat.

This review was required, under the East Gippsland Forest Management Plan, to consider whether adequate protection is already provided to the gliders' habitat within the existing reserve system.

'In this case DSE found that suitable habitat for the gliders was already adequately protected and that creating a Special Protection Zone was not required,' Mr Jennings said.

'I am confident that the extra streamside buffers, which represent a five-fold increase in the usual buffer width will provide significant protection to the populations identified by the surveys as the majority of animals were found within 100 metres of the creek.'

Mr Jennings acknowledged that, more broadly, the system of conducting pre-logging surveys in proposed harvesting coupes in Victoria needed to be improved and that DSE was working with VicForests – the agency responsible for conducting the surveys – to significantly improve its processes.

'Put simply, there is not enough pre-logging assessments being done and I am committed to doing what I can within my responsibilities to see that situation improve,' he said.

The Brown Mountain Survey Report can be found at: www.dse.vic.gov.au/forests.[10]

61 Ms Redwood subsequently had a telephone conversation with Mr Barry Vaughan, Regional Manager, VicForests. She asked him when VicForests proposed to log at Brown Mountain. In substance he stated that the decision whether or not VicForests could log Brown Mountain was a matter in the hands of DSE. Logging at Brown Mountain was under a moratorium, that is, suspended until further notice. Despite the Government's media release, VicForests had not formally been given the go ahead from DSE. DSE would give the green light and then VicForests would schedule it in as part of an annual plan for a contractor. The decision when to log depended on the season and VicForests' annual timber production

requirements. VicForests did not have logging of Brown Mountain pencilled in as immediate, and he would be reluctant to inform Ms Redwood when it would be logged, because to do so would result in protest activity.

62 EEG then issued the present proceedings and having failed to obtain undertakings from VicForests that it would not proceed to log the Brown Mountain coupes, sought interlocutory injunctive relief. An interlocutory injunction restraining logging was granted by J Forrest J on 14 September 2009.[11]

63 Following the decision by the Minister to increase conservation parks and reserves in the vicinity of Brown Mountain a substantial new reserve was created to the west of the triangular area in which the Brown Mountain coupes are located. Reserves to the east were also augmented. In consequence, the Brown Mountain coupes now sit within an area which is ringed by conservation reserves. The two maps below show the situation before and after November 2009 respectively. The areas shaded light and dark pink comprise areas protected from logging.

64 Mr Miezis stated that one of the criteria for the 'icon' reserves created in November 2009 was that approximately 50 per cent of the new reserve contain old growth forest. The area containing the Brown Mountain coupes did not meet this criterion. It contained approximately 30 per cent. The map which records the history of logging in the area, confirms this view might be taken.

65 Mr Miezis also made clear that 2009 was a year of exceptional difficulty for DSE because of the consequences of the Black Saturday bushfires. I accept this to have been so and the steps taken by DSE and the Minister occurred in this context.

Agreed Map 7

Agreed Map 8

66 The area numbered 502 shown in Agreed Map 8 above comprising a new reserve, includes the western ridge of the valley containing Brown Mountain Creek and this ridge includes Brown Mountain itself.

67 Agreed Map 13 below shows the 100 metre linear buffer area along Brown Mountain Creek referred to in the Minister's statement. It can be seen that it includes the central portion of coupe 26, the lower portions of coupes 15 and 19 and does not extend into coupe 27.

68 Because previous coupes adjacent to Brown Mountain Creek have been logged to a 20 metre setback, the 100 metre buffer contains substantial areas which are not old growth forest.

Agreed Map 13

69 The underlying dispute between the parties can thus be characterised as one as to whether the conservation measures that have been implemented in respect of the Brown Mountain coupes and the surrounding area are adequate to meet the requirements of the regulatory system governing timber harvesting, which address the preservation of conservation values

and in particular the protection of endangered species. Before turning to the details of that regulatory scheme and of the evidence relating to specific conservation values, it is necessary to deal with the preliminary question of EEG's standing.

EEG's standing

70 VicForests contends that EEG does not have standing to bring these proceedings.

71 In Truth About Motorways Pty Ltd v Macquarie Infrastructure Management Ltd, Gummow J described the historical basis of the engagement of equity in matters of public law. Such proceedings entail 'the use of the auxiliary jurisdiction in equity to fill what otherwise were inadequate powers to secure the compliance by others with particular statutory regimes or obligations of a public nature.'[12]

72 The standing to bring such a proceeding is now understood to be derived from a special interest in the subject matter of the litigation. The underlying principle was stated by Gibbs J in Australian Conservation Foundation v Commonwealth ('ACF Case'):

It is quite clear that an ordinary member of the public, who has no interest other than that which any member of the public has in upholding the law, has no standing to sue to prevent the violation of a public right or to enforce the performance of a public duty. There is no difference, in this respect, between the making of a declaration and the grant of an injunction. The assertion of public rights and the prevention of public wrongs by means of those remedies is the responsibility of the Attorney-General, who may proceed either ex officio or on the relation of a private individual. A private citizen who has no special interest is incapable of bringing proceedings for that purpose, unless, of course, he is permitted by statute to do so.[13]

73 His Honour also said:

I would not deny that a person might have a special interest in the preservation of a particular environment. However, an interest, for present purposes, does not mean a mere intellectual or emotional concern. A person is not interested within the meaning of the rule, unless he is likely to gain some advantage, other than the satisfaction of righting a wrong, upholding a principle or winning a contest, if his action succeeds or to suffer some disadvantage, other than a sense of grievance or a debt for costs, if his action fails. A belief, however strongly felt, that the law generally, or a particular law, should be observed, or that conduct of a particular kind should be prevented, does not suffice to give its possessor locus standi. If that were not so, the rule requiring special interest would be meaningless. Any plaintiff who felt strongly enough to bring an action could maintain it.[14]

74 In Onus v Alcoa of Australia Ltd,[15] members of an Aboriginal community sought to prevent Alcoa from carrying out works which could interfere with Aboriginal relics. Members of the community were held to have standing on the basis of a 'special interest' in the relics that was greater than that of other members of the public and greater than that of other persons of Aboriginal descent who were not members of the Gournditch-jmara.

75 Stephen J stressed that it was necessary to conduct a curial assessment of the concern which a plaintiff has with particular subject-matter and the closeness of the Plaintiff's

relationship with that subject matter.[16] The absence of a material interest in the subject matter, in the sense of property or possessory rights, would not be a bar to standing.[17]

76 However, Gibbs CJ cautioned:

The position of a small community of aboriginal people of a particular group living in a particular area which that group has traditionally occupied, and which claims an interest in relics of their ancestors found in that area, is very different indeed from that of a diverse group of white Australians associated by some common opinion on a matter of social policy which might equally concern any other Australian.[18]

77 In North Coast Environment Council Inc v Minister for Resources,[19] Sackville J held that the North Coast Environmental Council had standing under the Administrative Decisions (Judicial Review) Act 1977 (Cth) to challenge a decision to grant an export licence on the basis that the Council:

• was the peak environmental organisation in the north coast region of NSW, having 44 environmental groups as its members and its activities related to the areas affected by the wood-chipping;

• was recognised by the Commonwealth for a number of years as a significant and responsible environmental organisation and had received regular financial grants;

• was recognised by the government of NSW as a body that should represent environmental concerns on advisory committees;

• conducted or co-ordinated projects and conferences on matters of environmental concern for which it had received significant Commonwealth funding;

• had made submissions on forestry management issues to the Resource Assessment Committee and funded a study on old growth forests.

78 Sackville J undertook a survey of the development of the authorities on standing since the ACF Case[20] and identified a number of principles: [21]

• A plaintiff must demonstrate a 'special interest' in the subject matter of the action. A 'mere intellectual or emotional concern' for the preservation of the environment is not enough to constitute such an interest. The asserted interest 'must go beyond that of members of the public in upholding the law ... and must involve more than genuinely held convictions'.

• A plaintiff may be able to demonstrate a special interest in the preservation of a particular environment. If it does so an intellectual or emotional concern is no disqualification from standing to sue.

• An allegation of non-compliance with a statutory requirement or an administrative procedure is not enough of itself to confer standing.

• The fact that a person may have commented on environmental aspects of a proposal as part of an environmental assessment process does not of itself confer standing to complain of a decision based on that process.

• An organisation does not demonstrate a special interest simply by formulating objects that demonstrate an interest in and commitment to the preservation of the physical environment.[22]

79 In Bateman's Bay Local Aboriginal Land Council v Aboriginal Community Benefit Fund Pty Ltd,[23] Gaudron, Gummow and Kirby JJ stated:

The first question is why equity, even at the instance of the Attorney-General, would intervene. The answer given for a long period has been the public interest in the observance by such statutory authorities, particularly those with recourse to public revenues, of the limitations upon their activities which the legislature has imposed. Where there is a need for urgent interlocutory relief, or where the fiat has been refused, as in this litigation, or its grant is an unlikely prospect, the question then is whether the opportunity for vindication of the public interest in equity is to be denied for want of a competent plaintiff. The answer, required by the persistence in modified form of the *Boyce* principle, is that the public interest may be vindicated at the suit of a party with a sufficient material interest in the subject matter. Reasons of history and the exigencies of present times indicate that this criterion is to be construed as an enabling, not a restrictive, procedural stipulation. [24]

80 In the present case I am satisfied that EEG has a special interest in the necessary sense to give it standing by reason of the following factors:

(a) The unincorporated predecessor of EEG was represented in the consultative process undertaken with respect to the formulation of the FMP. Since the formulation of the FMP it has engaged in an on-going basis with considerations arising from the terms of the FMP including specifically those relating to the conservation of endangered species.

(b) EEG has been and continues to be an actual user of the coupes comprising 'The Walk', in a manner and to a degree which gives it a greater degree of interest in those coupes than that of members of the public.[25]

(c) EEG made submissions to DSE which resulted in a moratorium with respect to logging at Brown Mountain in 2009. The case is in a fundamental sense concerned with the question of whether that moratorium should continue.

(d) Government has recognised EEG's status as a body representing a particular sector of the public interest by financial grant and by the award previously referred to above.[26]

81 It is desirable to elaborate the first of the factors I have referred to by reference to the FMP itself. The foreword to the FMP states:

Production of this Plan is an example of integrated regional planning; based on a wide range of expertise, from within and outside the Department. An advisory committee drawn from the local community has helped review options and given valuable comments on drafts.[27]

82 The FMP goes on to state that the plan was prepared by a multi-disciplinary project team comprising DSE officers. It then states the project team was guided by the East Gippsland Forest Management Area Advisory Committee comprising some 12 representatives of different community organisations. The second representative named is Leonie Cameron of Concerned Residents of East Gippsland. The FMP records that the Advisory Committee met

21 times to discuss major issues and 'has played an important role in ensuring that the interests and opinions of the community have been considered'.[28] Although cross-examination of Ms Redwood was directed to questioning the directness of the link between CREG and EEG, I accept her evidence that EEG is the incorporated vehicle of what formerly constituted CREG. This is corroborated by the Incorporation Association extract of EEG which records CREG was a former name of EEG and EEG was simultaneously registered under both names from August 1991 until June 2006. In turn I accept that EEG is a body that has since its inception had a special interest in the FMP.

83 The second factor was elaborated by Ms Redwood both in evidence and in her first affidavit. In particular Ms Redwood described EEG's involvement in organising and running annual or biennial 'Forests Forever' ecology camps in the critical habitat areas which are the subjects of this proceeding. The camps are attended by over 100 people, with up to around 100 more people being turned away for lack of capacity and seek to educate participants about natural history and threats to Victoria's forests. As part of the camps, EEG leads participants on 'The Valley of the Giants Old Growth Forests Walk', referred to as 'The Walk' by VicForests staff. The walk traverses coupes 19 and 20. It may be noted that the very naming of coupe 20 by VicForests staff as 'The Walk' reflects the association of the coupe with the use of the walk, particularly by EEG. Revenue raised through the camps contributes to EEG's annual operating costs.[29]

84 Ms Redwood also gave evidence that EEG has carried out surveys in the area since 1992, the results of which have been submitted to government agencies.

85 The third factor has been summarised in the history of the dispute I have set out above and will be further elaborated in my judgment on the facts of the matter relating to particular species. The submissions to DSE were made in circumstances where the FMP envisages protection will be provided to the species identified in the submission. The prescriptions on logging subsequently imposed were directly responsive to the process triggered by surveys from EEG. This case is in turn fundamentally concerned with the adequacy of these prescriptions.

86 As to the fourth factor, although 'limited' and 'sporadic', EEG has received government funding:

(a) in 1990 to produce a 'Bonang Highway Tour Leaflet'.

(b) $5,000 in 1997 from the Department of Prime Minister and Cabinet to produce an 'Illustrated Guide to the RFA Process'.

(c) about $500 in 2002 from the federal government to attend monthly meetings at the East Gippsland Regional Forest Agreement Reference Group.[30]

In cross-examination Ms Redwood acknowledged that the funding has been largely from the Commonwealth, however stated that she believed that (a) was funded by the State government.

87 The combined effect of the above matters is to give EEG a special interest in the subject matter of the proceeding to the requisite degree.

88 It follows that EEG's interest in the enforcement of the law with respect to proposed logging at Brown Mountain does not simply derive from intellectual or emotional concern, nor from its ostensible objects. Although it is not a peak environmental association of the type with which Sackville J was concerned in the two cases I have referred to above, it does have a special interest in the implementation of the FMP and the enforcement of the statutory framework governing logging at Brown Mountain Creek.

D The statutory framework

89 The relevant statutory framework is labyrinthine and comprises a network of interrelated provisions contained in the Forests Act 1958 ('Forests Act'); the Conservation, Forests and Lands Act 1987 ('CFL Act'); the Sustainable Forests (Timber) Act 2004 ('SFT Act'); allocation orders and TRPs made under the SFT Act; a Code of Practice for Timber Production ('the Code of Practice') made enforceable under the CFL Act but given effect under the SFT Act; a forest management plan as contemplated by the Code of Practice but also constituting a working plan under the Forests Act; Management Procedures ('MPR') as contemplated by the Code of Practice; the Flora and Fauna Guarantee Act 1988 ('FFG Act'); and action statements under the Flora and Fauna Guarantee Act 1988 ('FFGAS').

90 It is necessary to elaborate this framework before returning to the facts.

Forests Act 1958

91 The Brown Mountain coupes are located within a State forest. More particularly they are contained within a reserved forest within the meaning of s 42(1) of the Forests Act.

92 That Act provides by s 4 that all forest produce in a State forest is the property of the Crown. Section 4(2) provides that property in forest produce only passes from the Crown to another person in accordance with the Forests Act. Forest produce is broadly defined by s 3 of the Forests Act and includes all parts of trees.

93 Section 22 requires the preparation of working plans for State forests:

(1) The Secretary[31]—

(a) shall prepare and cause to be put into operation working plans with respect to the control, maintenance, improvement, protection from destruction or damage by fire or otherwise, and removal of forest produce in and from each State forest and any part thereof;

(b) may from time to time revise any such working plan and shall cause the revised working plan to be put into operation; and

(c) forthwith after the preparation or revision of any such working plan shall submit the same to the Minister.

(2) Any such working plan shall specify the detailed plans for the protection of the area from fire and may specify—

(a) the maximum area from which forest produce may be taken annually;

(b) the maximum quantity of forest produce that may be disposed of annually;

(c) the silvicultural operations necessary to ensure the regeneration of the best species of forest trees on areas which have been cut over; and

(d) such other matters as the Secretary considers appropriate.

94 The Forests Act defines 'working plan' as meaning a detailed scheme for the control and regulation of the working of a forest or any part thereof and for ensuring the maintenance of a sustained yield of forest produce from such forest. The relevant working plan in the present case is constituted by the East Gippsland Forest Management Plan of December 1995 (as amended).

95 The FMP seeks to provide a management framework for the State forest within East Gippsland. The stated purpose of the FMP is to establish strategies for integrating the use of State forest for wood production and other purposes, with conservation of natural, aesthetic and cultural values across the whole FMA.

96 It is stated at two points that the plan 'applies' until 2006, but Mr Waller made clear in final address that VicForests does not contend that the FMP has lapsed.

97 The summary at the commencement of the FMP outlines the objectives which it seeks to integrate.

SUMMARY

Publicly owned forest in East Gippsland covers approximately 1 million hectares in a vast, contiguous tract stretching from Bass Strait to the Australian Alps and from south-eastern New South Wales to Central Gippsland. State forest comprises 640 000 ha of this land and has an important role in complementing the management of national parks and other reserves for conservation, recreation and a growing tourism industry. State forest also supplies a third of Victoria's annual sawlog harvest and protects catchments from which local communities draw clean water supplies.

The major challenges addressed in this Plan are to meet a number of conservation and resource use requirements, including the *Flora and Fauna Guarantee Act 1988*, the National Forest Policy Statement, current sawlog licence commitments to the timber industry and the sustainable yield requirements of the *Forests (Timber Harvesting) Act 1990*. The strategy used to address these challenges has three main strands:

Conservation guidelines specify minimum levels of planned protection to be provided for natural values in State forest, taking into account the extent of those values in national parks and conservation reserves. They provide a systematic basis for zoning decisions in State forest and therefore introduce stability into the process for balancing conservation with timber production goals.

Forest management zones set priorities and permitted uses in different parts of State forest. The Special Protection Zone will be managed for conservation, and timber harvesting will be excluded. The Special Management Zone will be managed for specific features while catering

for timber production under certain conditions. The General Management Zone will cater for a range of uses with timber production as a high priority.

A process for reviewing management strategies and zones will enable progressive refinement of the Plan in response to new information and developments in natural resource management.

This strategy provides a network of protected areas that complements the system of national parks and conservation reserves in East Gippsland, a framework for sustainable use of the forest for timber production and other purposes, and a process for adapting to change in a systematic, orderly manner. In doing so, this Plan will fulfil the major requirements of the National Forest Policy Statement.

Specific initiatives

Conservation of biodiversity

- Minimum levels of protection of 30% to 90% have been set for each of 44 vegetation classes according to their rarity in the landscape. Where conservation reserves do not meet these targets, areas of State forest have been protected to fill the gap.
- All heathlands and buffering vegetation of 40 m width have been included in the Special Protection Zone. Potentially species-rich vegetation mosaics, which include the hinterlands of many heathland areas, have also been included in this Zone.
- All rainforest stands are protected, the level of protection increasing according to the significance of different rainforest areas. The minimum standard is provided by timber harvesting prescriptions which require that buffers be retained between logging coupes and rainforest. A higher level of protection is provided by linear reserves which include many significant rainforest stands on major rivers and streams. The highest level of protection is provided in sub-catchment areas. Overall, at least 59% of rainforest, including the most significant stands, will be protected by buffers of 100 m width or larger.
- Formal reservation is provided for at least 90% of the Mixed Forests identified in the FMA. Mixed Forests are the forest stands where a eucalypt canopy is emergent above an understorey of rainforest species.
- A strategy for conserving rare and threatened plant species is established.
- Formal protection is provided for 67% of the total area of old-growth forest, including at least 60% within each Ecological Vegetation Class. Outside formally protected areas, an additional 18% of old-growth forest is protected by virtue of it being unsuitable for timber production. Provision is made for recruitment of old-growth forest so that its total area will increase in the long term.
- *Conservation guidelines have been established for key threatened and sensitive faunal species in State forest. These include protection of Long-footed Potoroos in accordance with the management strategy for this species, and planned protection for at least 100 pairs of Powerful, Sooty and Masked Owls. Specific strategies are also established for a range of other forest fauna including the Spot-tail Quoll, high density populations of arboreal mammals, forest bats, diurnal raptors, threatened frog species, significant fish populations, rare butterflies and crayfish.*
- *A network of linear reserves of 200 m average width has been designed to maintain resident populations of sensitive fauna such as arboreal mammals, forest*

bats and hollow-nesting birds across the landscape. These will also facilitate the re-colonisation of areas that are harvested for wood production or burnt by wildfire.

- A number of areas in the Special Management Zone will be managed to supply timber while retaining high wildlife values.
- *The system of sites of biological significance identified by pre-logging flora and fauna surveys between 1983 and 1993 has been reviewed and incorporated into the zoning scheme according to the significance, sensitivity and representation status of values in each site.*

Forest Production

- *Sawlog supplies will be maintained to meet existing licence commitments and forecasts indicate that, given suitable markets for low-grade logs, sawlog supplies can be maintained at current levels until around 2030. By that time most of the sawlog production will come from regrowth forests.*
- *Targets have been set for the annual area to be harvested in each major forest type in order to redress a past bias towards the higher-elevation and most productive forest types, and to provide a relatively even flow of products of different species and grades.*
- A schedule is established to ensure that all harvested coupes are adequately regenerated. A program of reforestation will also be implemented for former coupes that have failed to regenerate adequately.
- The species composition and productive capacity of forest areas degraded by previous selective harvesting and disease will be progressively restored by integrating harvesting of minor forest produce with sawlog production, and by specific measures to ensure adequate regeneration of species that yield durable timbers.
- Commercial thinning of regrowth forests will continue in selected stands and, if possible, be expanded to approximately 500 ha per year.

Forest protection

- The forest management zones in this Plan have been reconciled as far as possible with zones for fuel-reduction burning in the Fire Protection Plans covering the FMA.
- The Plan provides for the ongoing protection of water quality as well as regular consultation with water supply authorities.
- The catchments of the Betka and Rocky Rivers have been placed in the Special Management Zone in recognition of the priority that domestic water supply considerations are to be given in these areas.
- Priorities are established for control of pest plants and animals in State forest to complement the efforts of private land owners and ensure an integrated approach across all public land.

Cultural values

- Management strategies for flora, fauna and cultural sites have been designed to encompass the values identified to date in the joint assessment of national estate values by the Australian Heritage Commission and the Department.
- A scenic-drive network (using the existing road system) will provide access to national parks as well as a focus for protection of landscape values, and recreation and interpretative facilities.
- A system for protecting landscape values from the visual impact of timber harvesting is established. It aims to minimise the impact on areas seen from the scenic-drive network and key lookout points.

- Provisions have been made to protect the landscape around W-Tree so that the area continues to be of value for both tourism and timber production. The arrangements involve restricting the size and timing of logging coupes in the most visible areas.
- A process is established to protect Aboriginal places of significance in State forest while maintaining confidentiality about their locations.
- Significant historic places are incorporated in the zoning system to ensure that they are appropriately managed.[32]

98 As this summary indicates, the FMP specifies minimum levels of planned protection for natural values in State forest and uses such specification as the basis of a zoning system. The zoning system includes an SPZ from which timber harvesting is excluded and an SMZ within which conditions are placed on harvesting in order to limit environmental impacts.

99 The FMP recognises the zoning system will be refined in response to new information.

100 The FMP provides species specific guidelines for the protection of threatened species and also envisages a network of linear reserves to maintain populations of sensitive fauna.

101 It also states goals with respect to forest production.

102 Although the FMP constitutes a working plan pursuant to s 22 of the Forests Act it also seeks to accommodate a broader matrix of legislation.

1.2 LEGISLATIVE AND POLICY FRAMEWORK

This Plan is a 'working plan' under the meaning of the *Forests Act 1958*. Government policy also requires that forest management be:

- economically viable;
- environmentally sensitive;
- sustainable for all forest values; and
- assisted by public participation in planning.

The Plan has been developed in accordance with the requirements of the *Flora and Fauna Guarantee Act 1988* and associated action statements and the *Forests (Timber Harvesting) Act 1990*.[33] Protection of species listed under the Commonwealth *Endangered Species Protection Act 1992* is also provided for in this plan. The plan also fulfils a requirement of the Code of Forest Practices for Timber Production (CFL 1989a). The area of State forest to which the Plan applies has been set by government land use decisions in accordance with the *Land Conservation Act 1970* (LCC 1977, 1979, 1983a, 1983b, 1986, 1991a and 1991b).[34]

This Plan also addresses the requirements of the National Forest Policy Statement (Commonwealth of Australia 1992) to which Victoria is a signatory. Accordingly, it incorporates the findings of A Study of the Old-growth Forests of East Gippsland (Woodgate *et al*. 1994) and the assessment of national estate values to date (AHC & CNR in prep.).

Other legislation, policies and plans of relevance are referred to as necessary through the text.[35]

103 In the present case the provisions of the FMP with respect to the conservation of endangered species form the basic framework for management of the issues raised by EEG. I will return to these provisions shortly.

Conservation, Forests and Lands Act 1987

104 The object of the CFL Act is stated by s 4:

The object of this Act is to set up a legislative framework to enable the Minister—

(a) to be an effective conserver of the State's lands, waters, flora and fauna; and

(b) to make provision for the productive, educational and recreational use of the State's lands, waters, flora and fauna in ways which are environmentally sound, socially just and economically efficient.

105 It can be seen that this object embraces the notion of effective provision for the productive use of the State's lands in ways which are both environmentally sound and economically efficient.

106 The CFL Act binds the Crown.[36]

107 It makes provision for a body corporate under the name 'Secretary to the Department of Sustainability and Environment' ('the Secretary').[37]

108 The Secretary is subject to the direction and control of the Minister in carrying out the Secretary's functions.[38]

109 Section 10 of the CFL Act provides that the Secretary has the functions conferred by a 'relevant law or by or under any other Act'. 'Relevant law' is defined to include the FFG Act, the Forests Act, and the SFT Act.[39]

110 The CFL Act further makes provision among other things for codes of practice which specify standards and procedures for the carrying out of any of the objects or purposes of a relevant law.[40] By s 39 of the CFL Act compliance with a code of practice is not required unless the code of practice is incorporated in or adopted by either a relevant law, or a condition specified in an authority given under a relevant law. A code may thus be promulgated but have no statutory force until it is adopted by other legislation.

Sustainable Forests (Timber) Act 2004

111 The first main purpose of the SFT Act is to provide a framework for sustainable forest management and sustainable timber harvesting in State forests.[41]

112 Section 4 provides that the SFT Act binds the Crown.

113 Part 2 of the SFT Act relates to sustainable forest management. Section 5 sets out the principles of ecologically sustainable development which are intended to guide sustainable forest management.

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

114 It can be seen that the fundamental notion of ecologically sustainable development, its objectives and the guiding principles stated, involve goals which may not necessarily be easily resolved as against each other. The integration of economic, environmental, social and equity considerations may involve the balancing of competing considerations in a given factual situation. It can also be seen that s 5(4)(b) contains a statement of a key element of what is known as the precautionary principle (to which I shall return).

115 Section 6 of the SFT Act requires the Minister to determine sustainability criteria and indicators for sustainable forest management.

116 Section 11 of the SFT Act provides that the Minister may develop a sustainability charter. A sustainability charter was tendered in evidence and characterised by Ms Mortimer as ‘a collection of high level statements’. A statement of corporate intent by VicForests setting out its response to the sustainability charter was also tendered. No specific reliance was ultimately placed upon these documents by either party in this proceeding.

117 Part 2 of the SFT Act as a whole provides firstly a statement of principles to which regard must be had in undertaking sustainable forest management and secondly for a series of administrative measures by which the Minister may seek to ensure that ecologically sustainable development is achieved.

118 Part 3 of the SFT Act provides for the making of allocation orders to VicForests. Section 13 provides:

The Minister, by order published in the Government Gazette, may—

(a) allocate timber in State forests to VicForests for the purposes of harvesting and selling, or harvesting or selling, timber resources; and

(b) permit VicForests to undertake associated management activities in relation to that allocated timber including—

(i) preparation of sites for timber harvesting;

(ii) construction of access roads to coupes;

(iii) site rehabilitation;

(iv) forest regeneration;

(v) any other activities specified in the order.

119 Section 14 provides that an allocation order is to be made for an initial period of 15 years and may be extended thereafter.

120 Section 15 provides for the contents of an allocation order including a description of the forest stands to which VicForests has access and the area available for timber harvesting in each of three five year time periods. Section 15(1)(c) provides that the allocation order must include the conditions to which VicForests is subject in carrying out its functions under the allocation order, ‘including any applicable performance measures and standards’. Section 15(2) goes on to provide that an allocation order may include any conditions, limitations, matters or specifications that the Minister thinks fit.

121 Section 16 provides that VicForests must carry out its functions in accordance with the allocation order.

122 Section 17 provides for the amendment of allocation orders.

123 On 29 July 2004, the Minister made an allocation order which allocated timber to VicForests in the forest stands[42] described within the order, together with access to those stands for the purposes of harvesting and selling timber resources.

124 A further allocation order was made on 21 March 2007 following fire events.

125 The FMAs governed by the allocation orders effectively comprised those within the eastern half of Victoria, including East Gippsland. The amended order stated in part:

These forest stands, including those affected by fire in 2003 and 2006/07, are made available to VicForests for timber harvesting. In accordance with section 12 of the *Sustainable Forests (Timber) Act 2004*, VicForests are required to demonstrate that timber harvesting, including salvage, and other operations will be conducted in accordance with the Sustainability Charter, and in such a way to minimise the impact of the 2006/07 fires on the long-term environmental, social and economic values of State forest.

Approval of coupes within the fire affected area for the purposes of fire salvage harvesting will be subject to an assessment of the extent and severity of fire damage.

The maximum area (in hectares) of each forest stand that can be harvested for timber in the 15-year time frame of this Order is divided into three 5-year periods. Forest stands not harvested in the 5-year period identified in Tables 1-3 may be harvested in a subsequent 5-year period, unless a review of this Order specifies otherwise.

Table 1 sets out the maximum area that can be harvested in the first five-year period, including fire salvage. Table 2 and Table 3 define an area of forest available for harvesting in the second and third five-year periods after allowing for the impact of fires in 2006/07. Allocations made for the second and third five-year periods have been made using the best available data but are only indicative.[43]

126 It went on to separately allocate areas for thinning activities and then described the activities VicForests was authorised to undertake as follows:

In accordance with section 15(1)(b) of the *Sustainable Forests (Timber) Act 2004*, VicForests is permitted to harvest and sell, or harvest or sell timber resources in accordance with this Order and is permitted to undertake associated management activities on coupes described in any Timber Release Plan approved by the Secretary in relation to that allocated timber, including:

- preparation of sites for timber harvesting
- construction of access roads to coupes
- site rehabilitation
- forest regeneration

VicForests is permitted to undertake these activities until timber harvesting operations are completed, and the coupes are adequately rehabilitated and regenerated. Rehabilitation and regeneration will be in accordance with the conditions and standards specified in section 6 of this Order.

VicForests is permitted to collect seed from any allocated forest stand for the purpose of regenerating coupes harvested in accordance with this Order. VicForests is permitted to construct fire trails on State forest within the vicinity of the coupe boundary for fire

management purposes associated with the regeneration of harvested coupes to the satisfaction of the Secretary.[44]

127 The 2004 allocation order then specified the following conditions:

In accordance with section 15(1)(c) of the *Sustainable Forests (Timber) Act 2004*, in undertaking authorised activities VicForests is required to comply with the conditions and standards in the following documents as amended from time to time:

- *The Code of Forest Practices for Timber Production, Revision No 2, 1996*. Department of Natural Resources and Environment.
- *The Code of Practice for Fire Management on Public Land, 1995*. Department of Conservation and Natural Resources.
- Management Guidelines as specified in Forest Management Plans published by the Department of Sustainability and Environment or its predecessors, relevant to the Forest Management Areas to which this Order applies.
- *The Management Procedures for Timber Harvesting and Associated Activities in State forests in Victoria, 2004*. Department of Sustainability and Environment.
- *The Utilisation Procedures for all Commercial Harvesting in State forests in Victoria, 2001*. Department of Natural Resources and Environment.[45]

128 Both the first code referred to in the conditions and the MPR document have since been revised and subsequent versions were referred to in the amended allocation order of 21 March 2007.

129 The current requirement of the allocation order is agreed to have effect (as a result of amendments) as follows:

In accordance with section 15(1)(c) of the *Sustainable Forests (Timber) Act 2004*, in undertaking authorised activities VicForests is required to comply with the conditions and standards in the following documents as amended from time to time:

- *The Sustainability Charter for Victoria's State forests, 2006*. Department of Sustainability and Environment.
- *The Code of Practices for Timber Production, 2007*. Department of Sustainability and Environment.
- *The Code of Practice for Fire Management on Public Land, Revision No. 1 2006*. Department of Sustainability and Environment.
- Management Guidelines as specified in Forest Management Plans published by the Department of Sustainability and Environment or its predecessors, relevant to the Forest Management Areas to which this Order applies.
- *The Management Procedures for Timber Harvesting, Roading and Regeneration in Victoria's State Forests, 2009*. Department of Sustainability and Environment.
- *Fire Salvage Harvesting Prescriptions October 2009*. Department of Sustainability and Environment.[46]

130 The allocation by the Minister pursuant to the SFT Act is thus in part expressly conditioned upon compliance with 'conditions and standards' comprised in:

• the Code of Practices for Timber Production as revised;

• Management Guidelines as specified in relevant Forest Management Plans published by DSE; and

• the MPR document published by DSE.

131 Section 18 of the SFT Act requires the Minister to review the allocation of timber resources every five years and in conducting such review to have regard to the matters specified in section 19 of the SFT Act, including the principles of ecologically sustainable development, the provisions of any code of practice and the compliance of VicForests with the conditions of the allocation order and the Code of Practice during the previous five years.

132 Part 5 of the SFT Act provides a further level of management control. Section 36 provides that all timber resources in State forests are the property of the Crown and that property in timber resources only passes from the Crown to VicForests in accordance with the provisions of the Act. Section 37 provides for the preparation of TRPs by VicForests:

VicForests to prepare timber release plan

(1) VicForests must prepare a timber release plan in respect of an area to which an allocation order applies for the purposes of—

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

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

(2) A timber release plan is to be for a period not exceeding 5 years.

133 Section 38 provides for the detailed contents of a TRP.

134 Sections 39 and 40 provide for the approval of TRPs by the Secretary. Section 40 provides:

Secretary may approve plan

(1) The Secretary may approve a timber release plan if the Secretary is satisfied that the plan is not inconsistent with—

(a) the allocation order to which it relates; and

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

(2) In approving a timber release plan under subsection (1), the Secretary may approve the plan—

(a) wholly or as to part of the plan; or

(b) subject to any conditions which the Secretary considers appropriate.

(3) The Secretary must not unreasonably withhold approval of a timber release plan under this section.

135 It can be seen that the reference to a code of practice in effect responds to the provisions of ss 31 and 39 of the CFL Act.

136 It can also be seen that a TRP may be subject to conditions imposed by the Secretary (including conditions giving effect to the guiding principles of ecologically sustainable development set out in s 5 of the SFT Act).

137 Section 43 provides for the review of, and changes to, approved TRPs.

138 Section 44 requires VicForests to operate in accordance with any approved TRP.

VicForests to operate in accordance with approved timber release plan

In carrying out its functions and powers under this Act in relation to vested timber resources or in relation to an area to which an allocation order applies, VicForests must do so in accordance with any approved timber release plan.

139 Section 45 provides that it is an offence to undertake timber harvesting operations in a State forest unless those operations are 'authorised operations'. Authorised operations include those undertaken by or on behalf of VicForests in accordance with an approved TRP.

140 The relevant TRP was made by the Secretary on 5 June 2009.

141 It provided a schedule of coupes selected for clear-fell harvesting, seed tree harvesting, thinning and coupe access roads.

142 It also listed coupes unharvested but carried over from the previous 2004-2009 TRP.

143 It described the timber harvesting activity authorised and then repeated the substantive conditions imposed by the allocation order as amended in like terms.

(g) Specified conditions

In accordance with section 15(1)(c) of the *Sustainable Forests (Timber) Act 2004*, in undertaking authorised activities VicForests is required to comply with the conditions and standards in the following documents as amended from time to time. VicForests requests that any such amendments be made in consultation with VicForests.

- *The Sustainability Charter for Victoria's State forests, 2006*. Department of Sustainability and Environment.
- *The Code of Practice for Timber Production 2007*. Department of Sustainability and Environment.
- *The Code of Practice for Fire Management on Public Land, Revision No. 1, 2006*. Department of Sustainability and Environment.
- Management Guidelines as specified in Forest Management Plans published by the Department of Sustainability and Environment or its predecessors, relevant to the Forest Management Areas to which this change applies.
- *The Management Procedures for Timber Harvesting and Associated Activities in Victoria's State Forests, 2007*. Department of Sustainability and Environment.

- *2008 Fire Salvage Harvesting Prescriptions*, Department of Sustainability and Environment.[47]

144 The approval granted by the TRP is thus also expressly conditioned upon compliance with 'conditions and standards' comprised in:

• the Code of Practices for Timber Production as revised;

• Management Guidelines as specified in relevant Forest Management Plans published by DSE; and

• the MPR document published by DSE.

145 Each of these documents is of direct relevance to the issues in the present proceeding.

146 The coupe schedule to the TRP included coupes 15 and 19 in respect of which the following information was recorded: [48]

Row Id	7	8
Year	2009/10	2009/10
Coupe Address	840-502-0015	840-502-0019
New Gross Area (ha)	43.4	21.5
New Estimated nett Area (ha)	35.0	20.0
New Road Line Length (km)	0.0	0.0
Silviculture System/Roadline Operation Type	Seed Tree (includes retained overwood)	Seed Tree (includes retained overwood)
Forest Stand Description	Alpine/Mountain Mixed species pre-1950s/unevenaged	Alpine/Mountain Mixed species pre-1950s/unevenaged

147 Likewise coupes 26 and 27 were scheduled: [49]

Row Id	3	4
Year	2009/10	2009/10
Coupe Address	840-502-0026	840-502-0027
Gross Area (ha)	28.4	6.5
Estimated nett Area (ha)	21.4	5.0
Road Line Length (km)	0.0	0.0
Silviculture System/Roadline Operation Type	Seed Tree (includes retained overwood)	Seed Tree (includes retained overwood)
Forest Stand Description	Alpine/Mountain Mixed	Alpine/Mountain Mixed

	species pre-1950s/unevenaged	species pre-1950s/unevenaged

148 Seed tree harvesting, which is referred to in the schedules, is defined in the Code of Practice to mean 'all merchantable trees are harvested apart from those specifically retained for regenerating the coupe by natural or intentional seed fall and for habitat purposes.'

149 In practice VicForests intends to harvest the coupes utilising mechanical and manual tree felling followed by a regeneration burn fuelled with petroleum accelerants prior to aerial seeding.

150 Evidence was called by VicForests from Mr Lachlan Spencer, Tactical Planning Manager, Sales and Planning Group, VicForests. Mr Spencer obtained a Bachelor of Forest Science from the University of Melbourne in 1996. He has been employed by a series of government instrumentalities involved in forestry for approximately 12 years. He described the planning and development process undertaken as the basis of a TRP. That process involves five stages: couping up, desktop assessment, field assessment, completion, and quality assurance/peer review.

151 Mr Spencer described the process as commencing at the general level and descending by way of progressive refinement to define the content of the TRP relating to specific coupes.

152 His division utilises a suite of software programs known as the Geographic Information System ('GIS'), together with an online database known as the Coupe Information System ('CIS'). The data sets include geographical constraints, topographical and hydrological features, relevant records of threatened fauna, logging history and other forest information including forest management zoning.

153 In the first stage potential coupe areas are identified. Information relating to them is then reviewed by desktop assessment to determine the net harvestable area, potential volume of timber, access arrangements and the impact of any prescriptions constraining timber harvesting.

154 The layer of information relating to threatened fauna is provided by DSE to VicForests.

155 A field assessment is then undertaken to confirm and assess the information identified in the desktop assessment and to identify additional factors that may be relevant. The field assessments are carried out by members of the tactical planning group or by suitably qualified contractors. The assessors are qualified foresters but have no special expertise in respect of biology or conservation of endangered species.

156 The information available is then collected, entered into the CIS database and reviewed to complete the planning process. The net harvestable area of the coupe is determined and areas are excluded which are subject to operational or other constraints such as habitat prescriptions. If the coupe is determined to be viable, proposed management arrangements are also entered into the CIS database.

157 The final stage involves a peer review undertaken within the Tactical Planning Group. The TRP is then submitted to the Secretary for approval.

158 Part 6 of the SFT Act requires compliance by VicForests with any relevant code of practice relating to timber harvesting. Section 46 provides:

The following persons must comply with any relevant Code of Practice relating to timber harvesting—

(a) VicForests;

(b) a person who has entered into an agreement with VicForests for the harvesting and sale of timber resources or the harvesting or sale of timber resources;

(c) the holder of a timber harvesting operator's licence;

(d) any other person undertaking timber harvesting operations in a State forest.

159 Compliance with the Code of Practice is thus required both directly by the SFT Act and indirectly by reason of the conditions imposed by the allocation order and the TRP.

160 Insofar as the TRP is concerned, those conditions have themselves been formulated in the context of s 40 of the SFT Act which requires a TRP to be consistent with the Code of Practice.

161 The purpose of the Code of Practice is stated as follows:

The purpose of this Code of Practice is to provide direction and guidance to forest managers and operators to deliver sound environmental performance when undertaking commercial timber growing and harvesting operations in such 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 timber production forests;
- provides for the ecologically sustainable management of native forests proposed for continuous timber production;
- enhances public confidence in the management of Victoria's forests and plantations for timber production.[50]

162 In turn the Code of Practice uses a hierarchy of concepts described in the following terms.

A **Code Principle** is a broad outcome that expresses the intent of the Code for each aspect of sustainable forest management.

An **Operational Goal** states the desired outcome or goal for each of the specific areas of timber production operations, to meet the Code Principles.

Mandatory Actions are actions to be conducted in order to achieve each operational goal. Forest managers and operators must undertake all relevant mandatory actions to meet the objectives of the Code. Mandatory actions are focussed on practices or activities. Failure to undertake a relevant Mandatory Action would result in non-compliance with this Code.

Legal Requirements identifies some of the laws of the State of Victoria or the Commonwealth that may be particularly relevant to an activity. To assist the forest owner and manager, this Code of Practice identifies legislation, regulations and codes that must be observed. The list may not be comprehensive, and obligations may change during the life of this Code. It is the responsibility of the user to ensure that all relevant legal requirements are met.

Guidance provides possible means for achieving Operational Goals or Mandatory Actions, including reference to documents that may assist forest managers. Forest managers and operators are not obliged to conduct any of the actions covered under Guidance. This allows for innovation and advances in technology to provide continual improvement in addressing the requirements of the Code. Failure to undertake any Guidance action does not in itself constitute non-compliance with the Code, however it should be noted that Guidance generally supports or expands upon Mandatory Actions.

DSE has prepared Management Procedures for application on public land, providing practical, detailed operational instructions for specific forest types across Victoria. These Management Procedures are consistent with the Operational Goals and Mandatory Actions of this Code and must be complied with for operations on public land. The Management Procedures are publicly available and are reviewed annually. They incorporate the outcomes of new research or findings of Code audits.[51]

163 The Code of Practice also states a series of substantive principles at its commencement:

Forest practices for timber production on all native forest and plantations in Victoria are guided by the Code Principles described in Table 1. The Code Principles express the broad outcomes of the intent of the Code for each aspect of sustainable forest management.

The seven Code Principles are developed from the internationally recognised Montreal Process criteria, and are consistent with the objectives of the *Sustainability Charter for Victoria's State forests*. Reporting mechanisms such as *Victoria's State of the Forests Report* use the same principles, and demonstrate Victoria's commitment to being an international leader in sustainable forest management.

The seven 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 production capacity of forests managed for timber production 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. Aboriginal and non-Aboriginal cultural heritage values within forests are protected and respected.
6. A safe working environment is provided for all forest workers.
7. Forest management planning is conducted in a way that meets all legal obligations and operational requirements.

Timber growing and harvesting 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 water catchments and streams, biodiversity, forested landscapes and significant archaeological, historic and other cultural heritage sites are avoided or minimised.[52]

164 It goes on to provide for forest planning through FMPs (clause 2.1.1), TRPs (clause 2.1.2), and forest coupe plans (clause 2.1.3).

165 FMPs are described as follows:

Forest Management Plans have been prepared, or are in preparation, for all Forest Management Areas in State forest in Victoria ... Forest Management Plans are the fundamental plan for the sustainable management of environmental, social, cultural and economic values within each area.

Forest Management Plans identify three management zones within State forest: the Special Protection Zone (SPZ); the Special Management Zone (SMZ); and the General Management Zone (GMZ).

SPZs are managed for particular conservation values, forming a network designed to complement the formal conservation reserve system. Timber harvesting is excluded from this zone. SMZs are managed to conserve specific features, while catering for timber production under specific management conditions. GMZs are managed for a range of uses and values, but timber production will have a high priority. Modifications to management zone locations and conditions may be undertaken from time to time to reflect new knowledge (such as the discovery of a threatened species).

All zones are managed within the meaning of sustainable forest management found in the *Sustainable Forests (Timber) Act 2004*.[53]

166 Part 2.2 of the Code of Practice relates to environmental values in public forests. It commences:

Timber production 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 operation can minimise these impacts. This section includes requirements that must be observed during planning, tending, roading and harvesting of public forests.[54]

167 The introductory words to this part of the Code of Practice thus make clear that it includes requirements that must be observed in the harvesting of public forests.

168 Clause 2.2.2 of the Code of Practice provides as follows:

2.2.2 Conservation of Biodiversity

Operational Goal

Planning, harvesting and silvicultural operations in native forests specifically address the conservation of biodiversity, in accordance with relevant legislation and regulations, and considering relevant scientific knowledge.

Mandatory Actions

Where fire is used in timber production operations, all practicable measures must be taken to protect all areas excluded from harvesting from the impacts of unplanned fire.

Forest management planning and all forestry operations must comply with measures specified in relevant Flora and Fauna Guarantee Action Statements and Flora and Fauna Guarantee Orders.

Rainforest communities in Victoria must not be harvested. Rainforest communities must be protected from the impacts of harvesting through the use of appropriate buffers to maintain microclimatic conditions and protect from disease and other disturbance.

To facilitate the protection of biodiversity values, the following matters must be addressed when developing and reviewing plans and must be adhered to during operations:

- *application of the precautionary principle to the conservation of biodiversity values, consistent with monitoring and research to improve understanding of the effects of forest management on forest ecology and conservation values;*
- *consideration of the advice of relevant experts and relevant research in conservation biology and flora and fauna management at all stages of planning and operations;*
- *use of wildlife corridors, comprising appropriate widths of retained forest, to facilitate animal movement between patches of forest of varying ages and stages of development, and contributing to a linked system of reserves;*
- *providing appropriate undisturbed buffer areas around significant habitats;*
- *maintaining forest health and ecosystem resilience by managing pest plants, pest animals and pathogens; and*
- *modifying coupe size and dispersal in the landscape, and rotation periods, as appropriate.*

At the coupe planning and harvesting level, the retention of habitat trees or patches and long-lived understorey elements in appropriate numbers and configurations, and provision for the continuity and replacement of old hollow-bearing trees within the harvestable area, must be allowed for.

Legal requirements

The *Catchment and Land Protection Act 1994* requires all landholders to control pest animals and noxious weeds on their property.

The *Environment Protection and Biodiversity Conservation Act 1999* includes provisions to protect matters of national environmental significance, including listed threatened species and endangered ecological communities.

The *Wildlife Act 1975* contains provisions to protect wildlife and includes requirements relating to control of wildlife species causing damage.

The *Flora and Fauna Guarantee Act 1988* includes provisions relating to the handling of protected flora, the determination of Critical Habitat and the making of Interim Conservation Orders.

Guidance

The objective of habitat retention measures is to facilitate the continued occupation or recolonisation by all species that are likely to have occurred in the area prior to timber harvesting through protection of the ecosystem that supports them. Thus, no part of the harvested area will become permanently unsuitable for any species likely to have been resident or a regular visitor to the area before it was harvested.

Opportunities to improve the protection of threatened species or habitat values may include reserving further strategic areas from harvesting, or modifying harvesting and silvicultural techniques to achieve specific conservation objectives.

Where vegetation is retained, consideration should be given to the protection of retained vegetation during harvesting and subsequent management, and the effect of retained vegetation on the growth of future crop trees.

Streamside buffers may both protect water quality and act as a wildlife corridor. However, the need for corridors along or across other topographic features will arise and should be considered in relation to the forest type and fauna present.

When planning and undertaking regeneration burning operations, minimising slash near any retained vegetation (eg. buffer strips, habitat trees or patches or shelterwood one trees) will assist with its survival.[55]

169 The Code of Practice further explicitly provides that not only forest planning, but ‘all forestry operations’ must comply with measures specified in relevant FFGASs.

170 Likewise it lists a series of matters that must be addressed during operations, including the precautionary principle, consideration of expert conservation biology advice, provision of appropriate undisturbed buffer areas around significant habitats, and modification of coupe size as appropriate.

171 The language of clause 2.2.2 contemplates mandatory actions will be implemented in circumstances where conservation of biodiversity requires them to be undertaken. Those actions may be specified in FFGASs, or constitute the application of relevant principle to decision making, the consideration of relevant advice in the course of decision making, the appropriate reduction of areas that would otherwise be harvested, and allowance for habitat preservation within coupes.

172 VicForests accepts that non-compliance by it with requirements for mandatory actions specified in the Code of Practice would result in unlawful activity.

173 Such non-compliance is potentially capable of demonstration where the statement of mandatory actions contains a clear proscription or prescription, eg a proscription against the harvesting of rainforest.[56]

174 Most relevantly for present purposes the requirement to comply with measures specified in a relevant FFGAS constitutes a specific prescription.

175 Conversely, the requirement to address a series of considerations relating to protection of biodiversity imposes a requirement with respect to proper management processes but not one which necessarily requires a specified outcome.

The precautionary principle

176 The precautionary principle is defined by the Code of Practice as follows:

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 degradation.[57]

177 The precautionary principle was adopted in clause 3.5.1 of the Australian Government Intergovernmental Agreement on the Environment, 1 May 1992, National Environment Protection Council Act 1994 (Cth) Schedule:

3.5.1 precautionary principle –

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

i.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.[58]

It is also embodied in principle 15 of the Rio Declaration on Environment and Development in similar terms.

178 The precautionary principle is required by clause 2.2.2 to be applied during operations. It is also required to be applied in a manner consistent with ongoing monitoring and research. The obligation in respect of the precautionary principle is coupled with a requirement to consider the advice of relevant experts and relevant research in conservation, biology and flora and fauna management at all stages of planning and operations. It is also coupled with the requirement to modify coupe size and dispersal in the landscape as appropriate.

179 It is plain from these provisions that it is not intended that the precautionary principle will be applied by VicForests only at the strategic planning stage of its operations. VicForests is specifically required to apply it having regard to the results of monitoring and research as they come to light during operations. In the present case the proposal to log the Brown Mountain coupes has provoked a series of investigations, new research, and expert advice. The requirements of the precautionary principle fall to be considered in the light of the whole

of the evidence bearing on these matters as it now is and not as it was at the time VicForests completed planning for operations in these coupes.

180 It follows that evidence with respect to the identification and circumstances of a particular threatened species which has not been identified during the planning process, may establish a threat to the environment potentially justifying the application of a precautionary approach.

181 Nevertheless it remains true that the precautionary principle falls to be applied within a considered and developed framework of regulation which has itself been derived from a strategic planning process which has taken account of principles of environmentally sustainable development and provided for significant conservation reserves. The extent of these reserves was emphasised in the evidence of Professor Ian Ferguson.

182 In these circumstances I accept VicForests' submission that it is not possible to readily postulate a generalised failure to give effect to the precautionary principle in respect of the proposal to log at Brown Mountain.

183 I have however come to the view that the precautionary principle may remain potentially significant in two principal ways. The first relates to survey requirements and the second relates to what I shall call management zone review requirements. For reasons I shall explain, in the circumstances of the present case the precautionary principle may apply:

(a) Where it is probable or seriously possible that there is a significant threat to endangered species from the proposed logging at Brown Mountain and the scientific evidence is now that:

• the evaluation of that threat will be materially assisted by further specific survey investigations directed to resolving doubt as to the presence and location of the relevant species within the coupes; or

• the evaluation has the capacity to directly trigger a material response under the FFGAS or FMP management requirements directed to the conservation of endangered species; and

(b) Where a review of aspects of the current FMA arrangements with respect to the protection of endangered and threatened species is currently underway (independently of the controversy over Brown Mountain) and the evidence establishes new records or the need for further specific surveys likely to affect that review process.

184 In each such case the precautionary principle would not require the permanent prohibition of logging at Brown Mountain, but it may potentially require the implementation of adaptive management procedures in accordance with it.

185 The underlying notion of the precautionary principle was stated by Stein J in Leatch v National Parks and Wildlife Service:[59]

... the precautionary principle is a statement of common sense and has already been applied by decision-makers in appropriate circumstances prior to the principle being spelt out. It is directed towards the prevention of serious or irreversible harm to the environment in situations of scientific uncertainty. Its premise is that where uncertainty or ignorance exists

concerning the nature or scope of environmental harm (whether this follows from policies, decisions or activities), decision-makers should be cautious.[60]

186 The notion of cautiousness was discussed by Wheeler J in Bridgetown/Greenbushes Friends of the Forest Inc v Executive Director of Conservation and Land Management.[61] In that case the plaintiff sought a declaration that proposed logging operations were in breach of the precautionary approach and sought an injunction restraining the defendant from carrying them out. In the course of her judgment, her Honour observed:

Adopting for the moment a very broad characterisation of the precautionary approach, a requirement that a decision maker 'be cautious' says something about the way in which the decision must be made. There must be some research, or reference to available research, some consideration of risks, and a more pessimistic rather than optimistic view of the risks should be taken. However, such a requirement does not in any particular case specify precisely how much research must be carried out, or when a risk should be considered to be so negligible that it may safely be disregarded. Still less, does such an approach dictate what courses of action must be taken after the possibilities have been cautiously weighed.

No doubt there are extremes at either end of a spectrum, where one would be able to say that a decision maker had or had not been 'cautious'. Where endangered species are concerned for example, one can see that where readily accessible and unambiguous research material pointed to a serious risk that numbers of the species would be dramatically reduced by a course of action, then the adopting of that course of action, in the absence of any evidence of consideration of alternatives, would seem to point inevitably to a finding that there had been no relevant 'caution'. At the other extreme, an absence of any action, other than research and study, is clearly cautious but is not the only option available in most cases. Although there has been very little judicial consideration of the precautionary approach or 'precautionary principle' (a similar or perhaps identical concept which appears in a number of intergovernmental agreements) the clear thread which emerges from what consideration has been given to the approach is that it does dictate caution, but it does not dictate inaction, and it will not generally dictate one specific course of action to the exclusion of others.[62]

187 In the present case EEG must demonstrate a failure to apply the precautionary principle in a specific way, before its breach can justify the grant of injunctive relief. The threshold components of the precautionary principle were characterised on behalf of EEG as 'integral components' of it, rather than preconditions to its application. In the present context I accept VicForests' submission that they are preconditions which EEG must demonstrate are satisfied.

188 I respectfully accept the careful analysis of the precautionary principle by Preston CJ in Telstra Corporation Limited v Hornsby Shire Council[63] ('the Telstra case'). I accept his Honour's fundamental conclusion:

The application of the precautionary principle and the concomitant need to take precautionary measures is triggered by the satisfaction of two conditions precedent or thresholds: a threat of serious or irreversible environmental damage and scientific uncertainty as to the environmental damage. These conditions or thresholds are cumulative. Once both of these conditions or thresholds are satisfied, a precautionary measure may be taken to avert the anticipated threat of environmental damage, but it should be proportionate.[64]

189 In the present case EEG alleges threats of serious and irreversible environmental damage by way of impact upon endangered species of fauna. It is a question of fact in each instance as to whether the proposed logging does constitute such a threat.

190 In the Telstra case, Preston CJ observed relevant factors may include:

(a) the spatial scale of the threat (for example, local, regional, statewide, national, international);

(b) the magnitude of possible impacts, on both natural and human systems;

(c) the perceived value of the threatened environment;

(d) the temporal scale of possible impacts, in terms of both the timing and the longevity (or persistence) of the impacts;

(e) the complexity and connectivity of the possible impacts;

(f) the manageability of possible impacts, having regard to the availability of means and the acceptability of means;

(g) the level of public concern, and the rationality of and scientific or other evidentiary basis for the public concern; and

(h) the reversibility of the possible impacts and, if reversible, the time frame for reversing the impacts, and the difficulty and expense of reversing the impacts.[65]

191 In my view the statement in another context by Mason J in Wyong Shire Council v Shirt[66] that a risk though remote may nevertheless be real and not fanciful or far-fetched is apposite here. At 48 his Honour stated that '[a] risk which is not far-fetched or fanciful is real and therefore foreseeable.'

192 The threat hypothesised must have a scientific basis. [67]

The assessment involves ascertaining whether scientifically reasonable (that is, based on scientifically plausible reasoning) scenarios or models of possible harm that may result have been formulated.[68]

The threat of environmental damage must be adequately sustained by scientific evidence. As was held in *Monsanto Agricoltura Italia v Presidenza del Consiglio dei Ministri*:[69]

"... not every claim or scientifically unfounded presumption of potential risk to human health or the environment can justify the adoption of national protective measures. Rather, the risk must be adequately substantiated by scientific evidence."

193 In the present case the threats in issue are the subject of direct evidence by witnesses possessing scientific expertise with respect to them. I shall come to that evidence in dealing with the specific species to which it is relevant.

194 The second condition precedent is that there be 'a lack of full scientific certainty'.

195 Once again, this is a question of fact and the assessment of it potentially involves complex factors. In the Telstra case, Preston CJ postulated that they might include the following:

(a) the sufficiency of the evidence that there might be serious or irreversible environmental harm caused by the development plan, programme or project;

(b) the level of uncertainty, including the kind of uncertainty (such as technical, methodological or epistemological uncertainty); and

(c) the potential to reduce uncertainty having regard to what is possible in principle, economically and within a reasonable time frame.[70]

196 There is a body of theoretical debate as to what is the requisite degree of uncertainty required to trigger application of the principle.[71]

197 In the present case I propose to analyse the evidence on the basis of a standard of substantial uncertainty. Such a standard falls within the ambit of the principle whatever may be its theoretical limits.

198 The relevant uncertainty pertains either to the extent to which the threatened species is present in the Brown Mountain coupes or the optimal form of management areas within the FMA for the preservation of specific species. I shall again address the issue of uncertainty in respect of each individual species to which it is relevant.

199 If the conditions precedent are satisfied, the burden of showing the threat of serious or irreversible environmental damage will not occur effectively shifts to VicForests to show that the threat does not exist or is negligible.[72]

If each of the two conditions precedent or thresholds are satisfied — that is, there is a threat of serious or irreversible environmental damage and there is the requisite degree of scientific uncertainty — the precautionary principle will be activated. At this point, there is a shifting of an evidentiary burden of proof. A decision-maker must assume that the threat of serious or irreversible environmental damage is no longer uncertain but is a reality. The burden of showing that this threat does not in fact exist or is negligible effectively reverts to the proponent of the economic or other development plan, programme or project.

The rationale for requiring this shift of the burden of proof is to ensure preventative anticipation; to act before scientific certainty of cause and effect is established. It may be too late, or too difficult and costly, to change a course of action once it is proven to be harmful. The preference is to prevent environmental damage, rather than remediate it. The benefit of the doubt is given to environmental protection when there is scientific uncertainty. To avoid environmental harm, it is better to err on the side of caution.[73]

200 If the burden is not discharged, VicForests and in turn the Court must assume that there will be serious or irreversible environmental damage.

201 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.[74]

202 In the present case EEG contends that the precautionary principle requires the taking of preventative measures before the destruction of habitat critical to endangered species occurs.

203 The precautionary principle is not however directed to the avoidance of all risks.[75]

204 The degree of precaution appropriate will depend on the combined effect of the seriousness of the threat and the degree of uncertainty.[76]

205 The margin for error in respect of a particular proposal may be controlled by an adaptive management approach.[77]

206 In the present case the measures in issue by way of survey requirements and management zone reviews respectively are adaptive management measures.

207 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.[78] The principle requires the avoidance of serious or irreversible damage to the environment 'wherever practicable'. It also requires the assessment of the risk weighted consequences of optional courses of action.

208 A reasonable balance must be struck between the cost burden of the measures and the benefit derived from them.[79]

209 The relevant notion of proportionality is however not readily captured by traditional cost benefit analysis.[80]

210 The triggering of the precautionary principle does not necessarily preclude the carrying out of a particular land use or development proposal.[81]

211 The precautionary principle may also require consideration in the context of other principles of environmentally sustainable development.[82]

212 In summary, the application of the precautionary principle to aspects of this case raises the following fundamental issues:

(a) is there a real threat of serious or irreversible damage to the environment?

(b) is it attended by a lack of full scientific certainty (in the sense of material uncertainty)?

(c) if yes to (a) and (b), has VicForests demonstrated the threat is negligible?

(d) is the threat able to be addressed by adaptive management?

(e) is the measure alleged to be required proportionate to the threat in issue?

213 EEG contends there has been a generic failure by VicForests to conduct pre-logging surveys in old growth forest which breaches the precautionary principle.

214 The evidence as a whole supports the conclusion that pre-logging surveys for endangered species in old growth forest in East Gippsland are highly desirable. That evidence includes

the whole of the evidence as to the habitat available to the individual species which were the subject of evidence in this case. It also includes incidental opinion evidence from officers of DSE, evidenced by documentation tendered in the course of the trial. A discussion paper dated 5 April 2009 records:

The absence of a pre-harvest survey process exposes DSE and VicForests to the prospect of inadvertent damage or destruction of significant species sites (or advertent damage if a report of a species presence has been made), negative publicity and accusations of breaches of our own guidelines and possible legal challenges to timber harvesting.[83]

215 The desirability of such surveys is also accepted in the briefing note to the Minister of 18 June 2009 relating to Brown Mountain Creek which contained as recommendation 4:

That you note that the Department is assisting VicForests to develop a process for the conduct of pre-harvesting surveys and is developing a decision framework to assist in responding to other flora and fauna surveys conducted by members of the public in timber harvesting areas. It is intended that this decision framework be made publicly available.[84]

216 Such desirability is also expressly recognised in the two concluding paragraphs of the Minister's press release of 21 August 2009, which I have quoted above, and which endorses improved pre-harvesting survey processes.

217 Nevertheless to establish a breach of the precautionary principle in respect of the Brown Mountain coupes, EEG must adduce evidence both in relation to the threat to the environment and the possibility of proportionate response, which justifies delaying the logging of the particular coupes in issue. Such evidence must address the factors I have summarised above. The generalised evidence as to the desirability of pre-logging surveys does not do this. On the other hand, the evidence as to the need for further surveys in respect of particular species and as to completion of review of area management zones relating to particular species, potentially addresses each of the relevant issues. I will deal with this evidence in the course of analysing the evidence with respect to particular species.

218 A further preliminary question relating to the precautionary principle should be recorded. VicForests took issue with expressions of opinion as to breach of the precautionary principle by a number of witnesses called by EEG. In turn EEG took issue with opinions expressed in relation to this principle by Professor Ferguson. I accept the fundamental thrust of the criticisms made on each side that the question of breach of the precautionary principle must be assessed against the evidence as a whole and not simply the opinion of a witness having expertise relevant to one aspect of the matter whether relating to biological or forestry matters. As Mr Waller submitted in final address, the evidence as a whole must be balanced.

The Flora and Fauna Guarantee Act 1988

219 The purposes of the FFG Act are stated by s 1:

The purpose of this Act is to establish a legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes.

220 Section 4 states flora and fauna conservation management objectives and provides by sub-s 2 that a public authority must be administered so as to have regard to those objectives. It is admitted that VicForests is a 'public authority' as defined by s 3 of the FFG Act.

221 The objectives stated are as follows:

(1) The flora and fauna conservation and management objectives are—

(a) to guarantee that all taxa of Victoria's flora and fauna other than the taxa listed in the Excluded List can survive, flourish and retain their potential for evolutionary development in the wild; and

(b) to conserve Victoria's communities of flora and fauna; and

(c) to manage potentially threatening processes; and

(d) to ensure that any use of flora or fauna by humans is sustainable; and

(e) to ensure that the genetic diversity of flora and fauna is maintained; and

(f) to provide programs—

(i) of community education in the conservation of flora and fauna; and

(ii) to encourage co-operative management of flora and fauna through, amongst other things, the entering into of land management co-operative agreements under the *Conservation, Forests and Lands Act 1987*; and

(iii) of assisting and giving incentives to people, including landholders, to enable flora and fauna to be conserved; and

(g) to encourage the conserving of flora and fauna through co-operative community endeavours.[85]

222 EEG draws particular attention to the first of these objectives and the outcome of a guarantee which it envisages. It submits that VicForests has not been administered in a way which has regard to this objective with respect to each of the species in relation to which it adduced evidence.

223 Section 7 provides for the functions of the Secretary:

(1) The Secretary must administer this Act in such a way as to promote the flora and fauna conservation and management objectives.

(2) If the Secretary is of the opinion that action taken or to be taken by a public authority is likely to threaten the survival of a listed taxon or community of flora or fauna or a critical habitat the Secretary may require the public authority to consult with the Secretary either before the action starts, or if the action has already started within 15 days of the request being made.

(3) The Secretary may give grants and other incentives to encourage the achievement of the flora and fauna conservation and management objectives.

224 Logging at Brown Mountain is not currently subject to a s 7(2) requirement by the Secretary.

225 Section 8 provides for the establishment of an expert Scientific Advisory Committee with the following functions:

(a) to advise the Minister on the listing of taxa or communities of flora and fauna and potentially threatening processes;

(b) to advise the Minister on any other flora and fauna conservation matters.[86]

226 Part 3 of the FFG Act provides for the listing of taxons or communities which are threatened, and for the listing of potentially threatening processes. Section 10 provides for the gazettal of a list of any taxon or community of flora or fauna which is threatened, together with potentially threatening processes. Section 11 governs eligibility for listing.

(1) A taxon or community of flora or fauna is eligible to be listed if it is in a demonstrable state of decline which is likely to result in extinction or if it is significantly prone to future threats which are likely to result in extinction.

(2) A taxon of flora or fauna which is below the level of sub-species and a community of flora or fauna which is narrowly defined because of its taxonomic composition, environmental conditions or geography is only eligible for listing if in addition to the requirements of subsection (1) there is a special need to conserve it.

(3) A potentially threatening process is eligible for listing if, in the absence of appropriate management, it poses or has the potential to pose a significant threat to the survival or evolutionary development of a range of flora or fauna.

(4) The Committee[87] is responsible for preparing and maintaining a set of criteria by which the eligibility of taxa or communities of flora or fauna or processes for listing can be determined.

(5) The set of criteria referred to in subsection (4) is of no effect unless it is included in regulations.[88]

227 The FFG Act provides for a process of preliminary and final recommendations by an expert Scientific Advisory Committee before decisions by the Minister as to listing. Consultation is also required with the Conservation Advisory Committee established under the FFG Act and the Victorian Catchment Management Council.[89]

228 Part 4 of the FFG Act provides for management processes. Division 1 provides for the preparation of a flora and fauna guarantee strategy by the Secretary. The strategy must have regard to its social and economic impacts. Section 17(2) and (3) provide:

(2) The Strategy must include proposals for—

(a) guaranteeing subject to subsection (3) the survival, abundance and evolutionary development in the wild of all taxa and communities of flora and fauna; and

(b) ensuring the proper management of potentially threatening processes; and

(c) an education program; and

(d) improving the ability of all relevant people to meet the flora and fauna conservation and management objectives.

(3) The Strategy may allow for particular needs in particular areas and must have regard to the need for efficiency and effectiveness and to the need to achieve the flora and fauna conservation and management objectives with the minimum adverse social and economic impact and to the rights and interests of landholders.

229 Division 2 of Part 4 provides for the preparation of FFGASs and the determination of critical habitats. Section 19 provides for FFGASs:

(1) The Secretary must prepare an action statement for any listed taxon or community of flora or fauna or potentially threatening process as soon as possible after that taxon, community or process is listed.

(2) The action statement must set out what has been done to conserve and manage that taxon or community or process and what is intended to be done and may include information on what needs to be done.

(3) In preparing or amending an action statement the Secretary must consider—

(a) any management advice given by the Committee, the Conservation Advisory Committee and the Victorian Catchment Management Council; and

(b) any other relevant nature conservation, social and economic matters.

(4) The Secretary may amend an action statement.

230 In the present case FFGASs have been promulgated in respect of a number of species which EEG asserts are present within the Brown Mountain coupes.

231 An FFGAS has also been promulgated with respect to the loss of hollow bearing trees as a listed potentially threatening process.

232 The requirements of the relevant FFGASs are as I have said above, picked up by the Code of Practice as ‘mandatory actions’. They do not simply inform the decision making of VicForests as a public authority pursuant to s 4 of the FFG Act.

233 The requirements of specific FFGASs are also referred to in the FMP guidelines relating to specific species.

234 Section 20 of the FFG Act provides for declarations of critical habitat:

(1) The Secretary may determine that the whole or any part or parts of the habitat of any taxon or community of flora or fauna is critical to the survival of that taxon or community.

(2) The Secretary must—

(a) advertise the determination in a newspaper circulating generally throughout the State and in a newspaper circulating generally in the area likely to be affected by the determination; and

(b) notify those persons listed in section 37; and

(c) notify any landholder or water manager who manages land or water likely to be affected by the determination; and

(d) publish notice of the determination in the Government Gazette.

(3) The Secretary need not comply with subsection (2)(a) if—

(a) the Secretary is of the opinion that to disclose the location of the habitat would result in an unreasonable level of harm being done to it and to the flora and fauna which it supports and the Minister has approved of the Secretary's decision; or

(b) the landholder requests that the information be withheld and the Minister approves the withholding of the information.

(4) The Secretary may amend or revoke a determination.

(5) Upon amending or revoking a determination the Secretary must notify those persons who were given notice of the making of the determination and publish notice in the Government Gazette.

235 In January 2009, application was made on behalf of EEG for a determination that the Brown Mountain coupes constituted critical habitat for threatened species within them. That application has not been determined by the Secretary and the failure to do so was not the subject of judicial review in this proceeding.

236 Division 3 of the FFG Act also provides for the making of management plans by the Secretary for any taxon or community of flora or fauna or potentially threatening process.

237 Division 4 provides that the Secretary may enter into agreements with public authorities to provide for the management of any taxon or community of flora or fauna or potentially threatening process.

238 The critical mechanism of the FFG Act for present purposes is however the making of FFGASs.

The Forest Management Plan provisions with respect to threatened species

239 The FMP provides for the creation of both SPZs and SMZs.

SPECIAL PROTECTION ZONE (SPZ)

This zone will be managed primarily for conservation. Timber harvesting will be excluded and other activities (like fuel reduction burning and grazing) will only be permitted where they are compatible with the values of the specific area (see Table 2). Most of the SPZ has been generated by applying the conservation guidelines set out in Chapter 3 (Biodiversity Conservation). Larger components of the zone are based on:

- representative examples of Ecological Vegetation Classes, and old-growth forest.
- representative examples of heathland mosaics and their hinterland.
- sub-catchments for protection of significant rainforest areas.
- Long-footed Potoroo special management areas, where they coincide with other values.
- key threatened and sensitive fauna localities.

These are linked to each other and to conservation reserves by other parts of the SPZ, which include:

- natural features zones on rivers and streams.
- linear reserves of 200 m average width.
- areas protected by the Code, including stream buffers (20 and 40 m) and all rainforest stands with their associated buffers (20 and 40 m).
- all heathland areas and buffering vegetation of at least 40 m width.

Substantial areas identified as sites of biological significance or having national estate values are also included in the SPZ.

Appendix B lists the key values of areas in the SPZ. Each area has a site number for cross referencing to Map 26.

SPECIAL MANAGEMENT ZONE (SMZ)

This zone covers a range of areas requiring special management, including:

- Some of the areas are designated for conservation of species such as Powerful, Sooty and Masked Owls, Spot-tail Quoll and rare butterflies. Timber harvesting will be planned in accordance with appropriate guidelines (see section 3.4). Recorded sites of these species in parts of the FMA where they are poorly conserved, or where they coincide with other values, have been included in the SPZ.
- Long-footed Potoroo special management areas will be managed in accordance with the Long-footed Potoroo Management Strategy. Many potoroo sites coincide with other values and have been included in the SPZ. The balance are in the SMZ, where a moratorium will apply to timber harvesting, new roading and most fuel-reduction burning until review of this Plan or if the outcomes of research indicate a change is necessary. A research program into the ecology of Long-footed Potoroo is under way and will be complete before the year 2000.
- Point localities of significant features including historic sites, research sites and populations of key threatened plant species. These features are too small to represent accurately on maps in this Plan and have been placed in ‘Special Management Sites’ of 250 m radius. Special Management Sites flag an area as having important values. Activities (like road construction, timber harvesting or fuel

reduction burning) will only be undertaken after consultation with appropriate specialists. Management of these sites will be considered on a case-by-case basis.

- Areas where modified timber harvesting techniques will be used to minimise the visual impact of harvesting (around W-Tree), and to minimise risks to catchment values (Betka River and Rocky River Special Water Supply Catchment Areas). See section 5.2.

Management arrangements for areas in the SMZ will be determined on a case-by-case basis according the values present. In some areas (like Long-footed Potoroo sites) timber harvesting will be excluded while research is under way, while in others (like the Betka River and Rocky River Special Water Supply Catchment Areas, and around W-Tree), the timing of harvesting, size of coupes and method of extraction will be affected. Each area identified for conservation of other values will have a special plan prepared detailing, where, and under what conditions timber harvesting may occur. Appendix K and Map 25 provide an example for a SMZ (Powerful and Sooty Owl) in Cabbage Tree Forest Block.[90]

240 It introduces the subject of native fauna in the following terms:

As a result of extensive studies over the last decade or so, the vertebrate fauna of East Gippsland is perhaps better known than that of any other area of comparable size and vegetation type in Australia. This information has been reviewed and issues identified by Lugg et al (1993).

The fauna conservation strategy has been developed in the context of conservation reserves, representative conservation of EVCs and old-growth forest (discussed earlier in this chapter), and the large areas of State forest unsuitable for timber harvesting. Together these provide a high level of protection for most significant fauna habitats and should cater for most forest fauna. For example, habitats supporting particularly rich or characteristic fauna, such as heathland, Warm Temperate Rainforest, Riparian Forest, Rainshadow Woodland, Rocky Outcrops, box-ironbark areas and wetlands, are well protected by the park system and the flora conservation strategy. Consequently this strategy concentrates on some key species that are threatened or are sensitive to timber harvesting. Appendix J lists threatened, sensitive and geographically limited faunal species in East Gippsland.

Over the next 30 years or so, the timber industry will be in a state of transition – from being based on older forest to one based on regrowth. The main thrust of this strategy is to ensure that a suitable habitat network is retained as the ratio of older forest to regrowth decreases. The strategy has three elements:

- conservation guidelines for featured threatened and sensitive fauna.
- a network of linear reserves to maintain sensitive fauna populations across the forest landscape.
- modified timber-harvesting arrangements to retain high fauna values in the Special Management Zone.

Aims

- *Ensure that all indigenous fauna species survive and flourish throughout the FMA.*
- *Provide special protection for threatened and sensitive fauna species.[91]*

241 It then sets out guidelines for conservation of featured species and introduces those guidelines in the following terms:

Guidelines for conservation of featured species

Conservation guidelines have been developed for threatened or sensitive species with major habitat requirements in State forest, and whose needs may not be fully met by other conservation strategies (featured species). These guidelines are intended as tools to help devise a network of protected habitat catering for all forest fauna in the FMA. They are not to form the basis of State-wide fauna management, as other Forest Management Areas may differ in their specific requirements and situations.

The purpose of the guidelines is to:

- provide planned protection for sensitive and threatened species in State forest to meet the requirements of the *Flora and Fauna Guarantee Act 1988* and the precautionary principle outlined in the National Forest Policy Statement.
- take account of the contribution of national parks and other conservation reserves towards meeting these requirements.
- initiate an orderly process for ongoing reconciliation of timber production with conservation of threatened species.

The guidelines for large forest owls and Long-footed Potoroo indicate the minimum number of individuals or minimum area of suitable habitat that will receive planned protection on public land. Where conservation reserves do not provide this, areas of State forest will be identified to fill the gap. Additional resources for these species will also persist in other parts of State forest. Guidelines for other species indicate a level of protection that, once reached, will 'trigger' a review of the guideline.

In applying the guidelines consideration will be given to the status of fauna records and the quality of habitat in the area. For example a well documented and substantial population of a threatened species warrants a higher priority for protection than an area of marginal habitat where the same species was incidentally recorded.

The guidelines are a step towards more comprehensive conservation strategies to be developed as more information becomes available. Preparation and implementation of Flora and Fauna Guarantee (FFG) action statements, for example, may supersede some guidelines. Chapter 8 provides a mechanism for progressive refinement of management guidelines.[92]

242 It can be seen that the guidelines are intended as tools to help devise a network of protected habitat catering for all forest fauna, and are expressed to be provisional in the sense that it is intended more comprehensive conservation strategies be developed as more information becomes available.[93]

243 It is also expressly contemplated FFGASs may supersede specific guidelines.

244 The guidelines expressly seek to give effect to the precautionary principle.

245 They expressly seek to take account of the contribution of national parks and other conservation reserves towards meeting the requirements of the FFG Act and the precautionary principle.

246 As the introductory statement quoted above identifies, a number of the guidelines are expressed in terms which trigger a review. Thus the guideline for the Spot-tailed Quoll concludes:

Once 50 sites have been identified, this guideline will be reviewed.[94]

The guideline for forest dwelling bats contains a similar provision triggered by attainment of 20 sites. The guideline for the owls state that once sufficient habitat for 100 pairs of each of the listed species is set aside by way of management areas, new owl records may be used to adapt the zoning scheme.

247 The guidelines then deal with different types of fauna. The guideline with respect to mammals are introduced in the following terms:

Conservation reserves, coupled with strategies for conservation of old-growth forest and large forest owls, contribute significantly to mammal conservation in the FMA. Additionally, linear reserves (see page 33) are designed to maintain resident populations of arboreal mammals across the forest landscape. However, some further measures are necessary to conserve key threatened species and areas of high mammal richness and diversity.[95]

248 The guidelines thus expressly envisage measures additional to the provision of conservation reserves and linear reserves. Those additional measures are intended to conserve both key threatened species and areas of high mammal richness or diversity.

249 Specific guidelines follow for the Long-footed Potoroo, Spot-tailed Quoll, cave-roosting bats, forest dwelling bats, dingoes, arboreal mammals and rich mammal sites.

250 The guideline with respect to arboreal mammals (which is of particular significance in the present case) is as follows:

Arboreal mammals. For each of the following occurrences, approximately 100 ha of suitable habitat will be included in the SPZ:

- resident Koala populations.
- Greater Glider and Common Brushtail Possum - >2 individuals per ha, >10 per km, or >15 per hour of spotlighting.
- Yellow-bellied Glider - >0.2 per ha, >5 per km, or >7 per hour of spotlighting.
- Eastern Pygmy Possum - >5 per standard pitfall line over 5 days.
- substantial populations of the above species that are isolated or in unusual habitat.[96]

251 In order to take effect the standard specified must be applied to a specific area of approximately 100 hectares responsive to the detection. Nevertheless I do not accept EEG's submission that a relevant detection somehow fixes the area surrounding it with the 'status' of an SPZ. Either an SPZ is defined and created within the zoning scheme or it is not.

252 The specific arboreal mammal guideline is to be distinguished from the guideline with respect to linear reserves, which is in the following terms:

A network of connecting linear reserves across the FMA is particularly important for conservation of sensitive fauna. The aim should be to maintain resident populations of most

sensitive species within linear reserves and thereby facilitate re-colonisation of areas that are harvested or burnt by wildfire. A linear reserve network will also provide some of the habitat requirements of wider-ranging species (such as large forest owls) and help prevent genetic isolation of sensitive forest species.

To guard against the possible impacts of climate change the National Forest Policy Statement (Commonwealth of Australia 1992) proposes creation of corridor systems that '*link reserves, refuges and areas with a relatively large range of altitudinal and other geographical variation...*' (p.9).

Linear reserves containing forest of good quality, about 200 m wide, should be sufficient to maintain resident populations of all possums and gliders, most bats and most forest-dependent birds, especially if adjacent areas are also forested. This is supported by studies that found resident Yellow-bellied Gliders in strips of retained mature forest (100-200 m wide) within 10 – year old native forest regenerating following harvesting (Kavanagh and Rohan-Jones 1982), and within pine plantations (Recher et al 1987). Yellow-bellied Gliders have social and foraging habits that make them likely to require the widest linear reserve of the species listed.

CONSERVATION GUIDELINE **Linear reserves**

A network of linear reserves will be maintained as part of the SPZ. Linear reserves will:

- provide a number of alternative links between conservation reserves and larger parts of the SPZ and SMZ.
- span altitudinal and latitudinal gradients.
- be an average of 200 m wide.
- generally comprise old forest containing high quality habitat.
- build on and complement existing Natural Features Zones, Heritage River corridors and stream buffers.
- Be located to reduce the impact of potential barriers such as the Princes and Cann Valley Highways.[97]

253 The guidelines for birds commence as follows:

While most bird species are well catered for by other strategies – particularly representative EVC conservation – the Powerful, Sooty and Masked Owls warrant particular attention. These species are rare and have been listed under the *Flora and Fauna Guarantee Act 1988*. Their habitat often comprises extensive areas of forest with hollow trees that provide nest sites and support substantial populations of prey (especially possums and gliders). They defend large territories, in the order of 500 – 1000 ha. Consequently they are potentially sensitive to the effects of clear-felling and may be among the most difficult fauna to conserve in production forest. The methodology and basis of the owl conservation guideline will be detailed in a forthcoming report by A.D. McIntyre and S.R. Henry. Application of the guideline has made a major contribution to the SPZ and the SMZ areas shown on Map 26. Flora and Fauna Guarantee Action Statements are being prepared for these species.[98]

254 Specific guidelines follow for Powerful, Sooty and Masked Owls, diurnal raptors, the Glossy Black Cockatoo, and rich bird sites.

255 The guidelines for reptiles and amphibians are introduced as follows:

The large areas of dry forest unsuitable for timber production, conservation reserves and strategies for representative conservation of EVCs should adequately conserve most reptile species in East Gippsland. Similarly, protection of the riparian environment through the Code and the network of linear reserves will protect the breeding habitat of most frogs. However, some species and values warrant specific consideration. The Giant Burrowing Frog, for example, may be vulnerable to disturbance associated with timber harvesting, as it burrows in the soil well away form watercourses, while the Southern Barred Frog has only been recorded at three sites in the FMA.[99]

256 Specific guidelines follow for the Diamond Python, the Giant Burrowing Frog, the Southern Barred Frog, the Blue Mountains Tree Frog and rich reptile and amphibian sites.

257 The guidelines for invertebrates commence as follows:

While the invertebrate fauna of East Gippsland is poorly known, some species and features warrant special attention. These include important breeding areas for rare butterfly species and the recently re-discovered Orbost Crayfish, which is apparently restricted to the Brodribb River headwaters.[100]

258 Specific conservation guidelines follow for butterflies and crayfish.

259 The guidelines for all the species envisage timber harvesting within SMZs (as distinct from SPZs).

Within SMZ areas available for timber harvesting the aim will be to integrate harvesting and wildlife conservation *within the zone*. This will entail:

1. Identifying and protecting the areas of best habitat within the SMZ.

2. Allowing modified harvesting in areas of moderate habitat value using techniques such as:
    - retaining additional habitat trees and advance regrowth on coupes.
    - avoiding hot slash burns that kill retained trees.
    - using mechanical disturbance as an alternative method of seedbed preparation to slash burns.
    - concentrating harvesting in areas of lower value to the featured species (for example, in a foothill forest where owls are the featured species, harvesting could be concentrated on ridges and upper slopes with progressively more-selective harvesting used toward the gullies).
3. Allowing normal harvesting in areas of least habitat value within a site.

Harvesting in the SMZ will also provide opportunities to test and evaluate methods of integrating wildlife conservation and timber harvesting at the coupe level.[101]

260 Chapter 8 of the FMP deals with plan implementation and provides for response to material changes as circumstances relating to threatened species.[102]

261 Whilst the specific guidelines contained in the FMP have been formulated as no more than guidelines, and are intended to be used as tools in management, some of the guidelines are nevertheless quite specific and certain in their terms.

262 Such guidelines relating generally to the FMA have in turn crystallised as conditions of the allocation order and TRP which relate to specific areas within the FMA. They constitute 'conditions and standards', 'specified' in a FMP and the conditions of the allocation order and TRP specifically require compliance with them.

263 Permission to harvest the timber allocated by the allocation order is specifically conditioned by a requirement 'to comply with the conditions and standards in the following documents as amended from time to time', such documents include the FMP.

264 Likewise the relevant TRP requires VicForests to comply with the 'conditions and standards' in specified documents including the Management Guidelines in the FMP.

265 The adoption of the standards in the Management Guidelines by the allocation order and the TRP renders them matters to which effect must be given. They are no longer simply guidelines requiring consideration in a decision making process.[103]

266 It is not uncommon for land use approvals to adopt as conditions standards specified in policies or codes which would not otherwise be legally enforceable.

267 In recent times this Court has considered questions relating to the adoption of standards contained in septic tank codes, and policies relating to wind farms and landfills.

268 The adoption of a specific standard by way of condition within a land use approval, benefits the holder of the approval because the specific content of the relevant obligation is ascertainable by reference to the standard. Conversely, it benefits the public because the content of the standard is enforceable.

269 In order to be valid and effective a condition must be sufficiently certain to be capable of performance. If the condition requiring compliance with the standards contained in the Management Guidelines in the FMP is not given its plain meaning and does not constitute an adoption of those standards, then it becomes a floating requirement of inherently uncertain content. I do not accept this is the intention of the allocation order and the TRP.

270 It follows that it is potentially possible to identify specific operational requirements either in FFGASs (as required by the Code of Practice) or specific FMP guidelines (as required by the allocation order and TRP).

Management procedures

271 As the Code of Practice records the DSE has prepared and published MPR which bear on the implementation of the Code of Practice , FFGASs and FMPs.

272 During the period with which I am concerned, the 2007 MPR commencing on 3 September 2007 and the 2009 MPR commencing in October 2009 were in operation. The 2009 MPR responded in part to the course of events at Brown Mountain. They embody the

currently applicable procedures and contain amplifications bearing on the matters in dispute in this case.

273 The introduction to the 2009 MPR states that they apply to all timber harvesting, roading and regeneration in Victoria's State forests. It further states:

(a) These Procedures do not take the place of the mandatory actions in the Code.

(b) Where there is a conflict between the requirements of these Procedures and a Subordinate Instrument, the Subordinate Instrument shall prevail.

(c) Where there is a conflict between Subordinate Instruments, the most recently published shall prevail.[104]

274 'Subordinate instruments' is specifically defined to include the Code of Practice, a forest management plan and an FFGAS.[105]

275 The objectives of the MPR are to:

i. standardise, where appropriate, the management of timber harvesting operations and associated activities in all Victorian State forests;
ii. provide instruction on operational and administrative procedures;
iii. form part of the regulatory framework for timber harvesting operations and associated activities;
iv. provide a framework for consistent administrative arrangements between DSE and VicForests at an operational level; and
v. provide a framework for VicForests and DSE to prepare subsidiary operational procedures for staff, contractors and Timber Harvesting Operators.[106]

276 Part 1 of the MPR applies to both VicForests and DSE. Part 2 applies to VicForests only and Part 3 to DSE only.[107]

277 Part 1.4 of the MPR provides for exclusion areas and restrictions.

278 Clause 1.4.2 relates to streams and catchments. It expressly provides:

(g) In the East Gippsland FMA, a 100m buffer applies along Brown Mountain Creek (in the area bounded by 655004 and 5873083 in the south-western corner and 657978 and 5876371 in the north eastern corner (GDA1994 and coordinate system VICGRID)).[108]

279 Clause 1.4.4 provides for the protection of excluded areas and commences:

(a) Unless 1.4.4(b) of these Procedures applies, timber harvesting operations are not permitted:

i. in SPZs;
ii. in SMZs (where timber harvesting is excluded);
iii. in timber harvesting exclusion areas created in accordance with the requirements of an Action Statement and done in accordance with 1.4.9(c) of these Procedures;...[109]

280 Clause 1.4.4 further provides:

(e) Damage to excluded areas from tree felling must be minimised.

(f) Trees that are likely to fall into excluded areas must not be felled unless approved by a delegated person (under Schedule 2 of the *Sustainable Forests (Timber Harvesting) Regulations 2006*) and noted on the FCP or Site Plan.

(g) Rough heaping or windrow construction must not damage excluded areas or filter strips. Windrows must be located more than three metres from excluded areas if burning of windrows is to occur.[110]

281 Clause 1.4.5.3 specifically relates to the East Gippsland and Tambo FMAs. It provides:

(a) Retained habitat trees should be old living trees with a range of hollow sizes. Where there are absent or not present in sufficient numbers, trees that are old enough to develop hollows during the next 50 years may be counted.

(b) Stags or younger, smaller trees may be counted as habitat trees if trees of the type described in 1.4.5.3(a) of these Procedures are absent or not present in sufficient numbers.

(c) Habitat trees should preferably be retained in small clusters, which include younger regrowth and understorey. Clusters must be retained across the coupe with consideration of the proximity of other retained vegetation.

(d) In coupes adjacent to Brown Mountain Creek (in the area bounded by 655004 and 5873083 in the south-western corner and 657978 and 5876371 in the north eastern corner (GDA1994 and coordinate system VICGRID)):

i. DSE staff with appropriate expertise in biodiversity management will guide the identification of hollow bearing habitat trees. This will be done in consultation with VicForests and the harvesting contractor(s);
ii. all trees with a DBHOB[111] greater than 250cm will be retained where it is safe to do so;
iii. where present in sufficient numbers and it is safe to do so, at least 5 hollow bearing habitat trees per ha will be retained. Trees greater than 250cm may count towards this retention level;
iv. where more than 6 retained hollow bearing habitat trees are present in a concentrated area (less than one quarter of a ha) then harvesting machinery should minimise traffic in that area and other trees may be harvested; and
v. harvesting debris and other fuels are to be removed from within 20m of the base of retained hollow bearing habitat trees or from around groups of retained hollow bearing habitat trees to reduce the impact of regeneration burning where it is safe to do so.[112]

282 The provisions of sub-clause (d) relating to Brown Mountain Creek were inserted in October 2009.

283 The combined effect of the procedures specified creates a 100 metre buffer strip on either side of Brown Mountain Creek, and requires the stipulated preservation of hollow bearing habitat trees and large trees.

284 The MPR also provide for processes relating to threatened species protection.

(a) Prescriptions for threatened species management are those stated in the most recent approved DSE document (i.e. Action Statement or FMP).

(b) Where an Action Statement or FMP requires an amendment to the FMZ scheme, this must be::

i. *actioned by a DSE officer with an appropriate expertise in biodiversity management nominated by the Area Manager*
ii. *undertaken in accordance with 3.2.4 of these Procedures; and*
iii. *endorsed by the Director, Biodiversity Policy and Programs.*

(c) Where an Action Statement or FMP requires the creation of a timber harvesting exclusion area, the timber harvesting exclusion area must be approved by the Director, Forests and endorsed by the Director, Biodiversity Policy and Programs.

(d) Where draft prescriptions for threatened species management are in place this will be implemented only by negotiation with relevant stakeholders and must be approved by the Director, Forests and endorsed by the Director, Biodiversity Policy and Programs.

(e) Where a new record of threatened species or communities is claimed subsequent to the approval of a TRP or WUP, the Director, Forests in consultation with the Director, Biodiversity Policy and Programs will determine if the required protection will be applied as an interim measure until the record can be confirmed or otherwise by a DSE staff member with appropriate expertise in biodiversity management.[113]

285 This provision was also inserted in October 2009. Changes to the FMZ scheme and creation of timber harvesting exclusion areas require the endorsement of the Director, Biodiversity Policy and Programs.

286 In turn the MPR provide more generally for amendment to the FMZ scheme by DSE.

(a) Amendments to the FMZ scheme must take into account the intent of the FMP and any relevant RFA. Any amendment must ensure that:

i. the overall integrity of the FMZ scheme is maintained;
ii. no net deterioration occurs in the protection of identified CAR values across an FMA or GRU (as appropriate to the value);
iii. the timber production capacity of State forest is maintained (including availability of sawlog resources and potential sawlog from regrowth stands);
iv. The protection of national estate values is maintained at the agreed regional scale, however minor changes to the levels of protection of individual values may occur as a result of the change; and
v. changes to the FMZ scheme and consultation processes are made in a way that maintains the confidence of internal and external stakeholders.

(b) An amendment to the FMZ scheme must be approved by the Director, Forests except as described in 3.2.4(f) of these Procedures. The following information must be provided when seeking approval:

i. a completed register (refer to Schedule 11 of these Procedures)
ii. the reason for the amendment (refer to 3.2.4(i) of these Procedures)

iii. a description of how the requirements of 3.2.4(a) of these Procedures have been satisfied;
iv. a list the stakeholders consulted, the method of consultation (refer 3.2.4(d) of these Procedures), the matters raised and a description of how relevant matters raised by stakeholders have been addressed;
v. an accurate map (1:25.000 scale or better) and GIS line work (that meets the corporate data standards outlined in *SOP 3.4 – Verification of Logging History*; and
vi. the endorsement of the Area Manager and Manager, Forest Policy and Projects.

(c) Appropriate stakeholder consultation must be undertaken prior to an amendment to the FMZ zoning scheme being approved:

(d) Appropriate consultation will be determined by the Manager, Forest Policy and Projects, and;

i. should involve relevant internal and external stakeholders; and
ii. must include public advertisement of the proposed amendment to the FMZ scheme for public comment, where the area of the change within a FMZ exceeds 200ha (this requirement may be met by public advertisement of the cause of the change (e.g. Action Statement or Government policy).

(e) Subject to 3.2.4(a) of these Procedures, the FMZ scheme may be amended:

i. as a result of strategic forest management decisions (e.g. additions to the formal conservation reserve system, linear reserve networks, landscape protection, catchment protection);
ii. where FMZ are based on modelled, mapped or interpreted values, when those values are determined to be absent in the field;
iii. where a new record (e.g. threatened species, cultural heritage sites, historic sites) or previously unmapped value (e.g. rare EVC, rainforest, Leadbeater's Possum zone 1A habitat) is discovered, to ensure compliance with statutory requirements, or strategies or prescriptions contained in a FMP, an Action Statement (refer to 1.4.9(b) of these Procedures), or other subordinate instrument; or
v. for operational or other reasons ....[114]

287 These provisions were also inserted in October 2009.

288 Schedule 11 to the MPR provides in respect of zones based on mapped values relating to flora and fauna points:

New areas of SPZ (or SMZ) must be established if new records are discovered that require protection in accordance with the strategies developed in the FMP.[115]

Legislative framework summary

289 The harvesting of timber at Brown Mountain is proposed by VicForests within a legislative framework which provides both for strategic planning and approval of logging at particular sites.

290 The framework is constituted by the Acts of Parliament to which I have referred and subordinate instruments prepared under them.

291 The background to this framework was addressed on behalf of VicForests by Professor Ferguson, an eminent specialist in forest management and associated economics and policy.[116] Professor Ferguson outlined the history of legislative control of forestry practices since 1897. He elaborated the principal recommendations which he made as Chairperson of the Board of Inquiry into the Timber Industry in 1984, and the consequent development of a Code of Forest Practices for Timber Production in 1989. The principal recommendation of relevance resulting from the inquiry was that:

The objective for managing public forests should be to maximise the net social benefit to the community, an objective best translated into four operational principles:

The provision of wood and other market (ie commercial) goods should be:

* Economically viable.

* Environmentally sensitive with respect to the provision of environmental services and non-market goods.

* Sustainable with respect to the interests of future generations.

* Assisted by public participation in the planning process.[117]

292 Professor Ferguson outlined the history of the National Forest Policy Statement and Regional Forestry Agreements. The National Forest Policy Statement comprised a joint statement of policy by the Commonwealth and the States. It identified three central principles for sustainable forest management: maintaining ecological processes, maintaining biological diversity and managing for the full range of environmental, economic and social benefits.

293 The Regional Forestry Agreements between the Commonwealth and States sought to establish a comprehensive, adequate and representative natural reserve system (often referred to in the documentation tendered in evidence by the acronym 'CAR').[118] They also sought to provide greater certainty regarding the native forest resource available for timber production, by integrating industry and conservation policy and by encouraging downstream processing of the resource and the export of unique Australian timber products.

294 Professor Ferguson identified a hierarchy of management controls governing timber harvesting in State forests:

• National principles of ecologically sustainable development;

• Regional Forestry Agreements;

• Allocations orders and Timber Release Plans;

• Code of Forest Practice; and

• FFGASs.

295 I accept Professor Ferguson's broad overview of the background to the current controls governing logging of Brown Mountain, and it is unnecessary to resolve detailed aspects of

that historical overview which were challenged in cross-examination. Ultimately however, that history has crystallised in the controls to which I have referred and the content of those controls is not to be determined by opinion evidence.

296 Both parties accepted that the legislative framework should be construed as striking a balance between competing interests.[119] The critical differences between the legal positions adopted by the parties are as to the nature of the balance struck.

297 In broad terms, VicForests takes the position that the planning processes envisaged by the legislative framework which have been carried out in respect of the Brown Mountain coupes have struck a substantially final balance between competing interests favouring conservation on the one hand and timber harvesting on the other.

298 Conversely, EEG's case is that the legislative framework envisages and requires that planning and operations may require refinement on a site specific basis if triggers are enlivened relating to the detection of threatened species even after the planning processes have been completed.

299 I do not reject the view articulated in evidence by Mr McDonald on behalf of VicForests that there is a good framework in place for conservation of endangered species based on a bottom up approach of setting aside reserves.

300 Nevertheless I accept EEG's overview of the legislative framework. The balance struck by that framework includes explicit recognition that harvesting planned by reference to a range of competing considerations (including conservation matters) will nevertheless be subject to overriding and ongoing obligations relating to the protection of endangered species. The nature of such obligations falls principally to be determined by the specific provisions of the framework relating to each species to which I shall turn, but also by the ongoing application of the precautionary principle.

301 Mr Miezis confirmed in evidence that it is the view of DSE that the TRP vests rights to timber in VicForests subject to ongoing compliance with a series of conditions, which are specified in the FMP and FFGASs. This view is correct.

302 VicForests alleges that the approval of the TRP demonstrates that DSE has verified proposed harvesting in the Brown Mountain coupes is consistent with the allocation order, relevant legislation, Codes of Practice, plans, policies, procedures and prescriptions. I do not accept that approval of the TRP demonstrates final or continuing compliance with the obligations upon which EEG relies. Those obligations create continuing conditions with which VicForests must comply during operations.

303 The requirements of the relevant legislative framework are to some extent repetitive and its structure is layered rather than formed by reference to a strict internal logic.

304 Nevertheless EEG contends that the relevant legislation crystallises in legally enforceable duties with respect to relevant aspects of VicForests' activities.

305 Conversely, whilst VicForests accepts the prescriptions of a FFGAS are binding on it, VicForests expressly contends by its Amended Defence that neither the FMP, nor the

precautionary approach, nor s 4(1) of the FFG Act create obligations actionable at law. It was submitted that they are to be understood as giving rise to duties of imperfect obligation.

306 The relevant concept was illustrated by the decision of the Federal Court in Yarmirr v Australian Telecommunications Corporation.[120] In that case applicants representing two aboriginal communities sought mandamus compelling Telecom to provide them with interim satellite telephone services to replace their existing unreliable system. They relied on Telecom's obligation to meet the social, industrial and commercial needs of the Australian community by way of performance standards requiring telephone services accessible to Australians. Burchett J said:

When Parliament imposes on a functionary a broad duty involving the development and application of policy, to be performed nationally, the fulfilment of which must be subject to many constraints and may be achieved in many different ways, according to the measure allowed to those constraints, but cannot be achieved absolutely, if only because it involves an ideal, detailed supervision by the courts of the manner of performance of the duty is not likely to have been intended. In Wade on *Administrative Law*, 6th ed, 1988, p 614 it is stated:

A *power* enables an authority to do what would otherwise be illegal or ineffective. It is always subject to legal limits, and it is safe to assume that Parliament did not intend it to be exercised beyond those limits. A *duty*, on the other hand, may or may not be legally enforceable. Parliament has recently become fond of imposing duties of a kind which, since they are of a general and indefinite character, are perhaps to be considered as political duties rather than as legal duties which a court could enforce. Many such duties may be found in statutes concerned with social services and nationalisation. Thus the opening words of the National Health Service Act 1977 are: 'It is the Secretary of State's duty to continue the promotion in England and Wales of a comprehensive health service... .'

Wade goes on to refer to the statutory duty of the Coal Board of "making supplies of coal available". This is remarkably similar to the language of s 27, with its obligation laid upon Telecom to "ensure... the service is reasonably accessible". Wade gives other examples, and comments (p 615): "Only in the unlikely event of its making total default would any of the above-mentioned authorities be at risk of legal compulsion in respect of its general duties."

The words of Brennan J in *Re Citizen Limbo* (1989) 92 ALR 81 at 82; 64 ALJR 241 at 242, though written in a different context, are apposite:

But when one comes to a court of law it is necessary always to ensure that lofty aspirations are not mistaken for the rules of law which courts are capable and fitted to enforce. It is essential that there be no mistake between the functions that are performed by the respective branches of government. It is essential to understand that courts perform one function and the political branches of government perform another. One can readily understand that there may be disappointment in the performance by one branch or another of government of the functions which are allocated to it under our division of powers. But it would be a mistake for one branch of government to assume the functions of another in the hope that thereby what is perceived to be an injustice can be corrected. [121]

307 If EEG could rely only on the fundamental principles stated in the Code of Practice then it may face the difficulty articulated in the above passage.

308 The Code of Practice however envisages that it will be implemented through an FMP.

309 As I have said, the FMP is a working plan as required by s 23 of the Forests Act.

310 Parts of it are the subject of a specific condition contained in the allocation order made under s 15 of the SFT Act and the TRP made under s 40 of the SFT Act. It is also described by the Code of Practice as the fundamental plan for sustainable management of environmental, social, cultural and economic values within relevant areas.

311 I do not accept that the provisions of the FMP containing standards relating to the conservation of threatened species impose obligations which are ones of imperfect obligation.

312 The provisions themselves are expressed to be contained in 'guidelines', but the allocation order and TRP adopt these standards as operational conditions. There may be debate as to the meaning of those conditions, but they are not of such a general and indefinite character as to be properly characterisable as aspirational and incapable of enforcement.

313 The precautionary principle is raised by the Code of Practice,[122] s 5(4) of the SFT Act and the FMP.[123]

314 I do not accept that the precautionary principle is a matter which may not be the subject of an enforceable obligation. It is a matter to which regard must be had in the course of relevant decision making. The circumstances in which it can be said that it will require a particular outcome are constrained by the considerations I have previously set out but are also capable of demonstration in a particular case.

315 Likewise I do not accept that the requirements of s 4(2) of the FFG Act are unenforceable, although I accept that proof of breach of them may be inherently difficult. The requirement to 'have regard to' means VicForests must take the relevant objectives actively into account.[124]

Flora and Fauna Guarantee Act Action Statements

316 EEG relies on alleged failures by VicForests to comply with FFGASs relating to the:

(a) Long-footed Potoroo;

(b) Spot-tailed Quoll;

(c) Orbost Spiny Crayfish;

(d) Sooty Owl;

(e) Powerful Owl;

(f) Giant Burrowing Frog; and

(g) hollow bearing trees.

317 It also alleges that the Secretary has failed to prepare FFGAS in accordance with the statutory duties contained in s 19 of the FFG Act, relating to the Large Brown Tree Frog and the Square-tailed Kite.

318 Section 19 of the FFG Act provides:

(1) The Secretary must prepare an action statement for any listed taxon or community of flora or fauna or potentially threatening process as soon as possible after that taxon, community or process is listed.

(2) The action statement must set out what has been done to conserve and manage that taxon or community or process and what is intended to be done and may include information on what needs to be done.

(3) In preparing or amending an action statement the Secretary must consider—

(a) any management advice given by the Committee, the Conservation Advisory Committee and the Victorian Catchment Management Council; and

(b) any other relevant nature conservation, social and economic matters.

(4) The Secretary may amend an action statement.

319 EEG has elected not to join the Secretary to this proceeding and I accept the submission of VicForests that EEG cannot claim equitable or declaratory relief in reliance on alleged breaches of the FFG Act by the Secretary, in the absence of the party against whom the primary allegations of default are made.[125]

E The course of the trial

320 The case was presented by EEG and falls ultimately for determination principally by reference to the evidence relating to individual species.

321 Before turning to that evidence it is desirable to summarise the course of the trial and the nature of the evidence as a whole.

322 The trial was conducted by reference to affidavit material which was amplified to some extent in evidence-in-chief and extensively explored in cross-examination. Oral evidence was called in the course of a three and a half week trial heard in Sale, East Gippsland, with closing addresses heard in Melbourne with video-link to Bairnsdale.

323 Pursuant to an order under s 53 of the Evidence Act 2008, a view was conducted on 3 March 2010. During the view, coupes 15, 20 and 7 were inspected. Coupe 20 abuts the southern side of coupe 19, and was harvested between October 2008 and February 2009. Coupe 7, a regenerated coupe, was logged in 1987-1988.

324 Commentary on the view was provided by Dr Charles Meredith (biologist) on behalf of EEG and Mr Gary Squires (forester) on behalf of VicForests. Following the view, an agreed commentary was tendered.

325 Pursuant to s 54 of the Evidence Act 2008, and subject to the requirements of procedural fairness, the Court is able to draw any reasonable inference from what it saw and heard during the view.

326 The view made clear the following background matters:

• Coupes 15 and 19 run down to Brown Mountain Creek respectively from the west and east.

• The view of coupe 15 demonstrated it contains mixed forest of varying age, density and species. The principal tree species are Errinundra Shining Gum and Messmate. A number of specimens are many hundreds of years old and of very substantial size.

• The understorey is complex with a mixture of relatively open and densely overgrown spaces, including areas with fallen trees, wire grass and other vegetation offering significant potential cover for mammals and other species of fauna.

• At a number of locations which were inspected, the ground had been disturbed by animal diggings which Dr Meredith identified as those of medium-sized mammals such Bandicoots and Long-footed Potoroos.

• Coupe 15 included a number of old trees of the size which would require preservation under the MPR prescriptions.

• The largest trees tend to suppress the understorey around them.

• Clumps of Errinundra Shining Gum which were identified on the view exemplify groups of hollow bearing trees which would be reserved under the new prescriptions.

• Within the 100 metre buffer zone to Brown Mountain Creek the forest becomes denser and forms a riparian zone with an almost closed tree canopy.

• The view of coupe 20 demonstrated that relatively few retained trees were left in groups after logging pursuant to the prescriptions which were applied to it.

• Most retained trees had suffered a significant level of damage as a result of a regeneration burn after logging. The standard prescription implemented was for a three metre buffer to be provided to retained trees.

• The creation of access roads and loading areas had caused compaction resulting in less successful regeneration in these areas than elsewhere.

• The aerial seeding after the regeneration burn had resulted in the striking of a good crop of trees with understorey species.

• The view of coupe 7 illustrated the regeneration of a logged coupe after 20 years. It contains a ‘healthy young forest’ (Mr Squires). Nevertheless it lacks the habitat diversity and structure of coupe 15. It has far fewer hollow bearing trees and the understorey is drier and less varied.

327 The witnesses called by EEG at trial were:

a) Ms Jill Redwood, Committee Member of EEG (4 March 2010), who was called to give evidence regarding the activities of EEG, the history of the dispute between EEG and VicForests, and detection of the Long-footed Potoroo within the coupes in issue.

b) Mr Andrew Stephen Lincoln (4-5 March 2010), who was called regarding camera placement in coupe 15 and SD card retrieval showing footage of a Long-footed Potoroo.

c) Ms Shelley Renee McLaren (5 March 2010) who was called regarding camera placement in coupe 26 and SD card retrieval showing footage of a Long-footed Potoroo.

d) Dr Graeme Gillespie (5, 11 March 2010) who was called as an expert on the Large Brown Tree Frog and Giant Burrowing Frog

e) Dr Andrew Peter Smith (9 March 2010) who was called as an expert on the Greater Glider and Yellow-bellied Glider.

f) Dr Charles William Meredith (9-10 March 2010) who was retained by EEG prior to commencement of this proceeding with respect to questions of critical habitat. He gave evidence as to the conservation of mammal species and the significance of hollow-bearing trees.

g) Dr Rohan John Bilney (10 March 2010), who gave expert evidence on the location and identification of the Powerful Owl and Sooty Owl, the Square-tailed Kite and gliders.

h) Mr David Joseph Scotts (11 March 2010), who was called as a Long-footed Potoroo expert to identify the potoroo in the photographic evidence.

i) Mr Robert Browning McCormack (11 March 2010), who was called as an expert on freshwater crayfish and gave evidence on the location and identification of the Orbost Spiny Crayfish and new Bonang Crayfish taxon.

j) Dr Christopher Alan Belcher (11 March 2010), who was called as an expert on the Spot-tailed Quoll.

k) Dr Stephen John Stewart Debus (12 March 2010), who was called as an expert on the Square-tailed Kite.

328 In addition, EEG tendered affidavits from the following experts, who were not called to give oral evidence:

a) Ms Barbara Ellen Triggs, a zoologist who specialises in hair sample analysis with respect to identification of the Long-footed Potoroo.

b) Ms Eliza Marie Poole, a consultant zoologist who identified the Long-footed Potoroo in the tendered photographic evidence; and

c) Mr David John Treasure, a land surveyor who confirmed of coordinates of Long-footed Potoroo detections.

329 VicForests called the following witnesses:

a) Mr Lachlan Raymond Spencer (15-16 March 2010), Tactical Planning Manager, VicForests was called to give evidence regarding the TRP and coupe inventory processes.

b) Mr Cameron Alistair MacDonald (16 March 2010), who until recently was the Director of Strategy and Corporate Affairs, VicForests, was called to give evidence on VicForests' organisational structure, their harvesting methodologies and the differentiation of VicForests' and DSE's roles and responsibilities with regard to FMP implementation and adherence.

c) Mr Lee Alexander Miezis (17 March 2010), Director Forests, Forests and Parks Division, DSE, who gave evidence as to how alleged detections of certain species were handled within DSE and communications between DSE and VicForests.

d) Mr Gary James Squires (17 March 2010), Director, GRS Consultancy Services Pty Ltd, Orbost, was VicForests' representative on the view, and was called to clarify forestry practices evidenced on the view.

e) Professor Ian Stewart Ferguson (18 March 2010), a registered professional forester, was called to give evidence on:

i. the legislative scheme regulating forestry in Victoria with regard to harvesting and conservation;

ii. whether the proposed harvesting measures would ensure preservation of an appropriate level of hollow bearing trees;

iii. the meaning of the precautionary principle in a forestry and harvesting context; and

iv. whether VicForests has taken an precautionary approach in their proposed harvesting measures with respect to each species in issue.

f) Mr Jonathan Alan Kramersh (18 March 2010), a Partner at HWL Ebsworth Lawyers, the firm representing VicForests in this proceeding, was called to give evidence regarding VicForests' selection of witnesses.

F The Long-footed Potoroo

330 It will be recalled that the commencement summary of the FMP specifically refers to the creation of conservation guidelines for key threatened and sensitive fauna species in State forests including the Long-footed Potoroo (Potorous longipes).

331 In turn the relevant allocation orders and TRP require compliance with the conditions and standards contained in management guidelines within FMPs as amended from time to time.

332 The FMP expressly refers to the creation of SMZs and to the provision of habitat reserves for the purpose of protection of the Long-footed Potoroo. The guidelines expressly envisage however that the implementation of the FFGAS may supersede some guidelines.

333 The FMP guideline for the Long-footed Potoroo states:

Long-footed Potoroo. The management strategy *and FFG Action Statement for this species will govern its management*. Accordingly, 400-500 ha around confirmed sites will be protected. These will be sub-catchment units containing suitable habitat (includes rainforest, Wet Forest or Damp Forest). Timber harvesting, new roading and most fuel-reduction burning will be excluded. Areas identified in State forest will be included in the Special Management Zone (SMZ), or, in the Special Protection Zone (SPZ), where they coincide with other values.

Once 17 500 ha has been protected (which should be sufficient habitat for about 1000 individuals) new potoroo records may be used to adjust the zoning scheme (see Chapter 8). However, they should not create a net addition to the area of the SPZ or SMZ. The strategy will be reviewed in the year 2000 in the light of research currently in progress.

Some of the areas identified for Long-footed Potoroo conservation have been placed in the SMZ. This is in recognition of the fact that potoroos utilise regrowth forest and that carefully planned timber harvesting may be compatible with their conservation. Research on the species needs to be further advanced before any harvesting is permitted in these areas, however.[126]

334 In turn the Code of Practice provides by way of 'mandatory action' that all forestry operations must comply with measures specified in relevant FFGAS.

335 VicForests contends and I accept that it is the FFGAS relating to the Long-footed Potoroo rather than the FMP which comprises the relevant requirement with respect to the Long-footed Potoroo.

336 The FFGAS for the Long-footed Potoroo was revised in 2009.[127] It first describes and provides information concerning the Long-footed Potoroo.

Biology, habitat preferences and distribution

337 The Long-footed Potoroo (Potorous longipes) is a medium sized terrestrial rat kangaroo of the marsupial family potoroidae. The separate existence of the species was not clarified until 1978.

338 Two sub-populations have been recorded in Victoria, one in East Gippsland and the other straddling the Great Dividing Range in the Upper Ovens, Buckland, Buffalo and Wonnangatta catchments. Although these are broad areas of distribution, Long-footed Potoroos are likely to occur in only a relatively small proportion of the area.

339 In East-Gippsland, the Long-footed Potoroo is known from more than 60 separate sites.[128] The preferred sites appear to be characterised by sheltered aspects with moist soils, supporting a mixed-species overstorey and a dense understorey. The moist soil allows the growth of various fungi on which the Long-footed Potoroo feeds,[129] while the dense cover provides shelter and protection from predators, thereby satisfying the Long-footed Potoroo's primary habitat requirements.

340 Potoroos have been detected in a range of forest age classes from eight year regrowth post timber harvesting to old growth forests.

341 The species is very difficult to detect. Dr Meredith gave evidence of a significant and known risk of false negatives, where the Long-footed Potoroo is actually present but not recorded.[130] Hair tubing and automated digital camera surveys are both accepted methods of detection when surveys are undertaken. [131]

342 Studies suggest that Long-footed Potoroos have home ranges from about 14 hectares to more than 100 hectares, although this upper limit is based on observations of a single animal. The dispersal behaviour of the Long-footed Potoroo is very poorly understood; only one dispersal event, involving a movement of about 3 kilometres to a new home range, has been documented.[132]

Conservation Status

343 The Long-footed Potoroo is listed as:

• 'endangered' in Australia under the EPBC Act;

• 'threatened' in Victoria under the FFG Act; and

• 'endangered' in Victoria according to DSE's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007.

344 In accordance with the procedure used to assess which species are eligible for listing in the DSE Advisory List, 'endangered' means the species is considered to be a facing a very high risk of extinction in the wild.[133]

Threats

345 The major threats probably or potentially operating on the Long-footed Potoroo are predation (especially by introduced species such as foxes) and habitat destruction or degradation from timber harvesting and fire. The primary habitat requirements appear to be an abundant supply of fungi and dense cover in a forest environment to provide shelter and protection from predators. The apparent disjunct distribution of the known sub-populations increases the species vulnerability to such threatening processes.

Flora and Fauna Guarantee Act Action Statement

346 The FFGAS states its long term objective is to ensure that the Long-footed Potoroo can survive, flourish and retain its potential for evolutionary development in the wild.[134]

347 Four further objectives are stated, the most relevant for present purposes being to protect populations or habitat from potentially incompatible use.

348 The targets of this objective are:

Sufficient habitat identified and protected in both East Gippsland and the Great Dividing Range to provide for a substantial and viable population of Long-footed Potoroos.

Timber harvesting and other activities managed to protect potoroo habitat at Long-footed Potoroo detection sites outside Core Protected Areas.[135]

349 It is necessary at this point to say something of the zoning of areas in which Long-footed Potoroos are known to occur. The FFGAS states that in both East Gippsland and the Great Dividing Range, the areas in which the Long-footed Potoroo is known to occur have been delineated by a 'distributional polygon'. Within that distributional polygon, the FFGAS contemplates both 'Core Protected Areas'[136] and 'Additional Protection Areas'. Core Protected Areas are defined as areas of Long-footed Potoroo habitat protected in State forest SPZs. Additional Protection Areas are defined as areas of State forest and other public land tenures where Long-footed Potoroos have been recorded outside of the Core Protected Area, which are then protected in SMZs or equivalent categories in other tenures.

350 There is a Core Protected Area of 40,000 hectares in East Gippsland which does not include the four coupes in issue in this case.

351 The FFGAS then goes on to specify a number of 'Intended Management Actions' for each objective and ascribe responsibility for the implementation of such actions to different bodies including DSE, local government, Parks Victoria and VicForests.

352 Action 1 provides for the implementation of a Long-footed Potoroo Core Protected Area for East Gippsland. Action 2 provides for the implementation of a Long-footed Potoroo Core Protected Area for the Great Dividing Range. Action 3 provides for the protection of populations and their habitat in parks and reserves. Action 4 adds to this framework by specifically providing for the further protection of the Long-footed Potoroo where it is detected.

Protect Long-footed Potoroo habitat at detection sites on public land outside the Core Protected Area

Establish additional protected areas where Long-footed Potoroos have been detected in State forest or other public land outside the Core Protected Area. In State forest, apply the protection measures specified in Appendix I. The protection measures will be formally reviewed in 2014.

Responsibility: DSE, VicForests[137]

353 The prescriptions as stated in Appendix I are as follows:

Prescriptions to be applied in State forest:

1. Each Long-footed Potoroo (LFP) detection site outside the Core Protected Area will generate a Special Management Zone (SMZ) of approximately 150 ha.
2. As far as possible, SMZ boundaries will follow recognisable landscape features such as ridges, spurs and watercourses.
3. Within each SMZ, at least one third (~50 ha) will be protected from timber harvesting and new roading.
4. This will be known as Long-footed Potoroo Retained Habitat.
5. The LFP Retained Habitat will include the best LFP habitat in the SMZ, which will generally be in gullies and on lower, sheltered slopes.
6. The LFP Retained Habitat may include areas otherwise unavailable for timber harvesting due to restrictions under the Code of Practice for Timber Harvesting.

7. The SMZ will also have a general restriction of one third of the total area that can be harvested in any three year period. If more than one coupe is to be harvested in an SMZ in the same year, the coupes must be separated by at least the equivalent of another coupe width.
8. The SMZ, with the LFP Retained Habitat clearly delineated, will be shown as part of the Forest Management Area zoning scheme.
9. The SMZ will be designed by DSE, in consultation with VicForests, and approved by DSE.
10. If the ~150 ha area includes any part of an existing conservation reserve or Special Protection Zone (SPZ), these areas will retain their existing reservation or zoning status but will be considered for inclusion as part of the area of retained habitat. In such cases the final area designated as SMZ may be correspondingly smaller.[138]

354 Action 4 gives rise to three distinct issues:

(a) do its requirements condition the harvesting of timber by VicForests?

(b) have its requirements been triggered by detections?

(c) what are the consequences of that trigger in the present case?

355 VicForests accepts that in planning and conducting its forestry operations it must comply with measures specified in an applicable FFGAS. This concession is properly made and the terms of Action 4 are sufficiently specific to constitute a 'measure specified' in the FFGAS. (Albeit the detailed consequences of that specification in a particular case such as the present may remain contentious.)

Presence / Detections of the Long-footed Potoroo on Brown Mountain

356 I turn then to the question whether Long-footed Potoroos have been 'detected' within the coupes subject to these proceedings.

357 Prior to the matters now in issue, Long-footed Potoroos had been detected by hair tube sampling in September and October 2001 in the area to the west of Legges Road (comprising the ridge containing Brown Mountain). Those detections had been accepted both by DSE and VicForests.

358 The detections had led to the preparation of a proposal for a Special Management Area ('SMA') in January 2008 which extended into the western portion of coupe 15.

359 The extent of the intrusion into coupe 15 is shown on the following map. Coupe 15 is marked in yellow and the proposed reserve is marked in pink.

Exhibit LRS55: Map taken from affidavit of Lachlan Spencer sworn 25 February 2010

360 I turn now to the detections giving rise to the current proceeding.

The first detection

361 In late January 2009, a hair tube sample was collected from Brown Mountain on the eastern side of Brown Mountain Creek. A volunteer took the sample to Ms Jill Redwood, a committee member of EEG, who has been providing equipment to volunteers and instructing volunteers in the laying and collecting of hair tubes since the early 1990s. At the time of providing the sample to Ms Redwood, the volunteer advised her of the location at which the samples were collected. Ms Redwood recorded this location as within 100 metres of Brown Mountain Creek at approximate grid reference 6560 E 58744 on the edge of proposed coupe 19.

362 Ms Redwood forwarded the hair tube samples to Ms Barbara Triggs, a biologist who has specialised in the analysis of mammalian hair for approximately 30 years. Ms Triggs has carried out analysis of this type for DSE and her qualifications to do so were not challenged. Ms Triggs deposed to testing the hair and concluded that one of five hair samples provided to her belonged to a Long-footed Potoroo.[139]

363 Ms Redwood advised Dr Stephen Henry, East Gippsland Biodiversity Manager, DSE, of the results of the hair tubing on 3 February 2009.[140]

The response to the first detection

364 After having been advised of the hair tube detection in early February 2009, Dr Henry reported the detection within DSE. Dr Henry did not express any doubt as to the veracity of the detection in his email report but stated 'the presence of Long-footed Potoroos in this area is expected' and proceeded to list other nearby confirmed detections.[141] Dr Henry recommended that an interim SMA including both coupes 15 and 19 be put in place as an interim measure and that, in accordance with DSE 'convention' '[i]n circumstances where a Long-footed Potoroo is detected by a conservation group in the course of there [sic] efforts to stop logging', surveys be undertaken by DSE to attempt to 'confirm the record'.[142]

365 The proposal for an interim SMA was not progressed. It was rendered unnecessary because VicForests agreed that there would be no logging until after DSE undertook a further survey.

366 Dr Henry's email report of the detection was forwarded to Mr Miezis, a forester and Director Forests, Forests and Parks Division, DSE. In cross-examination Mr Miezis conceded that hair tubing was an orthodox way of detecting Long-footed Potoroos and although it had been largely replaced by motion sensor cameras, it had been proposed to be used along with cameras in the surveys conducted in early 2009.

367 The Long-footed Potoroo was subsequently included in the species sought to be surveyed in the area of the proposed coupes at Brown Mountain from January to March 2009. The survey sought to verify the detection.

368 The survey was conducted by DSE using remote sensor cameras at six sites spaced out across the survey area. The cameras were left in place for two sessions of 16 days and 11 days. The subsequent report setting out the survey results refers to a map identifying the sites of the cameras but that map was not put in evidence.

369 The report noted that no Long-footed Potoroos were detected, but as counsel for EEG emphasise, this finding was heavily qualified by the following statement:

The non-detection of Long-footed Potoroos must be interpreted with caution. The survey was implemented using standard methodology and level of effort and it had a high probability of detecting the species if it was present. However, the species can be very difficult to detect – often detections are not confirmed until a third or even fourth return visits [sic] to a site, despite the presence of diggings which are strongly suggestive of the species presence. Some diggings of this type were seen in the study area, and the forest type was assessed as good quality habitat for Long-footed Potoroos. A confirmed Long-footed Potoroo site also occurs immediately to the west of the study area, on the other side of Legge [sic] Rd, and thus it is plausible that that the species may be present at the site.

...

Given the relatively short amount of time available for the surveys of Long-footed Potoroo and the presence of nearby records and suitable habitat, it is possible that more intensive and longer survey may record the species at the site.[143]

The second detection

370 Mr Andrew Stephen Lincoln[144] gave evidence that on 22 August 2009 at around 12:30 pm, whilst near Brown Mountain Creek on Brown Mountain, he recovered and viewed a photograph (shown below) and five seconds of recorded video footage of a Long-footed Potoroo.

371 The photograph and footage were captured by, and viewed on the screen of, a motion sensor camera set up in coupe 15, located between 50 and 100 metres from Brown Mountain Creek at coordinates 55H 0655834//5874892. The camera was operated as the animal moved in front of it, taking first a still photograph, immediately followed by five seconds of video footage. It was not set up to take more than five seconds of footage. The camera also recorded the time and date at which the image was taken on the photograph. Mr Lincoln

stated that he believed the camera's range of motion detection was up to approximately five metres.

372 The camera had been set up on about 14 August 2009 as part of a survey using nine cameras provided by Goongerah Environment Centre ('GECO') and EEG, which had been going on for a few months.[145] Some of the cameras and baits were provided by Ms Redwood, who also participated in the survey. Mr Lincoln had used the camera before and stated that he believed it belonged to GECO. Mr Lincoln had undertaken at least one other survey in coupes 15 and 19 prior to 22 August 2009.

373 The cameras were distributed from the top of Legges Road down to Brown Mountain Creek in coupe 15 and then up the other side of the creek to Errinundra Road in coupe 19. The relevant GPS coordinates of the camera from which the images were retrieved have been mapped by a professional surveyor and confirmed as being within coupe 15.[146] Camera locations were selected variously on the basis of the presence of suspected potoroo diggings, good vegetation and cover for animals, and clearance allowing for cameras to operate without interference. Mr Lincoln selected the location for the camera in question himself. His reasoning was that the location had good vegetation and cover for an animal. He did not think there were any potoroo droppings at the site.

374 Upon returning from Brown Mountain, Mr Lincoln downloaded the photograph and footage from the SD card in the camera onto a computer at the house of Ms Redwood. He left the camera at the coupe in the hope of capturing more images and footage of the Long-footed Potoroo. The photograph and footage were not stored on the camera's internal memory.

375 The following day, 23 August 2009, at 3:53 pm, Mr Lincoln sent an email attaching the footage and a document titled 'Report on remote camera survey of Potorous longipes – Brown Mountain' which included four images (the photograph plus an additional three paused images extracted from the video footage), to Dr Henry at DSE to alert DSE that a Long-footed Potoroo had been found at Brown Mountain.

376 Mr Lincoln gave evidence that at the time he collected the SD card from the camera on 22 August, he was not aware that the day before, on 21 August, the relevant Minister had made an announcement to permit harvesting on Brown Mountain under certain conditions. Mr Lincoln said that he first heard of the announcement some time after he got back from Brown Mountain on 22 August. When asked about his current awareness of the announcement during cross-examination, he said he was '[v]ery vaguely' and '[n]ot really' aware of it. EEG submits that the timing of the detection in such proximity to the Minister's announcement was one of coincidence.

377 VicForests adduced no evidence to challenge the authenticity of the footage and did not cross-examine Mr Lincoln or any other witnesses to the effect that it did not show a Long-footed Potoroo at the location alleged.

378 EEG called evidence from three experts as to the identification of the animal shown in the footage recovered by Mr Lincoln: Mr David Scotts[147], Ms Eliza Poole[148] and Dr Charles Meredith.[149]

379 Both Mr Scotts and Ms Poole positively identified the animal in the footage as a Long-footed Potoroo.

380 Ms Poole deposed that she 'believe[d] that the animal on film is almost certainly a Long-footed Potoroo' and concluded that she was 'confident in [her] opinion that the animal on film is a Long-footed Potoroo'. Ms Poole was not required for cross-examination.

381 In evidence Mr Scotts said of the footage: 'that's just a classic image of a long footed potoroo', and that he was '100 per cent plus' confident of his opinion. He noted that the clear view of the tail and the side of the animal assisted his identification, and that the animal had much more solid hindquarters and a hunched posture typical of a Long-footed Potoroo as opposed to a Long-nosed potoroo. It was not suggested to Mr Scotts that he was mistaken in his identification during cross-examination.

382 Dr Meredith also identified the animal as a Long-footed Potoroo in his expert report, stating that it was 'highly likely' the footage captured by Mr Lincoln was that of a Long-footed Potoroo. Under cross-examination he said that he was 'very confident that the best of those pictures are a long footed potoroo.'

383 As with Mr Scotts, Dr Meredith referred to the 'thick tail and heavier body form that are typical of the Long-footed Potoroo as compared to the more common Long-nosed potoroo' in reaching his conclusion.

384 VicForests did not call any evidence about the identification of the animal. It may also be observed that the identification was consistent with the context described in the DSE report produced following the 2009 surveys.

The response to the second detection

385 Following notification of the second detection on 23 August 2009, Mr Miezis arranged for two members of DSE staff to attend the location of the alleged detection for the purpose of verification.

386 Mr Miezis stated in evidence:

If the sighting is able to be verified then the requirements of the action statement will be implemented.

387 It was Mr Miezis' evidence that there are three aspects to the verification process:

(i) is it the animal?

(ii) is it the site?

(iii) was the footage legitimately taken?

388 On 25 August 2009, Mr Trotter and Mr Clarke of DSE attended the location specified in the report with Mr Lincoln. The DSE staff were able to verify the location using a GPS and by comparing the contents of the photograph with the features of the land including a distinctive 'funny looking tree'. The tree in question has a bifurcated main trunk and a substantial branch extending out near its base. This form enables relatively easy identification. Mr Trotter was able to confirm the GPS coordinates within 6 metres of where

the coordinates were reported; a discrepancy which is to be expected from the particular sort of GPS used.

389 Mr Miezis gave evidence that by 25 August 2009 he had accepted (i) and (ii), namely that the animal was a Long-footed Potoroo and that the site was within coupe 15 as advised by Mr Lincoln. However, Mr Miezis' evidence was that '...we hadn't verified the sighting. We still had a third prong to go'.

390 In taking issue with the legitimacy of the footage, Mr Miezis questioned whether DSE had the full extent of the footage, it being only 5 seconds in length with the animal appearing in the front and centre of the frame at the beginning of the footage. His view was that 'we would have expected to see the animal enter the frame, even partially'. He did not however seek guidance from anyone in the Biodiversity section of DSE, or anyone with experience in the use of the relevant technology.

391 No technical evidence was led concerning the relationship between the motion sensor and the camera images recorded. I find nothing inherently suspicious in the footage itself, particularly when regard is had to the evidence of Mr Lincoln that the motion sensor first triggers a still photo and then a section of video footage.

392 On 24 August 2009, Mr Miezis emailed Mr Lincoln and Ms Redwood requesting all footage (still images and video) taken at the camera location and other camera locations at Brown Mountain Creek and offering to pay for costs associated with sending it to him. He sent another email later that day explaining that he required the complete footage for the purpose of verification. He also spoke with Ms Redwood later that day who advised she would not release footage to DSE without clearance from her legal advisors.

393 On 25 August 2009, Dr Appleford cancelled a meeting with Ms Redwood concerning Brown Mountain and its conservation issues because of this proceeding. At that point it appears dialogue between the parties broke down.

394 EEG submits that Mr Miezis was irrationally suspicious of the footage. In evidence Mr Miezis was unable to identify any particular tests or processes that could be undertaken to verify the footage, and admitted to having no expertise in the relevant field of camera surveys. Mr Miezis also conceded that the camera methodology used by Mr Lincoln was exactly the same as that used by DSE.

395 VicForests adduced no evidence to challenge the authenticity of the footage and, as I have said, did not cross-examine any witness to the effect that it was not genuine.

396 I am satisfied on the balance of probabilities that the second detection was a genuine detection of a Long-footed Potoroo within coupe 15.

397 In turn that detection was confirmatory of the first detection made within coupe 19 by way of hair sampling. The two detections were relatively proximate. I find that both detections constitute detections within the meaning of the FFGAS and that the locations described in evidence and recorded by Ms Redwood and Mr Lincoln constitute detection sites within the meaning of Appendix I of the FFGAS.

The third detection

398 Ms Shelley Renee McLaren[150] gave evidence that on 3 September 2009 at around midday, whilst on Brown Mountain near Brown Mountain Creek, she, along with a Mr James Black and a Ms Jennifer Deruch, recovered and viewed footage of a Long-footed Potoroo. The footage was captured by, and viewed on, the screen of a Moultrie survey camera set up approximately 100 metres from Brown Mountain Creek on the eastern or Errinundra Road side of the gully, in the forest area bound by Legges Road and Errinundra Road.

399 The camera had been set up by Ms McLaren along with Mr Black and a Mr David Caldwell on 31 August 2009 as part of a survey using six cameras provided by EEG. Three cameras had been set up on the eastern side of the gully and three on the western side along with baits of peanut butter and essential oils. Ms McLaren had been in the area in question approximately 20 times before and was familiar with notable landmarks in the area. She noted that the camera in question had been set up on a slight rise in the land near a giant Shining Gum tree, one of the largest trees in the area, which was easy to find. The location had been selected on the basis that the shining gum provided a good backdrop and that it was a fairly open space which would avoid issues with plants inadvertently activating the camera sensors. Ms McLaren also took into account the fact that the proximity of the location to water made it a good place to find potoroos and the fact that it was in a proposed coupe which VicForests proposed to harvest. Ms McLaren could not recall the coupe number of the area in question, however Ms McLaren gave evidence that she reached that location by driving from Goongerah up to Bonang Road, turning right on to Gap Road and then right again on to Errinundra Road. Ms McLaren and her party then travelled approximately 400 or 500 metres down Errinundra Road where they parked their car and then walked approximately 100 metres into the forest from the Errinundra Road side. EEG submits that the location described by Ms McLaren falls within coupe 26. VicForests however submits that there is an area above coupe 26, between Legges Road and Errinundra Road that falls outside coupe 26 and that it is possible that this is the location Ms McLaren attended.

400 After viewing the footage, Ms McLaren and her team documented the sighting by writing down the GPS coordinates, and other relevant details in a shared logbook. Ms McLaren then immediately took the SD card from the camera to the home of Ms Redwood where she downloaded the footage onto the hard drive of Ms Redwood's computer and saved it to a DVD.

401 Ms McLaren did not provide the footage to DSE, nor inform DSE of the existence of the footage, at any time. Rather 'through her lack of experience', she provided it to someone she regarded to be a 'higher authority', namely Ms Redwood. In evidence however, Ms McLaren did say that she understood that upon sighting the potoroo, DSE would need to be notified and verify the sighting and location.

402 At the time of placing the camera, Ms McLaren was 'vaguely' aware that legal proceedings had been commenced by EEG. Ms McLaren was aware that on 1 and 2 September 2009 there was an argument going on in the Supreme Court where EEG was seeking an injunction to stop logging in the coupes. She was also aware that the judge had reserved his decision indicating that he would deliver it some days after 1 and 2 September.

403 There was some challenge made by counsel for VicForests to Ms McLaren's recollection of the date on which the footage was recovered, on the basis that while she stated it to be 3 September 2009 in her affidavit, the date recorded by the camera on the bottom of the photo

was 6 September 2009. Ms McLaren could not account for this difference in cross-examination, remarking 'I guess either the camera was incorrect or I was incorrect'.

404 There was also some questioning as to the accuracy and provenance of the GPS coordinates recorded in the logbook extract produced by Ms McLaren at trial. VicForests submitted that 'doubt surrounds th[is] detection' and that Ms McLaren's evidence was vague as to precisely where she was.

405 The facsimile copy of pages from the logbook tendered in evidence contains the following three relevant entries:

(i) on 31 August 2009 (page 3), an entry under the heading 'START ERRINUNDRA RD' relating to EEG camera 'M1' which, although badly photocopied, upon close inspection appears to contain the full GPS coordinates referred to in Ms McLaren's affidavit. The second line of coordinates following the slashes can be read with confidence as ?875717 (note however that the first number in that sequence cannot be readily deciphered). The first sequence of numbers before the slash cannot be stated with confidence however appear likely to be those deposed to in Ms McLaren's affidavit (655876/5875717). Ms McLaren gave evidence that this entry was not in her handwriting.

(ii) on 3 September 2009 (page 4), under the heading 'W. Gully (Leg Rd)', an entry also purporting to relate to 'M1' in Ms McLaren's handwriting contains GPS coordinates 655666/5875463. These coordinates were not cited in Ms McLaren's affidavit, but were verified as recording a location within coupe 26 by Mr Treasure, surveyor.[151]

(iii) on 3 September 2009 (page 5), under the heading 'EAST GULLY' '(ERRINUNDRA RD)' written in Ms McLaren's handwriting, an entry not in Ms McLaren's handwriting states 'EEGM1 655876/587517 Potoroo'. These coordinates are almost identical to the coordinates recorded by Ms McLaren in her affidavit however miss one digit in the second sequence of numbers following the slash. The second sequence is otherwise identical to the coordinates described in (i). EEG submits that this entry is clearly incorrect due to the missing digit and the fact that it records a location outside Victoria. It should be read as referring to 655876/5875717 (the coordinates referred to in Ms McLaren's affidavit). This location was also plotted by Mr Treasure as being within coupe 26.

406 It is noted that while Ms McLaren gave evidence that she personally documented the GPS coordinates upon retrieval of the footage on 3 September 2009, it is apparent that coordinates were also recorded in the logbook by what appears to be two different hands on both 31 August 2009 and 3 September 2009. Ms McLaren could not account for why she had chosen to include the GPS coordinates not recorded in her handwriting, other than to say that she had regard to the notebook when writing her affidavit and trusted her team. She admitted that she had no personal knowledge of those coordinates.

407 Further, it is noted that while entries (i) and (iii) were made under headings referring to the east gully, entry (ii) was made under the heading 'W. Gully (Leg Rd)'. A further reference to EEG M1 being on the eastern/Errinundra Road side is made on 22 October 2009 (page 6) under the heading 'the Errinundra side Heading N'. This is in line with entry (i) which also states after the coordinates 'Heading N'.

408 Ultimately, it would seem that the sequence of entries favours the view that EEG M1 was in the east gully at the coordinates recorded in Ms McLaren's affidavit, ie 655876/5875717. This is especially so when the coordinates are considered in the light of the whole of the evidence including Ms McLaren's evidence regarding how she reached the camera location.

409 It is regrettable however that the relevant photographic images have not been supplied to DSE in order that the location at which they were obtained could be verified by reference to the location described by Ms McLaren, namely a large Shining Gum in an easy to find situation. The proper design of retained habitat responsive to this detection would commence with this step.

410 Having viewed the images produced by Ms McLaren, Mr Scotts deposed that he 'believed that the animal on the film and in the image is a Long-footed Potoroo' and that he was 'confident in his opinion'.[152] In evidence Mr Scotts said he was 100 per cent confident of his identification and went on to distinguish the animal in the footage from the other possible similar species, namely bandicoots or Long-nosed Potoroos, on the basis of the general morphology and movement of the animal and the location in which it was sighted. Mr Scotts stated that the general appearance, body shape and the 'solid and meaty tail' precluded it from being a bandicoot which is known for its rat-like tail. Mr Scotts emphasised how his prior work with Long-footed Potoroos and Long-nosed Potoroos had allowed him to observe both species in the wild, as opposed to in traps, and to become very familiar with their gait and general appearance. In particular he noted how the Long-footed Potoroo has a very distinctive body shape with an extremely long tail in proportion to the body, and how the tail of a Long-footed Potoroo is much meatier and solid than that of a Long-nosed Potoroo. It was not suggested to Mr Scotts that he was mistaken in his identification during cross-examination.

411 Mr Scotts also identified the animal as a Long-footed Potoroo from two still images extracted from the footage taken by Ms McLaren. Mr Scotts identified the animal as a Long-footed Potoroo in the first photo, and as a potoroo in the second, however noted that he would be less sure that the animal in the second photo was a Long-footed Potoroo if that photo was viewed in isolation.

412 Dr Meredith found the images relating to the third detection 'less clear' than those relating to the second detection, however said that the animal shown was 'definitely a potoroo and appear[s] to be of similar morphology' to the animal shown in the images taken by Mr Lincoln.[153] He found it 'probable' that the animal shown in Ms McLaren's footage and images was a Long-footed Potoroo.

413 VicForests did not call any evidence about the identification of the animal shown in the footage provided by Ms McLaren.

414 I am satisfied on the balance of probabilities that the animal detected in the third detection was a Long-footed Potoroo and that the detection occurred within coupe 26.

415 I find the detection constituted a detection within the meaning of Appendix I to the FFGAS and that the site was within coupe 26 at or about the coordinates deposed to by Ms McLaren.

Compliance with the Flora and Fauna Guarantee Act Action Statement

416 Between 26 August 2009 and 28 September 2009 negotiations took place between VicForests and Mr Miezis concerning the potential form of a SMZ if retained habitat was to be provided to the Long-footed Potoroo based on the location of the second detection. Clause 9 of Appendix I to the FFGAS expressly provides that such SMZ be designed by DSE in consultation with VicForests and be approved by DSE. No SMZ or habitat retention area has however in fact been created in response to the detections of the Long-footed Potoroo within the proposed logging area.

417 The consequence is that logging within the proposed coupes will be unlawful until the requirements of Appendix I of the FFGAS have been complied with.

418 The fact that, as VicForests submits, it falls to DSE to approve the relevant habitat retention zones does not enable VicForests to assert that logging in the absence of such zones is lawful. The approvals VicForests holds are conditional and the relevant condition has not been met.

419 The terms of the Code of Practice, the allocation order and the TRP constitute a requirement that the SMZ and timber harvesting exclusion area required by Appendix I to the FFGAS will be created. A solution proposed by Mr Miezis in the course of negotiations following the second detection was subject to trenchant criticisms by the Biodiversity branch of DSE. An email from Ms Natasha MacLean of 14 September 2009 states in part:

> 1. The intent of the SMZ and especially the Retained Habitat (RH) is to provide protection for the habitat of the LfPs [Long-footed Potoroos] around the detection site, partly so we can demonstrate that we are NOT knowingly logging forest likely to be the home range of the individual detected.
> 2. The home range of LfPs appears to be in the order of 10 to 20 ha, with some animals ranging over larger areas (up to 100 ha). Thus, the RH should be designed to try to capture an area of this order (ie low tens of ha) around the detection site (which is why the Action Statements states the RH is to be about 50 ha). Designing the RH so that it is greater than a few hundred metres from the detection site is not within the purpose and spirit of the prescription. Lee's recommended SMZ design places about half of the RH further than 500 m from the detection size and thus well outside the expected home range of the detected individual.
> 3. A signification proportion of the 100 m buffer on each side of Brown Mountain Creek has already been harvested. Coupes to the north and south of the two proposed coupes were harvested to within about 20-30 m of the creek (the required code buffer) in the 1990's. It is not the intent of the prescription to capture regrowth in the RH if there is the option of including older forest.[154]

420 The formulation of appropriate retained habitat must now take into account each of the first, second and third detections.

421 In turn the MPR specifically vest the carriage of these matters in the first instance not in the Director, Forests but in officers with expertise in biodiversity:

(b) Where an Action Statement or FMP requires an amendment to the FMZ scheme, this must be:

> i. actioned by a DSE officer with appropriate expertise in biodiversity management nominated by the Area Manager

ii.undertaken in accordance with 3.2.4 of these Procedures; and
iii.endorsed by the Director, Biodiversity Policy and Programs.[155]

422 Until and unless the requirements of the FFGAS are met however, logging will be unlawful because the entitlement of VicForests to log is conditional upon compliance with the FFGAS. The fact that it does not lie within the hands of VicForests alone to achieve compliance with the FFGAS does not remove its obligation to meet the relevant precondition as to provision of retained habitat before it can log lawfully.

423 At one point VicForests submitted that the creation of the SMZ required was itself subject to the general requirements governing amendments contained in the MPRs (as set out in paragraph 286 above).

424 I do not accept this submission save with respect to procedural matters. Insofar as the substantive requirement for amendment of the existing FMZ is concerned, the MPR are expressly subject to the requirements of the FFGAS.

425 Thus the MPR requirement that any amendment must ensure that the timber production of State forest is maintained (including availability of sawlog resources and potential sawlog from regrowth stands) is subject to the overriding requirement to comply with FFGAS.

426 I should add that VicForests did not call evidence establishing a need to log the coupes now in issue in order to maintain the overall timber production capacity of State forest. (Although some attempt was made to develop an embryonic basis for a case as to need at one point in the oral evidence to which I shall return.)

427 The MPR are thus relevantly to be understood as concerned with procedures (as their name implies). Their requirements with respect to the mode of formulation of the requisite SMZ and timber harvesting exclusion zone are relevant, as are the general procedural requirements relating to amendment of the SMZ zoning scheme (including those for stakeholder consultation).

428 They do not however override or qualify the substantive requirements of the FFGAS. They may add to those requirements but they cannot be given effect if they are inconsistent with them.

429 If an SMZ and timber harvesting exclusion zone has not been created in accordance with the FFGAS then timber harvesting will be unlawful within those areas comprising the best Long-footed Potoroo habitat in the potential SMZ area.

430 On the evidence this habitat comprises coupes 15, 19, 26 and 27.

431 I accept Dr Meredith's opinion that the location of the Brown Mountain coupes in an unreserved area that links between the major reserves of the Snowy River National Park and the Errinundra National Park is significant in this regard, as this area is likely to be an important ecological link zone. The densest populations of the species are found in old growth forests in north-eastern Victoria. These populations are also the most productive biologically with more offspring, and with less time spent foraging. This information suggests that old growth forests provide more productive habitat for this species, despite a

number of records from logging regrowth. The email of Ms MacLean quoted above confirms this view.

432 It follows from the above conclusions that the case with respect to the Long-footed Potoroo can be determined by reference to the specific requirements of the FFGAS relating to it and not by reference to requirements of the FMP, the precautionary principle or other general considerations such as the duty under s 4(2) of the FFG Act.

433 For completeness I record however that I accept that the FMP is overridden by the subsequent requirements of the FFGAS, that the application of the precautionary principle is to be informed by the requirements of the FFGAS, and that if the FFGAS is applied regard will have been had to the relevant objectives of s 4 of the FFG Act.

G The Orbost Spiny Crayfish and the Bonang Crayfish

434 The Orbost Spiny Crayfish (Euastacus diversus) is a small freshwater crayfish, distinguished from other similar species by the form of its external spines. It has been recorded only 13 times at seven locations in five small streams which are all on or around the Errinundra Plateau.[156] Only one of these sites is outside the Brodribb River catchment.

435 It is currently listed as 'threatened' under the FFG Act because of its restricted distribution, low population density, the lack of ecological and biological information regarding the species, and the possibility that forestry management activities would create detrimental habitat disturbance.[157] It is also listed as 'endangered' on DSE's Advisory List of Threatened Invertebrate Fauna in Victoria – 2009.

436 The Scientific Advisory Committee acting under the FFG Act determined in 1992 that the Orbost Spiny Crayfish is both significantly prone to future threats which are likely to result in extinction and very rare in terms of abundance or distribution.

437 It appears that the distribution of different Euastacus species generally do not overlap.

438 The diet of spiny freshwater crayfish consists primarily of aquatic and semi-aquatic vegetation, benthic invertebrates, fungi and bacteria found in rotting detrital matter. The Orbost Spiny Crayfish constructs a relatively simple burrow compared with some other spiny crayfish species.

439 The Orbost Spiny Crayfish is identified as a species warranting special attention in the FMP and is the subject of an FFGAS. The FFGAS identifies timber harvesting as a threatening process in respect of the Orbost Spiny Crayfish and states in part:

Timber harvesting, which occurs in several of the catchments inhabited by the crayfish, has the potential to affect detrimentally crayfish populations by altering the run-off and flow characteristics of the stream, the amounts of organic debris entering the stream, the temperature regimes, the amount and rate of sediment entering the stream, and by increasing primary productivity in the stream, with each factor liable to be more acute the closer the logging activity comes to the waterway. However, the *Code of Forest Practices for Timber Production* is designed to minimise these potential threats.

Following harvesting, it is current practice to carry out regeneration burns to create a seedbed for eucalypts. Burning the riparian vegetation can reduce its effectiveness as a runoff filter, resulting in an increase in the amount of nutrients and sediment entering the waterway.[158]

440 The management actions proposed by the FFGAS include the following:

Linear Reserves consisting of an undisturbed buffer of approximately 100m on each bank of the stream for one kilometre upstream and downstream of the detection site will be established at all sites on public land where Orbost Spiny Crayfish are recorded. Construction of new roads will be avoided within the Linear Reserve, and any fuel reduction or regeneration burning in the vicinity will be strictly controlled and managed to ensure that linear reserves are not burnt. These measures will be reviewed once 20 sites have been located. The measures outlined above have been incorporated into the Special Protection Zone criteria of the East Gippsland Forest Management Plan (NRE 1995), and will be included in all relevant park management plans. Roading across the headwaters of those streams inhabited by the Orbost Spiny Crayfish (but outside the prescribed linear reserves) will be avoided wherever possible. The location of future roads will be planned to minimise adverse impact on Orbost Spiny Crayfish habitat.[159]

441 EEG called evidence with respect to the presence of endangered crayfish species in Brown Mountain Creek from Mr Robert McCormack.[160] Mr McCormack has acquired expertise by experience rather than academic qualification but I accept that he is an expert with respect to this topic.

442 Mr McCormack conducted an aquatic survey for the Orbost Spiny Crayfish in and around the Brown Mountain area over three days from 31 October 2009 to 2 November 2009 and three days between 24 and 26 November 2009.[161] While no E.diversus was discovered, several individuals of an alleged new Euastacus species were recovered, which was referred to in evidence as the ‘Bonang Cray’.

443 Mr McCormack found no evidence of the Orbost Spiny Crayfish within the forestry coupe areas. He believes that the thoroughness of the surveys and the techniques that were employed indicate that it is unlikely any Orbost Spiny Crayfish exist in any of the four coupes. In his opinion the presence of the new taxon, the Bonang Cray, within the Brown Mountain coupes also renders it more unlikely that the Orbost Spiny Crayfish is present because different Euastacus species rarely inhabit the same areas unless they are substantially morphologically different. He therefore believes that the Orbost Spiny Crayfish is present west of Legges Road, while the Bonang Cray has a distribution east of Legges Road.

444 Specimens of crayfish captured in Brown Mountain Creek during Mr McCormack’s survey periods were retained and examined off site. Examination indicated that they did not conform to any published Euastacus species description. Mr McCormack’s opinion that they comprised a distinct and new species was not challenged.

445 Mr McCormack also indicated that during surveys of the Brown Mountain area in or about 2007, it was likely that samples of the new taxon were recovered in Result Creek on Gap Road. While the recovered population size at that time was insufficient for positive identification, Mr McCormack now included these sample sites on the map of the distribution of the new taxon that was tendered in evidence.

446 The Bonang Cray is described as slightly larger than the Orbost Spiny Crayfish, with a maximum occipital carapace length of 39.01 millimetres. It is morphologically similar to another crayfish species, the E.bidawalus. The distribution of E.bidawalus is adjacent to, and more extensive than the distribution of the Orbost Spiny Crayfish. The Bonang Cray appears to use the same simple burrow system as the Orbost Spiny Crayfish. Mr McCormack suggests this restricts the Bonang Cray's preferred habitat to smaller, cold flowing streams that would minimize threat of predation. In turn this stream type limits the assumed distribution of the species to a defined altitude band of 700 to 900 metres above sea level, where stream depth and flow rates are optimal.

447 Mr McCormack's report is somewhat contradictory regarding the measures he believes are required for protection of the Bonang Cray. He first states that 'controlled logging would have only limited impact on this species'.[162] He subsequently concludes that 'any alteration could rapidly lead to the extinction of the species'[163] considering the apparently small population size and distribution area. Alteration of the species' habitat in this context includes an increase in the temperature of the water (above approximately 20 degrees Celsius), an increase in predation and a decrease in water depth.

448 Mr McCormack further states in his report however that a 100 metre buffer along both sides of Brown Mountain Creek for the creek's three kilometre length would be sufficient protection for the crayfish population. Under cross-examination he indicated that 'happy and healthy' samples of the Bonang Cray had been recovered at two sites in or just to the south of coupe 26. This coupe is proximal to an area that was logged between 1990 and 1999 subject to creek boundary setback prescriptions. He also confirmed that some sites where the Bonang Cray has been detected are within conservation parks and reserves rather than State forest, to the northeast and east of the Brown Mountain coupes area. This extends the distribution area of the Bonang Cray outside land that could be subject to forestry operations.

449 When the evidence as a whole is considered, the case with respect to the Orbost Spiny Crayfish must fail. First, there is no evidence that the Orbost Spiny Crayfish is present in Brown Mountain Creek, adjacent to the proposed coupes or at all.

450 Secondly, it is proposed in any event to provide the 100 metre buffer on each side of the creek required by way of habitat protection pursuant to the FFGAS and the evidence supports the view that such a buffer would be adequate.

451 EEG nevertheless seeks to invoke the precautionary principle with respect to the new taxon identified by Mr McCormack. I am not however satisfied that the proposed logging does constitute a threat of irreversible harm to this taxon, nor that it is contrary to the advice of relevant experts, nor inconsistent with the findings of relevant research.[164]

(a) Mr McCormack's evidence is:

• the proposed 100 metre buffer along both sides of Brown Mountain Creek for its three kilometre length would be sufficient protection for the Bonang Cray;

• healthy specimens of the Bonang Cray were recovered in the Brown Mountain Creek proximal to areas which have previously been logged with a creek buffer;

(b) the buffer proposed for future logging accords with that recommended by the FFGAS for a comparable species and no satisfactory reason was adduced in evidence as to why such a buffer would be adequate for the Orbost Spiny Crayfish but not for the Bonang Cray; and

(c) the distribution of the Bonang Cray extends to areas to the east which are the subject of conservation reserves and will not be the subject of logging.

452 Likewise the evidence relating to crayfish does not justify the conclusion that VicForests has failed to have regard to the objectives stated in s 4 of the FFG Act.

H The Giant Burrowing Frog and the Large Brown Tree Frog

The Giant Burrowing Frog

453 The Giant Burrowing Frog (Heleioporus Australiacus) is a large robust frog with a maximum body length of 100 millimetres. The FMP specifically records that the Giant Burrowing Frog may be vulnerable to timber harvesting because it burrows in the soil well away from water courses.[165]

454 The Giant Burrowing Frog is listed as 'threatened' under the FFG Act and 'vulnerable' under both the EPBC Act and DSE's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007.

455 The FFGAS relating to the Giant Burrowing Frog states that records of the species are confined to the coastal slopes of the Great Dividing Range below 1000 metres altitude between Gosford in New South Wales and Walhalla in central Victoria. It appears there are two distinct subpopulations – one to the north of Jervis Bay and one to the south of Narooma or Eden. The reasons stated in the FFGAS for the conservation status of the species are as follows:

Within Victoria only 26 adult frogs, one juvenile frog and three groups of tadpoles have been recorded at 24 localities (Atlas of Victorian Wildlife 1993) scattered over a large area of central and eastern Gippsland. At the majority of sites only a single adult has been found.

During the last decade[166] 25 flora and fauna surveys have been conducted by CNR and its predecessors within the known range of the Giant Burrowing Frog. Only nine individuals have been recorded during these surveys, demonstrating the rarity of the species (Gillespie 1990). Given this level of survey effort it is unlikely that the lack of records is simply due to an inability to detect the species, even with an animal as cryptic as the Giant Burrowing Frog. The species may prove to be widely spread at very low densities or conversely to occur in small isolated colonies.

Gillespie (1990) considered the Giant Burrowing Frog may be adversely affected by current silvicultural practices and fuel reduction burning. These activities may damage potential breeding sites, diminish water quality and remove the litter and groundcover layers which harbour the species' food items. However, several individuals have recently been recorded near Nowa Nowa in a forest area with a history of disturbance from harvesting and fuel reduction burning. Given the lack of knowledge of the species' habitat requirements it is inappropriate to re-evaluate the effects of disturbance, particularly fuel reduction burning, at this stage. Consequently a conservative management strategy has been adopted. The research

proposals contained in this action statement should result in a better understanding of the frog's ecology and may allow modification of the management prescriptions outlined in the Intended Management Action section.

Giant Burrowing Frogs use small flowing streams as breeding sites. Their tadpoles are likely to be adapted to the natural fluctuations in stream flow, chemical composition and sediment yield of these streams. Fluctuations of stream conditions caused by human activities such as timber harvesting and roading may not be within the tolerance ranges of these tadpoles resulting in reduced recruitment to the adult population.

In its recommendation for listing under the Flora and Fauna Guarantee the Scientific Advisory Committee (1991) found that the Giant Burrowing Frog was very rare in terms of abundance. [167]

456 The FFGAS identifies the following major conservation objectives.

To ensure the long-term conservation of all known populations of the Giant Burrowing Frog in Victoria.

To conserve and manage the habitat of Giant Burrowing Frogs at sites where they have been recorded.

To attain greater understanding of the distribution, habitat, abundance, breeding biology and general ecology of Giant Burrowing Frogs and incorporate the information gained into all relevant CNR[168] management plans.[169]

457 The last objective reflects the currently limited understanding of the ecological requirements and the vulnerability of the Giant Burrowing Frog – a matter further addressed in the evidence called on behalf of EEG.

458 The FFGAS goes on to address a series of management issues and expressly states:

The biology, distribution and habitat requirements of the Giant burrowing frog are very poorly known.[170]

459 It envisages further research into the species and in particular into the question of its relationship with forest management practices.

Research into the frog would be most effectively undertaken in conjunction with research into other species such as the Southern Barred Frog (Mixophyes balbus), or the effects of forest management practices on amphibians in general. These are subjects about which virtually nothing is known.

Research on the Giant Burrowing Frog may also provide more information on the effectiveness for amphibian conservation of prescriptions for streamside protection within timber harvesting prescriptions established under the Code of Forest Practices (CFL 1989).

Protection of sub-catchments or streamside corridors should reduce soil erosion, stream sedimentation and flooding intensity within catchments and provide habitat for a wide range of other flora and fauna species.[171]

460 The FFGAS states a series of intended management actions including the following relating to timber harvesting and research:

Timber Harvesting

Introduce the following management practices at all sites where the Giant Burrowing Frog has been recorded since 1980 and at all sites discovered after the production of this action statement:

- Stream records on first-order stream: no harvesting or new roading in the catchment.
- Stream records on second or higher order stream: no harvesting or new roading inside a 100 m buffer each side of the stream for 1 km upstream and downstream of the record.
- Offstream records: no harvesting or new roading inside a 50 ha block of forest around the record or equivalent area of suitable habitat nearby. This prescription will be included in the conservation zoning system of Forest Management Plans for State forests.

These prescriptions may be varied at particular sites in consultation with flora and fauna staff depending on site conditions.

Note: For the purposes of this action statement, a first order stream is the headwaters of a catchment and is the smallest stream mapped on the 1:100 000 Natmap series. Second order streams are the next level of stream further down the catchment. For first order streams the size of each catchment will vary, however target size is approximately 50 ha.

...

Research

Carry out biological and habitat studies on the species. Areas that require research include:

- habitat preferences,
- effect of habitat alteration on survival and breeding,
- breeding habitat and timing,
- breeding biology,
- extent of utilisation of surrounding forest by adults and metamorphlings,
- ranging and dispersal behaviour, and
- incidence of return to particular breeding locations.[172]

461 EEG called evidence from Dr Graeme Gillespie, an acknowledged expert with respect to the Giant Burrowing Frog, whose work is referenced in the FFGAS.[173] VicForests called no evidence from a witness with specialist expertise relating to the Giant Burrowing Frog.

462 Dr Gillespie has observed the Giant Burrowing Frog on five occasions in East Gippsland at locations other than Brown Mountain during amphibian surveys between 1986 and 1992. He published a report regarding the distribution, habitat and conservation status of the Giant Burrowing Frog in Victoria in 1990.[174] This report was received into evidence.

463 Only 21 observation sites of the Giant Burrowing Frog have been identified in East Gippsland to date. The lack of further effective surveys and monitoring since the 1990s leads Dr Gillespie to believe 'it is not possible to presume anything about the status of the Giant Burrowing Frog until such time as appropriate surveys have been undertaken.'[175] This uncertainty presents a pervading difficulty in assessing the scientific evidence relating to the Giant Burrowing Frog.

464 In terms of the prescription relating to timber harvesting in the FFGAS, Dr Gillespie regards Brown Mountain Creek as at least a second order stream. He has not detected the Giant Burrowing Frog in the Brown Mountain coupes but believes they constitute highly suitable habitat and it is probable that the species is present.

In order to ascertain whether or not Giant Burrowing Frogs are, or are likely to be, present in or near the Brown Mountain Forestry coupes, thorough surveys would need to be undertaken. These surveys would need to involve appropriately experienced amphibian experts, who are familiar with the species' call, and its eggs and tadpole and adult morphology. Surveys would need to be undertaken during climatic conditions deemed optimal for detecting the species (these are described in detail by Penman et al. 2006). Due to the highly cryptic nature of the species, multiple surveys would need to be undertaken to confidently ascertain the species status in the area. Surveys would need to thoroughly investigate the streams in the area for tadpoles of the species.

On the basis of my sight (sic) visit to the Brown Mountain coupes, in my opinion all the remaining unlogged coupes contain highly suitable habitat for the Giant Burrowing Frog. I did not detect the species during my visit, but conditions were dry at the time and, as explained above, multiple visits are required to ascertain the presence of this species with any confidence. I also visited several other historic sites during my visit and did not detect the species there either. In my opinion the species may occur in all the coupes. Adults of the species are likely to reside within the coupes and to traverse the area. I inspected the stream running through the proposed coupes 840-502-15 and 840-502-0019 and in my opinion it is suitable for the Giant Burrowing Frog to breed.

My level of confidence that the Giant Burrowing Frog either resides in or traverses the Brown Mountain Forestry coupes is reasonably high (above 60%), because:

- The habitat is suitable
- There are historic records of the species nearby and in broadly similar habitat.
- No surveys or other assessments have been undertaken to diminish the likelihood that the species is present.[176]

465 Dr Gillespie's evidence elaborated the potential threats which timber harvesting constitutes to the Giant Burrowing Frog by way of potential changes to environmental temperatures, soil compaction, loss of food, increased sedimentation and other effects upon streams in which the Giant Burrowing Frog breeds.

466 In his view logging of the Brown Mountain coupes is highly likely to impact individual members of the species. Further, the Brown Mountain coupes provide a potentially critical mature wet forest link between the Snowy River and the Errinundra National Parks. Logging of this link would increase the fragmentation and isolation of other Giant Burrowing Frog populations.

467 Despite Dr Gillespie's undoubted expertise and the basis upon which he articulates his opinion, I do not accept that his opinion constitutes a 'stream record' or 'an off stream record' in the sense contemplated by the FFGAS.

468 Further and in any event, the 100 metre stream side buffer postulated by the FFGAS will be provided within the Brown Mountain coupes in accordance with the MPR requirements. It follows that I do not accept that logging of the Brown Mountain coupes would constitute a breach of the stipulated requirements of the FFGAS.

469 Nevertheless as I have said the FFGAS itself expressly recognises the inadequacy of the current state of research and scientific understanding of the Giant Burrowing Frog. Dr Gillespie's evidence reinforces the view that the current state of research is inadequate and he is of the opinion that the FFGAS prescriptions are also inadequate.

There is no biological or scientific significance that I am aware of for the 100m buffer width described on page 3 of the Action Statement. Based upon the known biology of the Giant Burrowing Frog, Penman et al. (2008b) suggest that a 100m buffer width is inadequate to protect non breeding habitat of females, which readily disperse and occupy forest further from streams than 100m. Studies on other stream-breeding amphibians in Victoria and subsequent development of forest management prescriptions have identified 300m buffers around all potential habitat (not just known records) as the requirement, based upon an assessment of requirements to effectively manage hydrological values and off-stream habitat. Multi species studies from over seas have suggested that buffer zones of a minimum of 300 m around breeding sites will protect a significant proportion of a number of species' populations.

There is similarly no biological or scientific basis for the 1km buffer up and down stream of records of frogs. This presumes that such a distance is adequate for protecting the local population. However, no information is available from any Victorian localities on population density, population size, distribution of the population in the local area, or specific sections of streams important for breeding. Whilst a distance of 1km will protect some catchment values and non-breeding habitat, evidence suggests that important non-breeding habitat away from riparian zones will not be adequately protected. Furthermore impacts to tributaries upstream of the 1 km zone may still adversely affect stream flows and water quality within the zone which may adversely effect breeding habitat.

...

The figure of 50 ha block around a record is intended to provide protection from habitat disturbance around specific records of individuals. It assumes that this area is adequate to conserve not only the territory of this individual but also the local population. Penman (2005) found that the Giant Burrowing Frog has a non breeding home range of on average 0.05 ha. Theoretically, 50 ha could support 1000 non-overlapping Giant Burrowing Frogs, but this assumes that all the habitat is suitable and that all the suitable habitat is actually occupied. The 50ha does not specifically provide any protection for breeding requirements of the local population, or connectivity with other local populations. Penman et al. (2008b) has suggested that many of the current prescriptions for the Giant Burrowing Frog are inappropriate.

My understanding of an 'equivalent area of suitable habitat nearby' is an area that is assessed to meet the habitat requirements of the species, and is close enough to the sight [sic] to offer

adequate refuge for an adequate representative sample of that local population. For this to be assessed and identified would require the following knowledge:

- Detailed information on the local habitat requirements of the species
- Detailed information on how the species was using both breeding and non-breedng [sic] habitat in the area
- Information in population density (number of individuals per ha in a given habitat type
- Evidence or statistical confidence that this information could then be extrapolated to other locations nearby.

None of this information is available for this species in Victoria.[177]

470 In the course of cross-examination, Mr Redd quoted from a statement in a report by Penman and others ('the Penman Report'):

A more suitable approach to managing this species, where timber production is also required, is the specific reservation of several known populations rather than attempts to buffer key habitat features within these areas. [178]

471 Dr Gillespie conceded that he felt this approach had merit if 'enough information about the demography of this species, its distribution and its habitat requirements' were known. However, he did not agree with the Penman Report that protection of the species could be provided with prescriptions such as those in the FFGAS as long as these were combined with reservation of 'biologically meaningful areas that encompass several known breeding sites as well as the associated non-breeding habitat areas'.[179] He does not believe that this level of protection would confer viability to the potential Brown Mountain Giant Burrowing Frog population. He also emphasised that definition of a biologically meaningful area with regard to the Giant Burrowing Frog is currently unknown. VicForests did not call the authors of the Penman Report and Dr Gillespie's view is both credible and uncontested.

472 Dr Gillespie conceded that the 100 metre buffer conferred a degree of protection for the Giant Burrowing Frog, but he did not believe the buffer was adequate to ameliorate the threat of logging to the Giant Burrowing Frog.

473 Dr Gillespie also said the Giant Burrowing Frog, as a burrowing species,[180] could survive fire events. However, Dr Gillespie had reservations regarding survival of the Giant Burrowing Frog in the intense temperatures that would result from regeneration burning. Furthermore, Penman et al[181] list fire as one of the two greatest threats to long term survival of the Giant Burrowing Frog. It is also unknown how the frog would survive the ecological and habitat change that follows a burn event with regard to food availability, moisture and predation.

474 In summary, Dr Gillespie's evidence does not establish the proposed logging of the Brown Mountain coupes will breach standards or conditions stipulated in the FFGAS. It does, however, demonstrate a serious basis for concern with respect to the preservation of a very rarely detected frog species, in circumstances where the scientific understanding of that species is acknowledged by the FFGAS to be limited and the proposed coupes have not been properly surveyed.

475 In particular on the basis of Dr Gillespie's evidence I accept the following:

• The Giant Burrowing Frog is listed as ‘threatened’ under the FFG Act.

• The Giant Burrowing Frog has been very rarely detected.

• Current data as to the Giant Burrowing Frog’s distribution and ecological requirements are inadequate.

• It is probable the Giant Burrowing Frog may be in the proposed Brown Mountain coupes.

• Adequate surveys have not been carried out at Brown Mountain to properly ascertain whether the Giant Burrowing Frog is present.

• Such surveys would extend 300 metres from Brown Mountain Creek.

• Adequate surveys could be carried out under appropriate climatic conditions by appropriately qualified experts.

• Logging and regeneration burning would both pose serious threats to the survival of any Giant Burrowing Frog within the Brown Mountain coupes.

• The proposed 100 metre stream buffer will not provide reasonable protection to Giant Burrowing Frog present within the coupes.

476 I also note that offstream records could generate a prima facie requirement for a 50 hectare block of retained habitat under the FFGAS. The dimensions of the Brown Mountain coupes mean that this could result in the substantial preservation of one or more of them.

477 The desirability of providing a 300 metre buffer to Brown Mountain Creek pending further survey in order to protect potential habitat for the Giant Burrowing Frog, constitutes a potentially relevant factor favouring the exercise of the Court’s discretion to give effect to the requirements of the FFGAS relating to the Long-footed Potoroo.

478 It also raises residual considerations which EEG contends invoke the precautionary principle. Taken as a whole Dr Gillespie’s evidence establishes that timber harvesting of the Brown Mountain coupes is a serious potential threat to habitat of the Giant Burrowing Frog. The proper application of the precautionary principle and of the requirement that VicForests have regard to the advice of relevant experts and relevant research are matters to which I shall return below.

The Large Brown Tree Frog

479 The Large Brown Tree Frog (Litoria littlejohni) is a medium sized tree frog species[182] with distinctive markings. It comprises one of a group of morphologically, ecologically and behaviourally similar tree frog species in south eastern Australia.

480 The FMP contains no specific conservation guideline with respect to it. There is also no FFGAS with respect to the Large Brown Tree Frog.

481 Nevertheless it is listed as ‘threatened’ under the FFG Act and ‘vulnerable’ under the EPBC Act. It is listed as ‘data deficient’ on DSE’s Advisory List of Threatened Vertebrate Fauna in Victoria – 2007.

482 As I have indicated above, the criterion for listing a taxon as ‘threatened’ under the FFG Act is a demonstrable state of decline which is likely to result in extinction or a situation in which the taxon is significantly prone to future threats which are likely to result in extinction.[183]

483 Dr Gillespie gave evidence as to the potential impacts of logging in the Brown Mountain coupes upon the Large Brown Tree Frog.

484 Dr Gillespie is an acknowledged expert on the frog fauna of Victoria and no evidence was called by VicForests from a witness having comparable expertise.

485 Dr Gillespie encountered the Large Brown Tree Frog on 10 occasions between 1986 and 1992 while undertaking and supervising pre-logging biodiversity surveys in East Gippsland. He has also visited other locations at which the species has been recorded.

486 Dr Gillespie’s evidence is that in Victoria the Large Brown Tree Frog is generally associated with mature, wet, damp forest vegetation, and rarely with dry forest. It breeds in temporary or semi-permanent stationary water bodies.

487 Its distribution in Victoria is limited to specific elevation ranges on the eastern side of the Great Dividing Range between 145 and 1600 metres above sea level. There have been only 279 independent recorded sightings of the species in New South Wales and 79 in Victoria (coming from 47 localities).

488 The majority of the Victorian records come from north of the Princes Highway, in the vicinity of the Errinundra Plateau and on ridges to the west, south and south east of the plateau. The Large Brown Tree Frog has been detected in and around the Brown Mountain area.

489 Most of the known localities of the Large Brown Tree Frog are outside protected areas such as National Parks. It is possible that this is due to a statistical bias inherent in the nature of the pre-logging surveys of the 1980s, when many of the sightings of this frog were recorded.

490 Breeding patterns, fecundity, egg fertility and survivorship of the Large Brown Tree Frog are unknown. However, a lack of sightings near breeding sites suggests that the Large Brown Tree Frog does not reside long term near those sites, but disperses into the surrounding forest. The lack of records away from breeding sites may reflect an inherently low population density, cryptic behaviour (such as limited nocturnal activity patterns) or use of habitats that limit detection (eg forest canopy or under tree bark).

491 Breeding activity is identified by calling males. In Victoria, most calling has been heard in June, but has been heard sporadically at various times during the year. All recorded breeding sites in Victoria have been stationary water bodies and have included rainfall pools created by upturned stumps, log hollows and a variety of excavation holes. Dr Gillespie’s

view is that like other pool breeding species of frogs, the Large Brown Tree Frog spends most of its time dispersed from breeding sites, utilising shelter in the surrounding landscape.

492 Dr Gillespie's evidence outlined the existing Victorian surveys of the Large Brown Tree Frog which were undertaken generally by government agencies consisting of zoologists and botanists by way of pre-logging surveys in the 1980s. Surveys ceased in 1982 and the Large Brown Tree Frog has not been recorded in Victoria since 1993. Dr Gillespie believes that the methodology and extent of the surveys were adequate to identify the general distribution of the Large Brown Tree Frog but lists the following limitations with the surveys:

• the surveys were non-systematic and engendered inadequate seasonal results;

• the surveys were of low intensity potentially failing to adequately detect the extent of a rare or cryptic species;

• the surveys were not comprehensive and omitted locations of potential Large Brown Tree Frog occurrence; and

• the surveys ceased in 1992 and do not contain current information.

493 These limitations result in statistical uncertainty relating to Large Brown Tree Frog occurrence. Population size has never been properly established and population trends generally are unknown. Population recovery trends following logging operations in particular are unknown.

494 Dr Gillespie described a broad trend of population decline in many national and international amphibian species, and emphasised that the individual and combined impact of habitat loss, predator introduction, emergent disease, climate change and pollutant introduction on the Large Brown Tree Frog is unknown.

495 In Dr Gillespie's opinion, timber harvesting is a potential threat to the Large Brown Tree Frog. Timber harvesting greatly alters the habitat available to the species. Factors which affect the temperature range tolerated by amphibians may affect their survival. Timber harvesting may also remove shelter from predators, affect food availability and result in habitat fragmentation and isolation. Insofar as the forestry process of hot burning to trigger regeneration is concerned, the Large Brown Tree Frog has no adaptations to cope with intensive fire.

496 Dr Gillespie's report states:

- The species appears to be dependent upon forest habitat for its survival.
- The types of forest and areas of forest that the species occurs in are subject to timber harvesting.
- Most of the known localities of the Brown Tree Frog in Victoria are outside of protected areas, such as National Parks.
- With the exception of species with highly generalised ecological requirements, or species that thrive on habitat disturbance, most species are adversely affected by significant changes to their habitats. Based upon what is known about the Large Brown Tree Frog, the adult stage does not have highly generalised ecological requirements and the species does not thrive in disturbed environments. Timber

harvesting grossly alters the species' habitat by changing forest structure, light penetration levels, moisture and temperature regimes.

- Amphibians are ectotherms, meaning they depend upon the external environment to attain and maintain optimal temperatures for metabolic activity ('cold-blooded'). Amphibians have a moist skin; they exchange oxygen and carbon dioxide through their skin and it plays an important role in water balance and defense. The vast majority of amphibians therefore tolerate relatively narrow temperature ranges compared to other vertebrates, and are more sensitive to levels of environmental moisture. Consequently, factors that significantly alter these regimes will have a detrimental effect on individual survival.
- Timber harvesting may also remove or alter sheltering sites, which may be important for avoiding predators. Other arboreal forest frog species exploit tree hollows, exfoliating bark, fallen logs and leaf litter for shelter. Timber harvesting may also affect food availability for frogs and the abundance of predators, as these species are also affected in various ways by changes in habitat brought about by timber harvesting.
- Several studies have shown that clear-felling has a long-term detrimental affect on amphibian populations. Populations of the Large Brown Tree Frog may be detrimentally affected by changes resulting from one or more of the above factors. The utility of different successional stages of forest post-logging by Large Brown Tree Frogs is also unknown. At a landscape level, timber harvesting may result in fragmentation of suitable habitat and isolation of non-viable populations over time.
- The impact of coupe fires or fuel reduction burning on the Large Brown Tree Frog is unknown. However, frogs have little defense against fire; they are slow and sedentary animals and cannot flee from fire. They also have low tolerance of extreme temperatures and desiccation. Non-burrowing frog species that do survive fire probably do so by sheltering in large logs or patches of unburnt forest. The restriction of the Large Brown Tree Frog to forest types that rarely burn, or typically experience small or cool burns, may reflect their inability to cope with fire. Coupe burns in high elevation wet forest are hot fires, which are likely to destroy any remaining refugia for the Large Brown Tree Frog.
- Available information suggests that the Large Brown Tree Frog may have relatively general breeding habitat requirements. This species may be able to temporally exploit breeding habitats created by forest management practices, such as fire dams and road side-ditches. However, the comparative reproductive success between natural and artificial water bodies is unknown. Artificial water bodies may serve as ecological traps through elevated drying rates or predation rates. Other ecological generalist species may also be able to exploit these habitats more successfully and out-compete the large Brown Tree Frog. Increased water temperatures and evaporative rates in newly logged areas may reduce viability and availability of natural breeding pools.[184]

497 Dr Gillespie made a day long site visit to coupes 15 and 19 in October 2009, followed by two days in and around the Errinundra Plateau area generally. He did not detect the Large Brown Tree Frog on his site visit to Brown Mountain but he believes the remaining logging coupes contain habitat highly suited to this species. He has a reasonably high (above 60 per cent) level of confidence that the Large Brown Tree Frog either resides in or traverses the Brown Mountain forestry coupes because:

• the habitat is suitable; and

• there are historic records of the species nearby; and

• no surveys or other assessments have been undertaken to diminish the likelihood that the species is present.

498 In turn Dr Gillespie's opinion is that it is probable that the logging of the Brown Mountain coupes would affect individual Large Brown Tree Frogs, and that the coupes (being some of the remaining high quality patches of wet forest) may be highly important for the survival of the species as a whole.

499 Because there is no evidence that the Large Brown Tree Frog uses streams for breeding, the retention of a 100 metre buffer along Brown Mountain Creek may be of limited value in protecting the species. In cross-examination Dr Gillespie regarded the 100 metre buffer as providing 'a degree of protection' but queried the buffer's adequacy in protecting the hydrological integrity of the sub-catchment.

500 Dr Gillespie also rejected the view that the creation of additional park areas around Brown Mountain can be accepted as a satisfactory way of managing conservation of the species in circumstances where the conservation requirements of the Large Brown Tree Frog are not known.

The Precautionary Principle and the frogs

501 Dr Gillespie's opinion is that the proposed timber harvesting at Brown Mountain would not be consistent with the precautionary principle in respect of the Large Brown Tree Frog for the following reasons:

- The Large Brown Tree Frog is listed as *Threatened* in Victoria under the FFG Act and nationally *Vulnerable* under the EPBC Act.
- No steps have been taken to assess the adequacy of the current reserve system or forest management practices for protecting this species from population declines that may further increase its extinction risk.
- No steps have been taken to undertake the research required to determine the impact of key threatening process, specifically forestry operations, or how to ameliorate them on this species, by way of an FFG Action Statement or any other management document.
- Knowledge of the current population status is extremely poor due to a lack of current knowledge about the species' distribution and abundance.
- The species is known to be dependent upon habitats that are themselves restricted in distribution (i.e. mature wet or damp forest).
- The Large Brown Tree Frog is known to have occurred in the vicinity of the Brown Mountain coupes and, based on current knowledge, these forests are high quality habitat for the species. It is therefore highly likely that the species resides and traverses the area of proposed operations.
- The proposed forestry operations at Brown Mountain directly impinge on high quality habitat for the Large Brown Tree Frog that has been identified as critical to the survival of the species.
- There is no evidence that the prescriptions in the Code of Forest Practice (Department of Sustainability and Environment 2007) or the Forest Management Plan

for East Gippsland (1995) will provide adequate protection for populations of the Large Brown Tree Frog.

- No steps are proposed to monitor or evaluate the impacts of forestry operations on the Large Brown Tree Frog.[185]

502 Dr Gillespie's evidence goes to both the question of scientific uncertainty and the potential threat to the Large Brown Tree Frog.

503 His evidence is that as for the Giant Burrowing Frog surveys could be carried out under appropriate climatic conditions.

504 If his evidence as to the practicality of survey work is accepted and that evidence is coupled with his opinion as to the necessity of such work, the question arises whether application of the precautionary principle should require that logging in the Brown Mountain coupes be delayed until survey work generally in accordance with Dr Gillespie's advice is undertaken.

505 EEG specifically contends that VicForests has failed to take a precautionary approach by failing to conduct surveys for the Giant Burrowing Frog and Large Brown Tree Frog.

506 I have come to the conclusion that the precautionary principle does require that this survey work be undertaken because:

(a) I am satisfied there is a real threat of serious or irreversible damage to the environment for the following reasons:

• Both the Giant Burrowing Frog and the Large Brown Tree Frog are listed as 'threatened' under the FFG Act.

• The Giant Burrowing Frog has been detected very rarely and the Large Brown Tree Frog only rarely.

• The Brown Mountain coupes fall within the relatively limited parts of Victoria in which detections of each species of frog has occurred.

• The limitations of scientific knowledge with respect to the Giant Burrowing Frog are such that they raise the distinct possibility that it is highly vulnerable to extinction.

• The scientific understanding of the Large Brown Tree Frog is also limited.

• The FFGAS emphasises the need for further investigation into the biology, distribution and habitat requirements of the Giant Burrowing Frog.

• The FFGAS specifically identifies timber harvesting as a threat to the Giant Burrowing Frog and Dr Gillespie's evidence confirms this threat.

• Timber harvesting is an even greater threat to the Large Brown Tree Frog (which cannot protect itself by burrowing).

• Dr Gillespie's evidence should be accepted that the 100 metre stream side buffers proposed at Brown Mountain Creek will not necessarily offer effective protection to either the Giant Burrowing Frog or the Large Brown Tree Frog within the Brown Mountain coupes, either in themselves or in conjunction with adjacent conservation reserves.

• The opinion evidence of Dr Gillespie is that the Giant Burrowing Frog and the Large Brown Tree Frog are present in the Brown Mountain coupes.

• The threat of loss of essential habitat to members of both frog species is a threat of serious and irreversible damage to the environment.

• Professor Ferguson's evidence was that the issue for the Giant Burrowing Frog is particularly one of its occurrence.

(b) The combined force of the evidence as to the creation of reserves to the west of 40the Brown Mountain coupes and within East Gippsland generally, the proposed stream side buffers and other prescriptions are not in my view sufficient to displace or outweigh the above factors.

(c) I am satisfied that the threat of serious and irreversible damage to the environment in respect of the Giant Burrowing Frog and the Large Brown Tree Frog is attended by a lack of full scientific certainty. Dr Gillespie elaborated very significant uncertainties relating to the distribution, biology and conservation of both species in the evidence which I have summarised above.

(c) VicForests has not demonstrated the threat is negligible. It called no evidence from an expert with specialist qualifications relating to the biology and conservation of frogs. It called no evidence from a witness with specialist expertise equivalent to that of Dr Gillespie.

(d) The threat is able to be addressed by adaptive management. The surveys proposed by Dr Gillespie are relatively limited management measures, which would significantly better inform a further judgment as to the relevant conservation values of the Brown Mountain coupes. They have the capacity to materially reduce uncertainty with limited cost and within a reasonable timeframe.

(e) The survey measures proposed are proportionate to the threat in issue. They are relatively limited operations. Further, they are capable of definition by reference to a condition subjecting them to the controlling supervision of the appropriate officer of DSE. In addition, there is no satisfactory evidence that the postponement of timber harvesting pending the completion of such surveys would cause VicForests significant economic damage. Subject to my conclusions concerning the Long-footed Potoroo, Greater Glider and Yellow-bellied Glider the timber within the coupes will be preserved as a potential resource. Those conclusions also limit the potential net impact of the surveys now in issue because they require the retention of habitat in any event.

507 I do not accept that the evidence of Professor Ferguson (expressed in the context of the discussion concerning the Square-tailed Kite) establishes that the temporary delay of logging would cause VicForests any significant harm.

...And that would bring me to try and weigh the risk-weighted consequences which seem in the case of the kite to be small both in terms of risk and probability and damage, against what I think are much more significant risk-weighted consequences in relation to the jobs in the industry that would be affected by a cessation of harvesting over those particular coupes.

The concerns I have in relation to that change in jobs that would be triggered is that these coupes supply a species which are particularly critical in terms of the volumes of spanning out the allocation order program over the next 15 years or so, and beyond indeed, until such time as the regrowth harvesting comes into play, in the production, age of production and utilisation. The species, the ash type species are particularly critical in that. They are the ones that are most scarce by a very long shot relative to mixed species, and they have to be eked out over that time-span to provide sustainability for the industry over that period.

...

Now, you mention - what particular product, timber product is produced from that species?--- Well, from a shining gum and the ash type species generally, go into higher valued joinery furniture, flooring type manufacture. They have a higher price in terms of stumpage, they have a much higher selling price in terms of the final product in general than some of the other species. One can find exceptions, obviously. I am talking about in general relative to the mixed species.[186]

508 The delay of logging pending survey would not necessarily result in the 'cessation of harvesting over those particular coupes'. Moreover, insofar as Professor Ferguson gave evidence as to the potential implications for the balanced supply of different types of timber, he did so by reference to a timeframe substantially longer than that which would be necessary for the completion of the relevant surveys.

509 There was no evidence tendered at trial which established that VicForests or its contractors would suffer substantial economic loss if logging were delayed for the period necessary to complete satisfactory surveys.

510 I am not persuaded that the further delay of logging at Brown Mountain will necessarily cause VicForests any substantial loss. The financial consequences of further delay will depend on variables relating to timber supply, price and the ultimate outcome of the injunctions I propose to grant. Whilst I accept Mr McDonald's evidence that delay will cause an interruption to revenue from this source, this is not necessarily to be equated with medium or long term loss and certainly cannot be treated as such.

511 Further, even if it be the fact that VicForests suffers loss, I am not persuaded that the evidence demonstrates a potential loss which is disproportionate to the need for delay which I have identified.

512 For completeness I note the Amended Defence specifically pleads that if VicForests is required to take a precautionary approach with respect to the frog species in issue, it has done so by reason of the implementation of the stream side buffer. For reasons I have set out above I do not accept this is so.

513 I have formed my conclusions as to the application of the precautionary principle to the evidence with respect to frogs on the basis of the evidence as a whole and not the opinion of Dr Gillespie as to the application of that principle.

514 It follows from these conclusions that the proposed logging at Brown Mountain will be unlawful unless in the first instance the surveys in issue are carried out.

515 The conclusion I have reached with respect to the precautionary principle is sufficient to dispose of the case with respect to the frogs.

516 The submissions of EEG on other bases do not advance the matter. The obligation of VicForests under s 4(2) of the FFG Act will be complied with if the precautionary principle is observed.

I The Powerful Owl and the Sooty Owl

517 The Powerful Owl (Ninox strenua) and the Sooty Owl (Tyto tenebricosa) are both identified in the FMP as threatened species deserving of protection. The conservation guidelines for birds contained in the FMP record that both Powerful Owls and Sooty Owls warrant particular attention and are potentially sensitive to the effects of clear felling and may be among the most difficult fauna to conserve in production forests.[187]

518 Both owl species are listed as 'threatened' in Victoria under s 16 of the FFG Act and 'vulnerable' on DSE's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007.

519 Both species are the subject of FFGAS.

520 Evidence was given with respect to the conservation issues relating to both owl species and the probability of their presence within the proposed coupes in issue by Dr Rohan Bilney.[188]

521 Members of Dr Bilney's family currently hold membership of EEG and Dr Bilney has held personal membership in the past. Nevertheless I find his evidence to have been truthful and objective. Indeed it was not seriously suggested by VicForests that this was not the case.

Biology, habitat preferences and distribution

The Powerful Owl

522 The Powerful Owl is Australia's largest owl and is characterised by large, bright yellow, forward-directed eyes and its double-note 'whooooo-hooooo' call. It is an opportunistic, nocturnal hunter that preys mainly on arboreal mammals including Greater Gliders. Its population is estimated at less than 500 pairs in Victoria, with over 100 pairs in East Gippsland.[189]

523 Powerful Owls occupy a large permanent home range. Estimates based on the spacing of calling birds (not on radio-telemetry work) put the range at between 400-1,500 hectares, while estimates based on dietary requirements in western Victoria put this figure at over 1,000 hectares. Home range size varies depending on density of prey items, adequate

breeding hollows and tolerance to disturbance and is likely to be smaller in forests supporting higher prey densities.[190]

524 Throughout its range the Powerful Owl generally favours dense gullies and older forests where large tree hollows provide nesting sites and arboreal prey are plentiful. It is forest (and hollow) dependent[191] and is therefore restricted to large patches of forest. Dr Bilney notes that the Powerful Owl has long been considered to have been rare and restricted to old growth habitats, however recent research has shown that it can also readily occupy fragmented and highly 'disturbed' environments such as within large cities where densities of arboreal mammals are high. Dr Bilney notes that it occupies a range of forested habitats in Victoria and typically occupies regions with close proximity to mixed/mature age forests, box eucalypts and hollow bearing trees. In East Gippsland, it is not closely associated with any forest type but occupies most forest types, avoiding only heathland and wetlands.

525 The Powerful Owl is restricted to mainland Australia, being generally concentrated along the forested coastal ranges of the eastern seaboard between Rockhampton in Queensland south to the Mount Burr area of the Victorian/South Australian border. It also occurs on the western slopes of the Great Dividing Range and in the drier box-ironbark forests and woodlands.

526 In Victoria, Powerful Owls are distributed from the South Australian/Victorian border north to approximately the Little Desert National Park across to Echuca, and east along the Great Dividing Range. They are only absent from the north west of the State.

527 Nevertheless, since European settlement 65 per cent of Victoria's forest cover has been cleared with only 5 per cent of freehold land remaining forested.[192] It is likely this permanent loss of habitat has led to an overall reduction in owl numbers and fragmentation of the original continuous population into a series of small residual populations, each of which is at risk of becoming locally extinct. There is great concern regarding the long term persistence of the Powerful Owl, especially considering its extensive home range, low breeding success and the low prey availability in such landscapes. The Powerful Owl has very low breeding success in East Gippsland, possibly due to a number of factors including low prey availability and dietary competition with Sooty Owls.

The Sooty Owl

528 The Sooty Owl is a sedentary, strongly territorial nocturnal predator. Sooty Owls have traditionally been considered rare and elusive, and, due to their nocturnal habits, low population densities and large home ranges in heavily forested habitats, few detailed ecological studies have been conducted. Surveys throughout south eastern Australia using call playback have identified habitat preferences, distribution, population sizes, and the influence of land management and geographical features.

529 The Sooty Owl occupies a large home range, within which females typically have much smaller home ranges in the short term (500-1500 hectares) compared to males (2000-4000 hectares). Dr Bilney suggests 500 hectares may only represent 12-25 per cent of a home range for just one bird.

530 The Sooty Owl consumes mammalian species up to 1.5 kilogram in weight, including gliders. The 'predominant' prey is medium size (50-400 gram) mammals, in which 5-6

species dominate throughout south eastern Australia, including the Greater Glider. It exists in low population densities with an estimated population of between 400 and 900 breeding pairs in Eastern Victoria.

531 The Sooty Owl is found in Australia and New Zealand. In Australia, the Sooty Owl occurs in coastal central and southern Queensland, New South Wales and Victoria. In Victoria, the distribution of the Sooty Owl is primarily restricted to wetter forest types east of Melbourne along mountainous regions of the Great Dividing Range, incorporating the Central Highlands, the North East, and Gippsland. There is also a very small isolated population in South Gippsland. Within the sub-population occurring from near Melbourne, east and north east to the border with New South Wales, the Sooty Owl is numerically rare [1-9 individuals per 100 square kilometres].

532 In Victoria, the Sooty Owl occurs in closed forests (rainforests), tall open forests and some open forests, favouring wetter sites, in gullies and mid-slopes with many dead hollow bearing trees and with understorey and middle story plants such as Silver Wattle, Blanket Leaf and Tree Ferns. It is considered to be amongst the species most closely associated with elements of old growth forest due to both the Sooty Owl and many of its prey being hollow dependent for nesting and roosting.

Threats

Powerful Owl

533 Permanent loss of habitat since European settlement has 'likely led to an overall reduction in owl numbers and fragmentation of the original continuous population into a series of small residual populations, each of which is at risk of becoming locally extinct.'[193] The FFG Act Scientific Advisory Committee determined, in 1994, that the Powerful Owl is 'significantly prone to future threats which are likely to result in extinction' and 'very rare in terms of abundance or distribution.'[194] These threats include land management practices which reduce the availability of tree hollows. Hollows suitable for owls do not form, even in the fastest growing eucalypts, until the trees are at least 150-200 years old. Lack of suitable hollows is considered a limiting factor to successful breeding and population recruitment. Prey densities are also an important factor in determining territory size and breeding success.

Sooty Owl

534 As the Sooty Owl is dependent on closed forests (rainforests), tall open forests and some open forests, clearing and logging of those habitats has probably removed or modified a significant proportion of its former habitat. A probable population decline due to loss of habitat to date means that the Sooty Owl is more susceptible to catastrophic events such as wildfire. The FFG Act Scientific Advisory Committee determined in 1991 that the Sooty Owl is 'significantly prone to future threats which are likely to result in extinction' and 'very rare in terms of abundance or distribution.'[195] As for the Powerful Owl, these threats include land management practices which reduce the availability of tree hollows. Furthermore, fragmentation of habitat exposes the Sooty Owl to the threats of reduced dispersal opportunity and genetic isolation.

535 It should be noted with respect to both species that the loss of hollow bearing trees has itself been listed as a threatening process under the FFG Act.

536 The threats identified in the FFGAS, namely habitat fragmentation, loss of hollow bearing trees and prey density were echoed by Dr Bilney. In his view, clearing and habitat fragmentation by reason of logging impacts upon critical resources required by owls (especially prey densities), in both the short and long term and can transform the landscape into an 'unusable state for Sooty Owls and Powerful Owls.' Dr Bilney notes that the coupes in question form an important corridor between two conservation reserves.

537 In stressing the impact of logging on hollow dependent mammals which dominate the owls' diets, Dr Bilney specifically notes that the Greater Glider is one of the main species most adversely affected by clear-fell logging.

538 According to Dr Bilney, regrowth forests:

...provide limited value to Sooty Owls and Powerful Owls, but can be occupied by some prey species that are not hollow-dependent (e.g. Common Ringtail Possums *Psuedocheirus peregrinus),* and the owls can forage within these areas in the long-term (>20 years). However, in some regions even 40-50 year old regrowth has been shown to be strongly avoided by Sooty Owls, probably due to low prey availability.[196]

539 Despite some foraging in regrowth forests, it has been shown that owls nest and roost predominantly in unlogged areas. In turn Dr Bilney concludes that:

Logged coupes are unlikely to ever provide suitable sites for nesting or roosting (in hollows – except if a retained habitat tree is used), especially if the intention is to harvest the forest again within the next 200 years (until hollows form). Powerful Owls in particular are unlikely to ever nest in a retained habitat tree, due to their requirements of suitable foliage roosting locations nearby to the nest tree, which is not catered for in logging coupes.

Overall, it seems highly likely that populations of small mammals will be permanently reduced following logging, therefore impeding recovery of the owls.[197]

540 Fire is also a threat to the owls as it may remove both potential habitat and potential prey. There have been three catastrophic fire events in Victoria in the past seven years and in consequence, combined with prescribed burning, approximately 3 million hectares have been burnt in this time. This equates to approximately two thirds of potential Sooty Owl habitat in Victoria. It is unknown how populations of Sooty Owls and other forest dependent fauna have been affected by these fires.

541 Research by Dr Bilney in recent years has raised a number of conservation concerns relating to the vulnerability of Sooty Owls and Powerful Owls to effects of timber harvesting:

− That Sooty Owls and Powerful Owls in East Gippsland relied more heavily on hollow-bearing trees than previously considered (average of 75% of diet consisted of hollow-dependant mammals – while individual Sooty Owls required a large number of hollows (up to 13) for roosting).

− home-ranges of both male (2000-4000ha) and female (500-1500ha) Sooty Owls were significantly larger in the short-term than has previously been assumed (200-800ha).

− radio-tagged Sooty Owls in areas subject to extensive logging history were found to significantly avoid logging regrowth <45 years old.

− prey availability was considerably lower compared to historic times... feral predators were likely to be affecting owl populations due to reduced prey densities.

− the degree of resource overlap between Sooty Owls and Powerful Owls is considerably high.

− hollows used for roosting/nesting were located throughout the landscape and not confined to riparian areas as previously speculated.[198]

Forest Management Plan

542 The FMP conservation guideline with respect to owls is as follows:

Powerful, Sooty and Masked Owls. Good-quality habitat to support at least 100 pairs of each species will be maintained in the FMA. The target of 100 pairs will be apportioned to Geographic Representation Units, according to the amount of suitable habitat in each unit... Conservation reserves and State forest will both contribute to conservation of owl habitat. Areas that count towards meeting the target include:

- known owl localities in conservation reserves;
- parts of the SPZ and SMZ designed around known owl localities in State forest; and
- a conservative estimate of the extent of habitat in conservation reserves, or in larger parts of the SPZ and SMZ (based on other features such as old-growth forest).

Good quality habitat for a pair of each species is defined as follows (the home ranges of different species can overlap):

Powerful Owl habitat – approximately 800 ha of forest which is dominated by old trees This species occupies a wide range of forest types, but areas with high populations of possums and gliders are favoured. Where the SPZ or SMZ is based on a known owl locality the 800 ha is to be located within a 1500 ha area of forest that includes the detection site.

Sooty Owl habitat – approximately 500 ha of forest dominated by old trees and generally comprising Lowland, Damp and Riparian Forest and Warm Temperate Rainforest. Where the SPZ or SMZ is based on a known owl locality the 500 has is to be located within a 100 ha area that includes the detection site.

...

All known nesting sites will be protected as for diurnal raptors.

Areas designated for owl conservation in State forest will be included in the SPZ or SMZ. The SPZ is appropriate when the area can help satisfy other conservation guidelines (like old-growth forest representation). It may also be appropriate in areas where there has been repeated reliable sightings and there are few conservation or other large SPZs in the vicinity.

The SMZ is appropriate where owls are the principal value recorded, and where reasonable representation of owl habitat already exists in conservation reserves or the SPZ. Sites in the SMZ will have special plans prepared that provide for a level of timber harvesting while conserving the most important components of owl habitat...

Once sufficient habitat for 100 pairs is being managed for owl conservation, new owl records may be used to adjust the zoning scheme...

...

Rich bird sites. Well-documented sites that are particularly rich in birds will be included in the SPZ within areas of approximately 20 ha.[199]

543 The Powerful Owl FFGAS provides that 'The Powerful Owl conservation strategies established in existing plans are generally consistent with this Action Statement and will be maintained until the plans are reviewed.'[200]

Flora and Fauna Guarantee Act Action Statements

544 The conservation objectives for both species outlined in the FFGASs are as follows:

(i) Short term: to prevent further decline by ensuring that good quality habitat for at least a population target of 500 breeding pairs is maintained on public land in Victoria.

(ii) Long term: increase population numbers in potentially suitable areas, where owls are now scarce, by maintaining and restoring habitat for the species across all land tenures to return it to a secure conservation status in the wild.[201]

545 The FFGASs set out a series of intended management actions. These actions relate to habitat protection, surveying and monitoring, community involvement, and research. The habitat protection management actions provide as follows:

Powerful Owl Management Actions

546 The Powerful Owl FFGAS relevantly provides:

1. Identification of owl sites

Identify at least 500 POMAs[202] on public land across the known Victorian range. The emphasis should be on identifying/locating nest sites or probable breeding areas based on the occurrence of owlets or adult roosting pairs.

...

Priority for inclusion in the 500 pair target is as follows (in descending order):-

- confirm Identification of owl sites ed [sic] nesting tree utilised during the past 5 years.
- confirmed roost tree utilised during the past five years.
- repeated sighting or vocalisation during the past five years.

- incidental sighting or vocalisation during the past five years.
- historic record not reconfirmed in past five years.
- potential habitat area (preferably based on formal analysis and modelling).

Once regional targets are met, new POMAs will be established only on the basis of records of a higher priority.[203]

547 A table containing a notional breakdown of target POMA locations specifies a target of 100 POMAs for East Gippsland.[204] It can be seen that this builds directly upon the approach of the FMP. I accept that the FFGAS requirement has supplanted that of the FMP.

548 The FFGAS continues:

3. Protection in State forest

...

Where clear-fell harvesting is used, delineate and protect a core area of suitable habitat of at least 500ha (dependant on habitat type) as SPZ within a 3.5km radius (approx area of 3 800ha) for each POMA. Suitable habitat is areas dominated by old trees and areas likely to support high densities of prey species. Where forest stand characteristics may limit the adequacy of the core SPZ, additional habitat of up to 500ha of SPZ and/or SMZ should be maintained within the same 3.5km radius. The size of the core SPZ and any additional habitat requirements will be determined by assessment of the suitability of both existing forest habitat and regrowth forest in relation to prey densities.

...

Unless otherwise protected, all confirmed nesting and roosting sites will be protected by a 3ha SPZ around the site and a 250-300m radius (or equivalent linear area) SMZ buffers around identified localities.[205]

Sooty Owl Management Actions

549 The Sooty Owl FFGAS similarly provides:

Identification of owl sites

1. Identify 500 SOMAs[206] on public land across the known Victorian range (identification of the sites in state forest will occur as part of the FMA planning process: see Action 4). SOMAs should be based on locating probable breeding areas based on the occurrence of owlets or roosting pairs of adults and on habitat identified by habitat modelling as suitable and may overlap with management areas established for other species. Habitat models will be progressively tested and refined. A notional breakdown of the number of SOMAs to be protected within FMAs to meet designated targets is shown in Table 1. Sooty Owl breeding areas in excess of the target number will also be subject to specific management requirements.

Responsibility: DSE (Biodiversity and National Resources Division, Parks and Forests Division), Parks Victoria[207]

550 Table 1 containing the notional breakdown of target SOMA locations, specifies a target of 131 SOMAs for East Gippsland.[208]

551 The FFGAS continues:

Protection in state forest

> 3. Sooty Owl Management Areas (SOMAs): Where clear-fell or seed-tree systems are used, each SOMA will comprise 500ha of forest to be managed as a Special Protection Zone (SPZ). For SOMAs based on specific records (rather than habitat-modelling), the SPZs will fall within a 3.5km radius (approximately 3 800 ha) of the record. The 500ha will be bounded by recognisable features, preferably natural, such as ridgelines; sub-catchments or groups of sub-catchments will be ideal. The 500ha will maximise habitats known to be used by the Sooty Owl, such as forest in headwaters; old-growth forest in gullies; forest with a diversity of preferred EVCs; forest of the preferred growth stages, such as Mixed Senescent-Mature, otherwise Mature or Mixed Sensescent-Mature-Regrowth; forest with large and/or dead hollow-bearing trees; forest with abundant Silver Wattle, Tree-ferns and Blanket-leaf; and forest in deep gullies. The SOMAs should avoid extensive areas of forest known to be less suitable, forest <28 m tall, treeless areas, regrowth forest or an of the dry EVCs.

Responsibility: (Parks and Forests Division; Regions)

...

> 5. All confirmed nesting and roosting sites utilised recently and frequently (based on reliable observation or physical evidence such as pellets or wash) located outside SOMAs will be protected by a 3ha SPZ around the site and a 250-300m radius (or equivalent linear area) SMZ buffers around identified localities, unless they are already protected...

Responsibility: (Parks and Forests Division; Regions) [209]

552 It is noted that while the Sooty Owl FFGAS allocates responsibility for the various management actions to specific government bodies, responsibility is not specifically allocated under the Powerful Owl FFGAS.

553 The Powerful Owl FFGAS states that the existing park and reserve system may not provide sufficient suitable habitat to meet the management objectives identified in the FFGAS. Dr Bilney agrees that traditional conservation reserves alone cannot provide sufficient habitat to guarantee the long term conservation of both species.

554 Nevertheless, the above prescriptions provide for the setting aside of substantial reserves by way of POMAs and SOMAs. They also provide for the protection of nesting and roosting sites outside POMAs and SOMAs.

Habitat quality of Brown Mountain coupes

555 Both the FMP and FFGASs prescribe the allocation of ‘suitable’ or ‘good quality’ habitat for the owl species.

556 Suitable habitat is defined in the Powerful Owl FFGAS (though not in the Sooty Owl FFGAS):

Suitable habitat is areas dominated by old trees and areas likely to support high densities of prey species. Where forest stand characteristics may limit the adequacy of the core SPZ,

additional habitat of up to 500ha of SPZ and/or SMZ should be maintained within the same 3.5km radius. The size of the core SPZ and any additional habitat requirements will be determined by assessment of the suitability of both existing forest habitat and regrowth forest in relation to prey densities.[210]

557 It was Dr Bilney's evidence that the vegetation composition and forest age structure combined with high prey densities indicate that all four coupes are 'highly suitable' for Powerful Owls and Sooty Owls and that they are 'high quality habitat' for roosting, nesting and prey, for both species. Further, it is 'virtually the highest quality habitat for Sooty Owls, being old-growth (with high densities of hollow bearing trees) wet forest (with abundant silver wattle, tree ferns and blanket-leaf) with high prey (small mammal) densities)'.[211]

558 Dr Bilney has observed that all four coupes contain high densities of arboreal mammals. This is echoed by advice from Dr Henry of DSE, who has stated that the very high densities of arboreal mammals found in the Brown Mountain coupes are rare and unlikely to be found elsewhere in East Gippsland.[212]

559 Further, an internal DSE email from Mr Ryan Incoll (Group Manager – Biodiversity, Gippsland, DSE) to Mr Miezis dated 5 February 2009 attaching a document titled 'Background Information – Brown Mountain Creek Fauna' states under the heading 'Sooty Owls & Powerful Owls...Other comments': 'The presence of both species in or close to the proposed coupes would be expected as this is very good habitat for both.'[213]

560 Dr Bilney notes that while the coupes form only a fraction of an owl's home range (81.4 hectares cf >500 hectares). The 81 hectares in issue is significant habitat used by Powerful Owls and Sooty Owls, and he stresses the need to consider the cumulative effect of logging in the area. In this regard he notes that the 81.4 hectares represents the only substantial unlogged old growth habitat remaining within an area of approximately 500 hectares adjacent to Errinundra National Park. If it is logged, the only unlogged habitat remaining within an approximate area of 500 hectares, will be the riparian buffer. Further, he notes that this area also potentially provides an 'important corridor' linking two conservation reserves.

Presence / Detections of the Powerful Owl and the Sooty Owl on Brown Mountain

Sooty Owl

561 In surveys conducted by Dr Bilney in January 2009:

(i) Sooty Owls twice responded to call playback in coupe 15; and

(ii) Sooty Owls were heard calling soon after dusk[214] within close proximity to coupe 15, on the boundary of coupe 19.

562 With regards to observation (i) Dr Bilney states that the Sooty Owl was detected in coupe 15 from both Legges Road and near the Brown Mountain Creek on the 'Valley of the Giants' walking track, approximately 750 metres apart, indicating that this area falls within the territory of a Sooty Owl.

563 According to Dr Bilney, observation (ii) indicates that a roost was likely to fall within coupe 15 or in surrounding unlogged habitat.

564 The fact that the Sooty Owl also responded to playback within a short time frame indicates that the area falls within its territory.

565 Further, in November 2009, a Sooty Owl was heard immediately after dusk approximately 500 metres south of coupe 15, indicating a roosting site existed outside coupe 15. The owl did not respond to playback on any of four occasions (once at each coupe) making it difficult to determine whether the forests in the additional coupes (19, 26 and 27) fell within the territory of the Sooty Owl. However, in his report Dr Bilney notes that:

the fact that the owl was present within very close proximity to all coupes indicates a very high likelihood that these areas are used (a single Sooty Owl territory could easily encapsulate this entire area – typically >500ha).[215]

566 Dr Bilney concluded:

I found conclusive evidence that both owl species occupy the area around Brown Mountain at least for foraging and that a Sooty Owl roosting site is within close proximity to 840-502-0015 (if not within). Whether nesting sites fall within any of the four proposed logging coupes is unknown.[216]

567 VicForests points to the evidence of Dr Bilney in cross-examination that he could not state with any confidence that there is a Sooty Owl roost site there at all. EEG contends that this is an incomplete summary of Dr Bilney's evidence, for in addition to the statement in the report outlined above, Dr Bilney gave further viva voce evidence that 'there's a high chance there are several roosts around, in and around that area' being coupe 15.

568 Dr Bilney's surveying technique of call-playback was not questioned in cross-examination, nor was his evidence that dusk surveys are such that a call can be heard just as an owl comes out of a roost.

569 EEG submits that Dr Bilney's opinion is that the areas fall within the territory of a Sooty Owl and that cumulatively, the evidence should be taken as sufficient for a confirmed roosting site because Dr Bilney is an expert in the species, and because to require more would make the FFGAS rarely if ever capable of application.[217]

Powerful Owl

570 A Powerful Owl was heard calling in the direction of Brown Mountain Creek towards the northern end of coupes 15 and 19, close to coupe 26, in Dr Bilney's January 2009 survey.

571 In addition, a Powerful Owl was recorded by DSE surveys on 12 March 2009, as 'distant' within 'transect 3' - a one kilometre long transect of informal walking track through coupe 15 from Legges Road to Brown Mountain Creek, then across the creek and east to the dozer track along the western edge of coupe 19.[218]

572 Dr Bilney points out that:

Although a Powerful Owl was detected in January 2009 and March 2009 in the Brown Mountain area, they typically rarely call in Spring and Summer, and were undetected during the November surveys. A negative response however, does not indicate an owls absence, and

it has been shown that up to 18 call-playback survey attempts are required to provide a good chance (90% confidence) that a Powerful Owl does not exist in the area.[219]

573 VicForests contends that there have not been any confirmed nesting and roosting sites utilised recently and frequently (based on reliable observation or physical evidence such as pellets or wash) located within the coupes so that the precondition for the establishment of a three hectare SPZ in the Sooty Owl FFGAS and the Powerful Owl FFGAS does not exist.

574 I accept Dr Bilney's observations of both species of owl as reliable observations, but they do not permit the specific location of a nesting or roosting site enabling the sensible specification of a site specific three hectare reserve.

Compliance with the Flora and Fauna Guarantee Act Action Statement

575 There are two principal mechanisms established by the FFGAS for protection of the habitat of Powerful Owls and Sooty Owls. First, the FFGASs provide for a minimum number of management areas (POMAs and SOMAs) for each species. Secondly, they provide for the protection of recorded nesting and roosting sites which do not fall within POMAs and SOMAs.

576 The first category of protection provides for the creation of substantial reserves and the second for relatively limited site specific reserves.

577 The Powerful Owl FFGAS differs from the Sooty Owl FFGAS in that it expressly articulates how sites should be included in the POMA target by way of priority, namely:

The emphasis should be on identifying/locating nest sites or probable breeding areas based on the occurrence of owlets or adult roosting pairs.

...

Priority for inclusion in the 500 pair target is as follows (in descending order):-

- confirm identification of owl sites ed [sic] nesting tree utilised during the past 5 years.
- confirmed roost tree utilised during the past five years.
- repeated sighting or vocalisation during the past five years.
- incidental sighting or vocalisation during the past five years.
- historic record not reconfirmed in past five years.
- potential habitat area (preferably based on formal analysis and modelling).

Once regional targets are met, new POMAs will be established only on the basis of records of a higher priority.[220]

578 While this prioritisation is not specifically articulated in the Sooty Owl FFGAS, it is plain that what both the Powerful Owl FFGAS and the Sooty Owl FFGAS envisage is the ranking of alternative potential POMA and SOMA sites, by reference to the weight of the evidence supporting the conclusion they are utilised by owls.

579 The Sooty Owl FFGAS states:

SOMAs should be based on locating probable breeding areas based on the occurrence of owlets or roosting pairs of adults and on habitat identified by habitat modelling as suitable and may overlap with management areas established for other species. Habitat models will be progressively tested and refined.[221]

580 By analogy, the priorities articulated for ranking of potential sites set out for POMAs can equally be applied to SOMAs.

581 EEG submits that in terms of these priorities this is a case where there have been 'repeated sightings and vocalisations during the last five years', and emphasises that these vocalisations have been recorded by an expert, pre-eminent in Victoria, Dr Bilney. In short, it is submitted that the quality of records is one which the FFGAS are designed to prefer. It may be that the vocalisations at least in part, are more appropriately classed as 'incidental', however even if this is the case, they are still ranked higher than modelled habitat (in which there are no records of actual sightings or vocalisations).

Present number of Sooty Owl Management Areas and Powerful Owl Management Areas

582 Evidence regarding the current number of established POMAs and SOMAs was given by Mr Miezis and Dr Bilney.

583 An internal DSE email from Mr Incoll to Mr Miezis dated 5 February 2009 attaching a document entitled 'Background Information – Brown Mountain Creek Fauna' states under the heading 'Sooty Owls & Powerful Owls':

...The requirement for establishment of SOMAs and POMAs have been achieved in East Gippsland, but are under review at present as part of the EGFMA plan review process. The prescriptions for any detections of either species in the Brown Mountain Creek catchment will be met by a combination of the existing reserves in the area [Errinundra National Park, The Gap Scenic Reserve and SPZ 8407] and the election promise icon reserve to the west of Legge Rd).

Nest or roost sites detected outside protected areas require an SPZ of 3 ha around the site and a further 250-300m radius (or equivalent linear area) SMZ. No roost or nest sites are known from this area at present.

No additional prescriptions are required if new non breeding or non roost records of Sooty Owls and Powerful Owls are located.

...

DSE has no plans to undertake owl call back surveys. Owls heard during spotlight surveys for gliders will be recorded. [222]

584 A briefing note to the Minister titled 'Fauna values at Brown Mountain' dated 16 February 2009 states:

EEG states that surveys undertaken on 22 to 25 January 2009 have recorded the presence of Sooty Owls and Powerful Owls.

...

The requirements for establishment of management areas have been met in East Gippsland. The prescriptions for any detection of either species in Brown Mountain Creek catchment is met through a combination of the existing reserves in the area and the forthcoming Goongerah North link between existing reserves. No additional prescriptions are required if new non-breeding or non-roost records of Sooty Owls and Powerful Owls are located. Any nest or roost sites detected would require a Special Protection Zone of three hectares around the site and a further 250-300m radius (or equivalent linear area) Special Management Zone. No roost or nest sites are claimed to have been found.[223]

585 However a later email of 6 October 2009 from Dr Paul Smith, Director, Biodiversity Policy and Programs, DSE to Mr Miezis states ('LAM36'):

The Action Statement for the Sooty Owl specifies a target of 131 nesting sites – has this been reached? If not how many sites are there? If it has been reached, is there anything further required under the Action Statement when a new nestign [sic] site is found?

...

Steve Henry advised that we have work to do to revise the Sooty Owl protection system, especially to account for the new records found by Rohan Bilney in his Ph D [sic] project and to account for the new election promise reserves. We will do this as part of the FMA plan review process. However we have a couple of hundred sites – again many of these are in clusters so don't represent separate SOMAs, and it is hard to judge sometimes which records represent separate SOMAs. However I estimate that we have about 100 separate SOMAs, which I think is fairly conservative. The rest of the target is made up of modelled sites (which is really just habitat within the reserve system). Thus, new sites that do not fit into an existing SOMA should be substituted for modelled sites until we get to the 133 SOMAs[224] based just on records. Once we get to 133 sites based on records, priority is to be given to sites based on breeding records. At the very least, nest or roost sites get a 3 ha SMZ and a 250-300m radius SMZ if these sites are not otherwise protected area. We had very few of these before Rohans project.

The Action Statement for the Powerful Owl specifies a target of 100 nesting sites – has this been reached? If not how many sites are there? If it has been reached, is there anything further required under the Action Statement when a new nesting site is found?

...

Steve Henry advised that the story for Powerful Owls is broadly similar to that for Sooty's We have about 180 records but again many of these are clustered. Some of these are in sub-optimal habitat, so not all are placed in POMAs. My estimate is that the records in good habitat fall into about 80 POMAs, so we are about 20 POMAs short of the target. The balance is made up of modelled habitat in the reserve system. Requirement for treating confirmed nest or roost sites outside the reserve system is the same as for Sooty Owls, and the action statement specifies that preference be given to POMAs based on nesting and roosting sites once the target based on actual records is exceeded.[225]

586 In evidence Mr Miezis stated that DSE have been undertaking a forest management zoning review in East Gippsland since October 2008 and that it was hoped that the proposed review would be made public in 2010.

587 Dr Bilney gave evidence that he understood the proportion of SOMAs based on modelling was 'fairly high' and he had never read a statement confirming how many were based on records and how many were based on modelling. He referred to research by Dr Henry of DSE in 2002 which indicated that 67 SOMAs were based on records.

588 Dr Bilney said of habitat models:

The main weakness of habitat models is that where a SOMA has been devised based on this habitat model, it is unknown whether a Sooty Owl actually occupies the area. This could potentially result in a false pretence that populations are being conserved based purely on speculation that preserving habitat is sufficient. The strength of habitat models is that in areas where surveys are impossible to conduct (remote access), suitable habitat can still be reserved.[226]

589 It was put to Dr Bilney in cross-examination that both the Sooty Owl and Powerful Owl targets had been reached and he was shown the 1995 FMP which shows that at least 120 POMAs and 131 SOMAs have been established in East Gippsland. Dr Bilney stated that he had read that that was the case, though he thought that it was only 100 for the Powerful Owl. VicForests points to this evidence and to page 27 of Dr Bilney's report in which he noted that insofar as SOMAs are concerned, the number of established SOMAs actually exceeds the number of confirmed Sooty Owl records in the area, to submit that 'based on surveys and habitat prediction, suitable habitat will be conserved as SOMAs in some areas even though the owls have not been officially recorded in those areas (but there is a high probability that there is).'[227]

590 EEG submits that it is now evident from LAM36 that the targets have not been met, and VicForests knew this to be the case after a specific enquiry from it in October 2009.

591 EEG submits that LAM36 provides the best evidence of the current designation of POMAs and SOMAs, not the evidence of Dr Bilney in cross-examination that he had read (in the 1995 FMP) that the targets had been reached.

592 Two interpretations have been put forward of LAM36. First that the targets specified in the Powerful Owl and Sooty Owl FFGASs have not been met and secondly that they have been met but that they comprise in part areas of modelled habitat and that the overall distribution of POMAs and SOMAs is under review. The evidence as a whole supports the second interpretation. LAM36 states the clear intention that the sites of new records should be substituted for modelled sites until the FMP requirements are met.

593 It follows that the proposed logging of the Brown Mountain coupes would not breach the terms of the FFGASs in that it would occur neither in a POMA or SOMA, nor involve the logging of a specific nesting or roosting site which can be shown to have been utilised recently and frequently, nor trigger the direct requirement for the creation of a new POMA or SOMA.

The precautionary principle and the owls

594 Nevertheless this is not the end of the matter. First, the Powerful Owl FFGAS specifically contemplates the creation of new POMAs based on records after the initial action of specification (which has included modelled habitat).

Once regional targets are met, new POMAs will be established only on the basis of records of a higher priority.[228]

595 Secondly, the identification of SOMAs is contemplated as occurring as part of the FMA planning process. That process is an iterative one. The Code of Practice contemplates modifications to management zone locations and conditions may be undertaken from time to time to reflect new knowledge such as the discovery of threatened species (see [165] above). Chapter 8 of the FMP specifically contemplates that management zone boundaries may require review if new records are listed for threate[229] species.229 Mr Miezis confirmed that there is an adaptive process of substituting POMAs and SOMAs in response to new records.

596 Thirdly, Mr Incoll's advice to Mr Miezis of 5 February 2009 indicates the existing requirements for SOMAs and POMAs are in fact under review as part of the East Gippsland Forest Management Area planning process. LAM36 further specifically states that as a part of the review process which is underway it is the intention of Dr Smith that new sites of actual records that do not fit into an existing SOMA, should be substituted for modelled sites until achievement of the target envisaged in the FMP by way of sites based on actual records. Mr Miezis also confirmed the FMA zoning provisions were currently under review. It was hoped a new zoning proposal would be placed on exhibition in April. It had been delayed by significant remapping of ecological vegetation classes across East Gippsland.

597 Fourthly, LAM36 likewise identifies a shortfall in POMAs which comprise modelled habitat as distinct from recorded habitat to which the same principles would apply.

598 Fifthly, the MPR accord to the Director, Biodiversity Policy and Programs of DSE a special status with respect to the amendment of FMZ in response to the observations of threatened species (see[284] above).

599 The question arises whether logging the Brown Mountain coupes would be contrary to the precautionary principle in circumstances where the Director, Biodiversity Policy and Programs, DSE, has advised the overall provisions of POMAs and SOMAs in accordance with the intent of the FMP and FFGASs are under review and that that review will take into account recorded observations by Dr Bilney. Further, that review will be undertaken for the specific purpose of establishing SOMAs and POMAs which are better based on records of observation than those SOMAs and POMAs which are currently simply based on habitat modelling.

600 The pleaded case for EEG in respect of the precautionary principle specifically relies on failures to conduct scientific investigations into whether the Brown Mountain coupes provide suitable habitat for the Sooty Owl and the Powerful Owl. It further relies on failures to act on reports that the owls are present in the coupes.

601 I have come to the conclusion that the precautionary principle does require the logging of the Brown Mountain coupes to be delayed until the completion of the FMZ review process for the following reasons:

(a) I am satisfied there is a real threat of serious or irreversible damage to the environment as a result of the destruction of critical habitat for the Powerful Owl and the Sooty Owl because:

• The Powerful Owl and the Sooty Owl are identified in the FMP as threatened species deserving of protection.

• Both species are listed as 'threatened' in Victoria pursuant to the FFG Act.

• Dr Bilney's evidence establishes that the Powerful Owl and the Sooty Owl are at risk because of their requirements for extensive home ranges, low breeding success and low prey availability in modified landscapes.

• Both species are rare.

• The FFG Scientific Advisory Committee determined, in 1994, that the Powerful Owl is significantly prone to future threats which are likely to result in extinction and is very rare in terms of abundance or distribution.

• The FFG Scientific Advisory Committee likewise determined, in 1991, that the Sooty Owl is significantly prone to future threats which are likely to result in extinction and is very rare in terms of abundance or distribution.

• Dr Bilney's evidence confirms the views of the Scientific Advisory Committee.

• Dr Bilney's evidence confirms that habitat fragmentation, loss of hollow bearing trees, and reduction of prey density as a result of logging are serious threats to both the Powerful Owl and the Sooty Owl.

• Conversely, regrowth forest is of only limited value only to the Powerful Owl and the Sooty Owl.

• Dr Bilney's research in recent years confirms that the Powerful Owl and the Sooty Owl are more vulnerable than was thought at the time of the Scientific Advisory Committee determinations and the listings under the FFG Act.

• The initial specifications of POMAs and SOMAs meet the targets specified in the FFGAS but have done so on the basis in part of specification of areas in which the owls have not in fact been detected.

• The owls have been detected within the Brown Mountain coupes and have been detected by an expert, whose detections elsewhere have been accepted by DSE as a proper basis for the re-evaluation of the management area system.

(b) The combined force of the evidence as to the proposed stream side buffer, modified habitat tree prescriptions, existing POMAs and SOMAs and the provision of conservation reserves generally, does not outweigh the above considerations.

(c) I am satisfied that the threat of serious and irreversible damage to the environment in respect of the Powerful Owl and the Sooty Owl is attended by a material lack of scientific certainty. In particular, the adequacy of the current POMA and SOMA system is uncertain. It

is currently under review and it is intended that process of review will replace management areas based on modelling with habitat areas within which the Powerful Owl and the Sooty Owl have in fact been detected. It is uncertain whether on their merits the Brown Mountain coupes should now be included in whole or in part in POMAs or SOMAs.

(d) VicForests has not demonstrated the threat to the Powerful Owl and the Sooty Owl is negligible. It called no evidence from an expert with respect to the biology or conservation of either owl species. It called no evidence from a witness with comparable expertise to Dr Bilney.

(e) The threat is able to be addressed by adaptive management. The re-evaluation of the system of POMAs and SOMAs is underway and the relevant basis of it is clearly identified in LAM36, namely the replacement of management areas based simply on habitat modelling with areas based on relevant detections.

(f) The restraint of logging until the completion of the re-evaluation of management areas is proportionate to the threat to the Powerful Owl and the Sooty Owl. The temporary restraint of logging at Brown Mountain will be proportionate for the reasons elaborated with respect to the restraint pending further survey in respect of endangered frog species discussed above. Further, the fact that I have determined surveys should be undertaken in respect of the frog species renders the net potential effect of the requirements for review of POMAs and SOMAs less onerous.

602 The Amended Defence specifically pleads that VicForests has complied with the precautionary approach by reason of the implementation of the stream side buffer and the fact that the targets of POMAs and SOMAs have been met in the East Gippsland FMA. For the reasons I have set out above I do not accept this contention.

603 I accept EEG's submission that the precautionary principle requires VicForests not to log the Brown Mountain coupes until the re-evaluation of the system of POMAs and SOMAs is completed. I have formed this view on the basis of the evidence as a whole and not Dr Bilney's opinion relating to the precautionary principle which focussed upon conservation considerations alone.

604 I note however that Professor Ferguson conceded in cross-examination that if the evidence showed actual detections should be substituted for model habitat to generate POMAs and SOMAs, the precautionary principle would require something to be done as a consequence of the detections at Brown Mountain.

605 It follows that the proposed logging at Brown Mountain will be unlawful unless in the first instance the review of the POMA and SOMA system is completed.

606 The submissions of EEG on bases other than the precautionary principle do not advance the matter. The obligations of VicForests' under s 4(2) of the FFG Act will be complied with if the precautionary principle is observed.

J The Spot-tailed Quoll

607 The Spot-tailed Quoll is identified in the FMP as a threatened species deserving of protection, listed as 'threatened' under the FFG Act, and is the subject of an FFGAS. I accept

the contention of VicForests that the FFGAS requirements amplify and override the comparable requirements of the FMP.

608 Evidence was given with respect to the conservation issues relating to the Spot-tailed Quoll and the probability of its presence within the proposed coupes in issue by Dr Chris Belcher. Dr Belcher is a leading authority on the Spot-tailed Quoll and his work is extensively referenced in the relevant FFGAS.[230]

Biology, habitat preferences and distribution

609 The Spot-tailed Quoll (Dasyurus Maculatus) is the largest extant marsupial carnivore on mainland Australia and the sole surviving member of its genus in south east mainland Australia. It is a solitary, medium sized, forest dependent species and an adept climber.

610 It is readily distinguishable from other quolls by its larger size and spotted tail. It has distinctive markings, a distinctive bounding gait and a distinctive call like a 'blast from a circular saw'.[231] Spot-tailed Quolls use latrine sites which are marked by an aggregation of faeces. Peak latrine use occurs during the breeding season between May and August.

611 The Spot-tailed Quoll is solitary and occupies a large home (males average 17.55 hectares and females 495 hectares). It naturally occurs at low densities due to its spatial and social organisation and viable populations require very large areas. It is dependant on some habitat features provided by old growth or mature forests, but can tolerate some level of disturbance within a matrix of unlogged/selectively logged forest.

612 The conservation of areas of old growth/mature forest is an important component of conservation of the Spot-tailed Quoll.

613 Research in Tasmania has found that regrowth forest does not support resident Spot-tailed Quolls nor breeding females. There is currently no evidence that even aged regrowth forest provides suitable habitat for Spot-tailed Quolls in Victoria. Conversely, research in the Boola Boola State Forest found the species no longer persisted after harvesting.

614 There are two sub-species of Spot-tailed Quoll – one found only in northern Queensland and the other from south east Queensland on both sides of the Great Dividing Range through eastern New South Wales and into eastern and south western Victoria. Spot-tailed Quolls are also found in Tasmania but recent genetic research suggests that the Tasmanian population is phylogenetically distinct from the mainland population.

615 At the time of European settlement the Spot-tailed Quoll occurred in a relatively widespread range through southern and eastern Victoria. Reduction in the species range is believed to be 50 per cent or greater. Populations in previous strongholds such as the Otway Ranges and Mount Eccles have also declined substantially to the point where Dr Belcher described them as functionally extinct. The majority of records since 1990 are from East Gippsland and in particular the Errinundra Plateau area which is now the most likely stronghold for the species in Victoria.

616 Spot-tailed Quolls have been recorded in five broad vegetation alliances in Victoria – closed forests, tall open forests, open forests, low open forests and woodland. Studies suggest

the species does not use the available habitat uniformly and the two factors appearing to influence habitat use were prey densities and preferred den sites.

617 The Greater Glider is the major prey item for the Spot-tailed Quoll in tall open forests/damp forests. As will be discussed below, glider densities may be materially affected by logging.

Conservation status

618 The Spot-tailed Quoll is listed as 'threatened' under the FFG Act and classified as 'endangered' on DSE's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007. It is also listed as 'endangered' nationally pursuant to the EPBC Act 1999.

619 Its current conservation status reflects the continuing decline of the species in Victoria and the urgent need to identify and ameliorate the threatening processes responsible for its decline. A National Recovery Plan is currently undergoing final governmental approval. (The EPBC Act requires preparation of such a plan when a species is considered to fall within the endangered classification pursuant to the EPBC Act.) The purpose of the plan is to identify threats contributing to the species' endangered status, and to attempt to address those threats in order for population recovery, leading toward ultimate delisting. The factors that are currently agreed to be largely responsible for the species decline are the loss of suitable habitat and the continuing fragmentation of suitable habitat through clearing and clear fell logging. Baiting is also implicated in the decline. Dr Belcher's evidence is that unless current land management practices are altered the species is likely to continue to decline to extinction. Dr Belcher also notes that population viability analysis has found that even small increases in mortality rates greatly increases the probability of extinction for small populations such as that in East Gippsland.

620 The Scientific Advisory Committee recommendation on the inclusion of the Spot-tailed Quoll for listing under the FFG Act determined that the species is in a demonstrable state of decline which is likely to result in extinction, significantly prone to future threats which are likely to result in extinction and is very rare in terms of abundance or distribution.

Presence / Detections of the Spot-tailed Quoll on Brown Mountain

621 Dr Belcher noted that the survey undertaken from 10 November to 5 December 2009 using four remote cameras did not detect Spot-tailed Quolls in the four coupes at Brown Mountain. He observed however that the survey period was at the least appropriate time of year as both male and female Spot-tailed Quoll activity is at a minimum. Mid-November to early December is during the period when females have their young in a maternal den and are restricted in their movements. Male activity is also at a minimum outside the May to August breeding season. In his view the survey does not demonstrate that Spot-tailed Quolls are not present in the four coupes. Dr Belcher went on to say:

The four coupes contain all of the habitat features required by quolls – unlogged mature multi-aged forest, with high ground, understorey and canopy cover, ample potential den sites and high prey densities ... The coupes are still reasonably well connected to adjoining suitable habitat, although some adjoining coupes have been recently logged. The area is subject to ongoing 1080 poison baiting[232] for foxes which may result in some quolls being poisoned, even though the baits are buried below 10 cms, other researchers found that an average of

>30% of baits are cached by foxes, suggesting that approximately a third of the baits will be accessible to quolls. I would therefore expect quolls to be present unless other factors such as previous stochastic events such as wildfire or management programs such as baiting have resulted in the loss or extirpation of the local quoll population.

Spotted-tailed quolls have been recorded to the east and west of the coupes ... so it would be reasonable to expect that quolls would be using the four coupes to move between known populations; for dispersal of young and/or for males seeking females to mate with. All four coupes provide suitable habitat and are connected so they all provide suitable habitat for movement between populations.[233]

622 He further stated:

The four coupes provide suitable habitat for spotted-tailed quolls, particularly for breeding females, so I would the species to be present unless previous management has resulted in their extirpation (Long and Nelson 2007). Preliminary population modelling has found that the loss of one female in small populations significantly increases the risk of extinction in the short to medium term ... Therefore without a detailed history of the sites and management histories it is not possible to reliably predict that the species still occurs in the four coupes. A systematic survey during the species breeding season[234] would be required in order to provide information on the likelihood of the species being present or absent. A minimum of 40 hair tubes or 4 remote cameras/100ha would be required to determine the probability of detection ... Suitable habitat to the east and west should also be surveyed to determine whether the coupes are likely to be used by quolls moving between populations or females or by dispersing young. Until those surveys are completed I am unable to reliably predict the presence/absence of the species within the four coupes.[235]

623 Dr Belcher's opinion is that the area is likely to form an important corridor for movement of adults, dispersal of juveniles and for maintenance of gene flow between populations. He further says that neither the reserves to the west of coupe 15 nor the proposed 100 metre stream side buffers would generate a sufficient prey resource to enable Spot-tailed Quolls to be resident and breed successfully. The surveyed density of gliders indicates the Brown Mountain coupes currently comprise optimal habitat for the Spot-tailed Quoll.

Threats

624 Dr Belcher's evidence is that the Spot-tailed Quoll is suffering an ongoing major contraction in Victoria. A Draft National Recovery Plan that has been recently prepared for the Spot-tailed Quoll identifies the two major factors responsible for species decline as habitat loss and fragmentation. Dr Belcher endorses this view.

625 I accept Dr Belcher's evidence that:

• the four coupes provide suitable habitat for the Spot-tailed Quoll and the density of gliders is a significant indicator of optimal habitat;

• it is reasonable to expect Spot-tailed Quolls are using the four coupes having regard to the nature of the habitat and the records of Spot-tailed Quolls to the east and west of the coupes, unless previous management has resulted in their extirpation;

• the survey undertaken in November/December 2009 does not demonstrate satisfactorily whether or not Spot-tailed Quolls are present in the four coupes;

• the Spot-tailed Quoll is particularly vulnerable to the loss of further habitat and is likely to become critically endangered in the short to medium term if the species' decline in range and abundance continues;

• unless further surveys are completed it is not possible to reliably predict the presence/absence of the species within the four coupes.

Compliance with the Flora and Fauna Guarantee Act Action Statement

626 The statement of conservation objectives within the FFGAS commences as follows:

The difficulties in searching for and monitoring Quolls, predicting within the landscape where Quolls are likely to occur, and the uncertainty over current threats to Quolls pose considerable hurdles in preparing and implementing a successful conservation program. Nonetheless, with the occurrence of Quolls confined largely to public land, the suspected major threats are largely within the ambit and responsibility of DSE to control and manage. It is within this framework that a conservation program for the Spot-tailed Quoll needs to be developed.

There are three key issues to address in the short-term for conservation of the Spot-tailed Quoll:

- Developing a reliable detection and survey methodology for Spot-tailed Quolls.
- Applying this to Victoria to determine habitat use by Spot-tailed Quolls.
- Determining and controlling threats to Spot-tailed Quolls.

Long-term Objective

To ensure a viable population of Spot-tailed Quolls survives and flourishes in Victoria.

Objectives of this Action Statement

- To develop a reliable standardised method for detecting Spot-tailed Quolls.
- To investigate habitat use by Spot-tailed Quolls, and develop a predictive habitat model to ensure sufficient habitat is protected in Victoria to ensure that a viable population of Quolls can survive.
- To investigate the threats to Quolls, and develop and implement threat control procedures to ensure that a viable population of Quolls can survive.[236]

627 The FFGAS sets out a series of intended management actions. These actions relate to surveying, habitat use and modelling, predation and competition, poison baiting, habitat protection, community participation and project management. Taken as a whole they emphasise the need to further survey and understand the Spot-tailed Quoll. The habitat protection management action provides as follows:

Implement a standard habitat protection prescription of a 500 ha Special Protection Zone (SPZ) and a 1000 ha Special Management Zone (SMZ) for all confirmed Quoll records in

State forest throughout Victoria, up to targets specified in individual FMPs. The location of the SPZ and SMZ will [be] based on protecting preferred habitat features for Quolls. The SPZ will include known den and latrine sites (protected by at least a 200 m radius), and may include other detection sites, based on habitat quality and the proximity of existing protected habitat. Detection sites not included in the SPZ will generally be included within the SMZ, unless there are compelling reasons for excluding them (eg. a record in a clearly unsuitable location for habitat protection, proximity of existing protected habitat etc). Site protection for Quolls will be prioritised according to habitat quality, current reservation status of the site, linkage to other reserves and the presence of complementary values. Records within 2 km of each other will be generally regarded as the same animal unless proved otherwise. In East Gippsland (the area covered by the FMP), there will be a target of 75 Quoll sites in protected habitat (ie. parks, reserves and State forest SPZ/SMZ). Currently, there are 71 sites of Quoll records protected in East Gippsland, including 21 in State forest (note that this prescription exceeds the target of 50 protected records specified in the East Gippsland FMP). In the North East FMP and Gippsland FMP, there are targets of 10 records in State forest triggering habitat protection.

Periodically review the selection of Quoll records to be afforded protection by the standard prescription outlined in 5.1 in each FMP to which targets apply, to ensure that, once targets are reached and as new records accrue or other information becomes available, the network of protected habitat in each FMA is optimal for Quoll conservation. To assist this review, develop guidelines for the substitution of protected Quoll sites based on the extent and quality of habitat and on the currency, reliability and type of record.

Develop Quoll habitat management guidelines for Special Management Zones, using available information on Quoll and prey habitat preferences and use.

Facilitate the protection of potential Spot-tailed Quoll habitat and sites with or near Quoll records on private land, within existing mechanisms for protection of native vegetation (eg. zoning under local government planning schemes, development of Regional Management Plans by Catchment Management Authorities, Bioregional Plans, regional vegetation plans, voluntary conservation agreements – eg Land for Wildlife, Conservation Covenants). State Government policy restricting the clearing of native vegetation has been in operation for some time, and the shift to 'Net Gain' of native vegetation for Victoria (NRE 1997) is a useful tool for protecting remaining potential habitat on private land.[237]

628 The habitat protection prescription provides for the setting aside of substantial reserves. The prescription is triggered by the positive detection of Spot-tailed Quolls. The definition of SPZ is focussed upon known den and latrine sites.

629 It cannot be said that the current state of the evidence has triggered a requirement for habitat protection in accordance with the FFGAS. There are no 'confirmed quoll records' within the Brown Mountain coupes. No den or latrine sites have been identified and there are no detection sites falling to be prioritised.

630 It also appears from the evidence that the FFGAS target for the individual FMP in issue (East Gippsland) has been reached and in the event of a detection the standard habitat prescription would not be triggered at Brown Mountain. Dr Belcher accepted in evidence that 75 sites based on records are protected. Mr Spencer's evidence is that none of these sites are within 500 metres of the Brown Mountain coupes.

631 It follows that the logging of the four proposed coupes at Brown Mountain will not breach any condition or requirement for compliance with FFGAS.

The precautionary principle and the Spot-tailed Quoll

632 Nevertheless Dr Belcher's evidence is that the 75 sites specified in the FFGAS are highly unlikely to support a viable continuing population of the Spot-tailed Quoll. His opinion is that the prognosis for Victoria, if current management is continued, is that the species will become extinct.

633 Accordingly, EEG also puts its case with respect to the Spot-tailed Quoll by reference to application of the precautionary principle. It specifically asserts that VicForests has failed to take a precautionary approach by failing to conduct adequate surveys for the Spot-tailed Quoll. I have come to the conclusion that the precautionary principle does require the carrying out of surveys generally in accordance with the recommendations of Dr Belcher, before logging proceeds at Brown Mountain for the following reasons:

(a) I am satisfied that there is a real threat of serious and irreversible damage to the environment by reason of destruction of habitat for the Spot-tailed Quoll because:

• The Spot-tailed Quoll is listed as a threatened species under the FFG Act and as endangered under the EPBC Act.

• East Gippsland contains the last functional population of this species.

• Timber harvesting is potentially a serious threat to it for the reasons stated by Dr Belcher and summarised above.

• The four coupes provide suitable habitat for the Spot-tailed Quoll and it is reasonable to expect Spot-tailed Quolls are using the four coupes having regard to this fact and the records of Spot-tailed Quolls to the east and west of the coupes, unless previous land use management in the area has resulted in their extirpation.

• The Spot-tailed Quoll is particularly vulnerable to the loss of further habitat and is likely to become critically endangered in the short to medium term if the decline in the species range and abundance continues.

• The Draft National Recovery Plan confirms the vulnerability of the Spot-tailed Quoll to habitat change.

• The FFGAS recognises that the initial provision of SPZs in accordance with the targets provided for in the FMP may not give effective protection to the Spot-tailed Quoll.

• Dr Belcher's evidence is that the 75 sites subject to habitat protection are highly unlikely to support a viable population.

• Extinction of a species constitutes irreversible damage to the environment.

(b) The combined force of the evidence as to the creation of reserves to the west of the Brown Mountain coupes and within East Gippsland generally, the proposed stream side buffers, and other prescriptions, is not in my view sufficient to displace or outweigh the above factors.

Dr Belcher did not accept that the provision of reserves to the west of coupe 15 should affect his opinion and expressed doubt as to the quality of the habitat within those reserves. He did accept that the proposed stream side buffer would provide habitat for the Spot-tailed Quoll and that the revised habitat tree prescriptions would provide increased habitat for arboreal mammals, but he did not change his ultimate opinions which I have summarised above.

(c) I am satisfied the threat of serious and irreversible damage to the environment in respect of the Spot-tailed Quoll is attended by a substantial lack of scientific certainty. In particular, the adequacy of the current SPZ protection prescriptions is uncertain. In addition, Dr Belcher's evidence is that the level of disturbance tolerated by the Spot-tailed Quoll has not yet been scientifically determined.[238] As to the issue of uncertainty I note:

• The surveys previously undertaken do not demonstrate satisfactorily whether or not Spot-tailed Quolls are present in the four coupes.

• The FFGAS specifically recognises the difficulties which are inherent in searching for and monitoring Spot-tailed Quolls.

• The FFGAS states that periodic review is required of the areas subject to standard habitat protection by way of SPZ.

• The basis of that review is to be updated records to ensure that the network of protected habitat in each FMA is optimal for Spot-tailed Quoll conservation.

• The current FMP zoning provisions providing habitat protection falls within the East Gippsland FMP review process currently underway (see the evidence of Mr Miezis as to the review of these provisions which I have referred to in respect of the Powerful Owl and the Sooty Owl).

• VicForests is required to have regard to scientific advice.

(d) VicForests has not demonstrated the threat is negligible. It called no evidence from an expert with respect to the conservation of the Spot-tailed Quoll. It called no evidence with comparable expertise to that of Dr Belcher.

(e) The threat is able to be addressed by adaptive management. The carrying out of surveys as recommended by Dr Belcher is a relatively modest measure. The surveys could be carried out in a single breeding season and require relatively limited resources. They have the capacity to materially reduce uncertainty economically and within a reasonable timeframe.

(f) The initial precautionary measure recommended by Dr Belcher is proportionate to the threat. The temporary restraint of logging at Brown Mountain will be proportionate for the reasons elaborated with respect to delay pending further survey in respect of endangered frog species discussed above. Further, the fact I have determined additional surveys should be undertaken in respect of the Giant Burrowing Frog and the Large Brown Tree Frog and that

the current review of the provision of POMAs and SOMAs should be completed before logging commences, renders the requirement of a further survey less onerous.

(g) The surveys have the capacity to materially inform the FMP review process currently underway.

634 The Amended Defence specifically pleads that VicForests has complied with the precautionary approach by reason of the implementation of the stream side buffer and the fact that the target of 75 Spot-tailed Quoll sites in protected habitat has been met in the East Gippsland FMA. For the reasons set above, I do not accept this contention.

635 To the extent I have indicated above, I accept EEG's contention[239] that the precautionary principle requires VicForests not to log the Brown Mountain coupes until there is better certainty that it is not actual habitat of the Spot-tailed Quoll. I have formed this view on the basis of the evidence as a whole and not Dr Belcher's opinion relating to the precautionary principle, which he freely acknowledged was based on conservation considerations alone.

636 It follows that the proposed logging at Brown Mountain will be unlawful unless in the first instance the surveys in issue are carried out.

637 This conclusion is sufficient to dispose of the case with respect to the Spot-tailed Quoll.

638 The submissions of EEG on other bases do not advance the matter. The obligation of VicForests under s 4(2) of the FFG Act will be complied with if the precautionary principle is observed.

K The Greater Glider and the Yellow-bellied Glider

639 Neither the Greater Glider (Petauroides volans) nor the Yellow-bellied Glider (Petaurus australis) are listed pursuant to the FFG Act, or on the DSE's Advisory List of Threatened Vertebrate Fauna in Victoria – 2007. There are also no FFGASs relating to either species.

640 Evidence was given in respect of the Greater Glider and the Yellow-bellied Glider by Dr Andrew Smith, who I accept has expertise in respect of the ecology of both species.[240] No witness of equivalent expertise was called on behalf of the defendant.

Biology, habitat preferences and distribution

641 Greater Gliders are cat-sized (0.75-1.7 kilograms) nocturnal arboreal gliding mammals in the ringtail possum family.[241] They have a low fecundity, averaging less than one offspring per year, and have a breeding span of less than 10 years. They are most abundant in wet forest from Victoria to Cape York in Queensland. In particular, Greater Gliders are most abundant in old growth forests with more than six tree hollows per hectare. They are solitary, fairly sedentary marsupials which den in the tree hollows and have a eucalypt leaf diet. Each individual is estimated to use between 4-18 hollow bearing trees within its home range so that in areas with high densities, more hollows than estimated above are likely to be necessary to sustain Greater Glider population.

642 Officers of DSE state Greater Gliders are readily detected by eyeshine under spotlight.

643 The Yellow-bellied Glider's distribution is more wide spread and it can be found in a variety of forest types in South Australia, as well as the eastern states. It has large ears, and typically a grey-brown back with an off-white to yellow belly. It is a social, active and vocal species and dens with family groups in hollow trees. It has a large home range of 20-85 hectares. It has low fecundity, generally raising a single young each or alternate years.

644 The Yellow-bellied Glider's diet includes eucalypt sap, insects, nectar, honeydew and pollen. As a specialist sap and nectar feeding species, the Yellow-bellied Glider makes distinctive 'v' notches or cuts in certain trees for feeding purposes.

645 The smaller size and greater mobility of Yellow-bellied Gliders makes them harder to accurately count under survey conditions than Greater Gliders. They are usually located aurally, rather than visually, by their distinctive call. As a result, their mobility can create false indications of population size.

646 Both species of glider appear to reach peak abundance in uneven aged forest with an old growth component. Dr Smith defines an uneven aged forest as one which has been subject to a series of disturbances such as wild fires, with intervals of time between disturbances allowing regeneration, so that there is a mixed age of flora within. The abundance of fauna is thought to be due to the structural diversity within the forest which allows large tall trees with hollows for denning and platforms for gliding together with younger leaves that have a higher nutrient content.

647 The gliders also have a preference for forests on productive, fertile soils. This sets up a potential conflict with forestry practices, as these forests are also those that have the highest potential timber yield.

648 Neither species of glider derives long term value from dead hollow bearing trees as the trees decay rapidly compared to living old growth hollows which persist for hundreds of years. Both species are also scarce or absent in recently logged forests, or forests with few or no tree hollows.

Forest Management Plan Guidelines

649 The FMP contains guidelines for the conservation of 'featured species', two of which being the Greater Glider and Yellow-bellied Glider. As I have already noted, those guidelines commence by stating:

Conservation guidelines have been developed for threatened or sensitive species with major habitat requirements in State forests, and whose needs may not be fully met by other conservation strategies (featured species).[242]

650 The guidelines are expressly directed to the conservation of a broader category than 'threatened' species, namely 'threatened or sensitive species'.

651 The guidelines in respect of mammals make clear that in addition to the provision of conservation reserves and implementation of strategies directed to the conservation of old growth forest and large forest owls, additional linear reserves are proposed together with further specific guidelines. The introduction to specific guidelines for mammals states in part:

However, some further measures are necessary to conserve key threatened species and areas of high mammal richness or diversity.[243]

652 The guidelines provide for linear reserves designed inter alia to protect arboreal mammals in terms which I have quoted above at [252]. The linear reserves contemplated are reserves containing forest of good quality about 200 metres wide. The stream side buffer which has been implemented at Brown Mountain constitutes, at least in part, this type of reserve.

653 As I have said however, the FMP also provides for additional measures specifically directed to high density populations of particular mammals.

Arboreal mammals. For each of the following occurrences, approximately 100 ha of suitable habitat will be included in the SPZ:

- resident Koala populations.
- Greater Glider and Common Brushtail Possum - >2 individuals per ha, >10 per km, or >15 per hour of spotlighting.
- Yellow-bellied Glider - >0.2 per ha, >5 per km, or >7 per hour of spotlighting.
- Eastern Pygmy Possum - >5 per standard pitfall line over 5 days.
- substantial populations of the above species that are isolated or in unusual habitat.

Rich mammal sites. Well-documented sites that are particularly rich in mammal species will be included in the SPZ or SMZ wherever practical. [244]

654 It can be seen that specific provision is made with respect to sites at which normative high densities of nominated arboreal mammals are detected. There is then further provision with respect to rich mammal sites generally. This provision is not limited to arboreal mammals. Conversely the stipulation relating to arboreal mammals is not subject to the proviso found in the more general provision that it will be implemented 'wherever practical'.

655 The conservation guidelines with respect to arboreal mammals make specific provisions for circumstances which are, in the case of the Greater Glider and the Yellow-bellied Glider, on the evidence in this case, highly exceptional.

656 In these circumstances, the specific provision contained in the conservation guideline constitutes a standard which has been incorporated as a condition of the allocation order and TRP. The guideline contained in the FMP has crystallised as a condition of the allocation order and TRP. If the trigger occurrence specified in the FMP occurs then the standard requires the inclusion of approximately 100 hectares of suitable habitat in an SPZ.

657 The very high levels of glider population specified in the control are based on levels found at only five sites detected in surveys of approximately 1,200 sites between 1983 and 1993.

658 Further, high levels of gliders are, on the evidence, significant not only in themselves, but as potential prey for the Spot-tailed Quoll , the Powerful Owl and the Sooty Owl. They are indicators of, and supportive of, a very high level of biodiversity. The protection of such biodiversity by a standard such as that imposed in the FMP is a legitimate purpose distinct from the protection of the arboreal mammal species listed.

659 Dr Belcher gave evidence that the density of gliders is a significant indicator of optimal habitat for Spot-tailed Quolls. Research shows that the Greater Glider contributes about 51 per cent by weight to the Spot-tailed Quoll's diet in south eastern New South Wales.[245]

660 Dr Bilney's evidence was that the Greater Glider constitutes about 43 per cent by weight of the Sooty Owl's diet and possibly up to 70 per cent of the Powerful Owl's diet.

661 Dr Meredith gave evidence of the importance of the silvicultural mix in preserving biodiversity balance. The mixture of tree types, prey types and predators creates a balance that can be upset through adjustment of one of these factors.

662 I will now address the detection evidence triggering the control.

Presence / Detections of the Greater Glider and Yellow-bellied Glider on Brown Mountain

663 A Greater Glider and owl survey was conducted by Dr Bilney within coupe 15 between 22-25 January 2009. The survey found that the coupes supported a high density of arboreal mammals.[246]

664 The survey tabulates results from three different sites in or about coupes 15 and 19, where at least three Yellow-bellied Gliders were heard at each site over periods of 25 minutes, 19 minutes and 48 minutes, while eight Greater Gliders were seen through spotlighting at the site where testing lasted 48 minutes.

665 Dr Bilney's observations were further substantiated by a DSE survey which was completed between January and March 2009 (with some delays due to the widespread Victorian bushfires during this time). The resultant report was not publicly released until 21 August 2009.[247]

666 The DSE survey was conducted over three nights, one night in each month from January to March. The report records that Greater Glider populations were estimated to be 9.1 individuals per kilometre along the western edge of coupe 15 and down a walking track within coupe 15, and 11 individuals per kilometre along a further walking track within coupe 15 and partially along the boundary of coupe 19. The threshold for the prescription is 10 individuals per kilometre. These routes replicated the routes taken by Dr Bilney.

667 The Yellow-bellied Glider numbers were estimated conservatively at 4.5 individuals per kilometre and 7 individuals per kilometre at the same sites as Dr Bilney's survey. The prescription threshold is >5 individuals per kilometre.

668 The survey concluded that sufficient glider populations were detected to fall within the conservation guideline for arboreal mammals as described in the FMP. Email comments from Dr Henry (leader of the DSE arboreal mammal survey) to Mr Incoll (Group Manager – Biodiversity, Gippsland, DSE) dated 6 February 2009 indicated 'the place was alive with YBs...seeing that many is notable as they are generally quite hard to see'.[248] Dr Henry also noted in an email to Mr Incoll that conditions during the survey were not ideal as '[b]right moonlight is generally not conducive to successful spotlighting, either because animals tend to be less active or less readily visible'.[249]

669 In cross-examination Mr Miezis accepted that Dr Henry (East Gippsland Biodiversity Manager, DSE), was saying that the number of 'arboreal mammals, yellow bellied gliders and greater gliders...was particularly notable'.

670 Dr Smith completed an inspection of the four coupes on 9-10 January 2010 which included a drive inspection, and walk inspections along the coupe 19 boundary track, the Valley of the Giants walking track through coupe 15 (Transect 1), the lower portion of Postman's Track in coupe 27 and through recently logged coupe 20. His report, accepted into evidence, also tabulates the results of a further spotlighting survey undertaken by Dr Bilney in December 2009 through coupes 19 and 27. The transect through coupe 27 found 8 Greater Gliders over 400 metres, which correlates to 12.5 Greater Gliders individuals per kilometre.

671 On the evening on 9 January 2010,[250] he further completed a stagwatch[251] and spotlight survey along Transect 1 within coupe 15. While spotlighting, he recorded a detection rate equivalent to 13.8 Greater Gliders individuals per kilometre and six Yellow-bellied Gliders/kilometre, both of which trigger the FMP prescriptions.[252]

672 Dr Smith also extrapolated the density of Greater Gliders using a detectability decline function, and calculated a density of 1.8 Greater Gliders per hectare. Typical reported densities at other sites from radio-tracking are 0.6-0.8 individuals per hectare.[253] As spotlighting is known to substantially underestimate the density of Greater Gliders, Dr Smith adjusted spotlighting density figures by 1.2/0.67, where stagwatching detects 1.2 times the abundance of Greater Gliders compared to that of spotlighting, but only 67 per cent of Greater Gliders emerge in the hour after sunset, which is the stagwatching time. This calculation gives a density of 3.4 Greater Gliders per hectare, which is 'exceptionally high' for Greater Glider density. The FMP trigger requires density greater than 2 individuals per hectare.

673 In his evidence, Dr Smith noted that:

...I can speak in relation to my knowledge of greater glider and yellow bellied glider density in eastern Australia generally, and I would have to say that densities like these in my experience are extremely rare. I think I could say that out of the 30 odd years I have been periodically spotlighting in tall mountain forests on and off, that I would have encountered populations like those that I encountered on my night in the study area maybe in two other places in 30 years...[the Yellow-bellied Glider and the Greater Glider] were both high here and I can think of one other place where I have once found higher greater glider densities, and one other place where I experienced a similar call rate of the yellow bellied gliders. But that's it.[254]

674 Dr Smith also noted two sap feeding trees that had been heavily scarred by Yellow-bellied Gliders on the perimeter of coupe 19. Likewise, on the inspection of the coupes undertaken by the Court on 3 March 2010, a scarred feed tree was observed in coupe 15.

675 The DSE report stated that gliders are 'sensitive to intensive logging'. Dr Smith's evidence is that timber harvesting, in particular intensive logging practices of the type proposed by VicForests, is the greatest threat to the Greater Glider population. Following logging, the Greater Glider population may recover to about half the pre-logging densities within 85 years, which indicates that harvesting rotations on a cycle shorter than this would be inappropriate for Greater Glider repopulation.

676 Dr Smith accepted that Yellow-bellied Gliders may pass through regrowth areas, but did not accept that evidence put to him regarding the presence of Yellow-bellied Gliders in certain 32 and 44 hectare regrowth sites demonstrated repopulation of those sites by Yellow-bellied Gliders.

677 Whatever might be the ultimate effects on the Yellow-bellied Glider and the Greater Glider if the Brown Mountain coupes are further logged, I accept that the results both of DSE and Dr Smith's surveys confirm that the requirements of the FMP arboreal mammal guideline have been triggered both with respect to the Greater Glider and the Yellow-bellied Glider in coupes 15.

678 The rate of detection of Greater Gliders measured by Dr Bilney in coupe 27 on a 400 metre transect in December 2009, also extrapolates to a figure per kilometre in excess of the specified levels. I do not accept however that in absolute terms this proves a detection of the specified level of gliders per kilometre is present in coupe 27.

679 The subsequent response to the DSE survey which confirmed the requirements of the relevant guidelines had been triggered in relation to the Greater Glider and the Yellow-bellied Glider was substantially managed by Mr Miezis. Ultimately he prepared a briefing note to the Minister of 18 June 2009, which as I have already said prompted the decision which was made the subject of media release on 21 August 2009.

680 The briefing note recorded background matters in terms which expressly acknowledged that Greater Gliders and Yellow-bellied Gliders had been detected at Brown Mountain above the thresholds specified in the FMP. It stated:

BACKGROUND

5. Timber harvesting at Brown Mountain in East Gippsland remains a highly contentious issue. You have previously been briefed on the development of this issue and on fauna values in the area.
6. Fauna surveys at Brown Mountain have now been completed by the Department. A copy of the survey report is at Attachment 2. VicForests suspended timber harvesting in the area while the surveys were being completed, and timber harvesting has not recommenced in the area.
7. The surveys found no threatened species.
8. The surveys did find densities of arboreal mammals (Greater Gliders and Yellow-bellied Gliders) above the threshold specified in the conservation guideline in the East Gippsland Forest Management Plan (1995). These animals were mostly located near the Brown Mountain Creek, which runs through current timber harvesting coupes.
9. The conservation guideline for arboreal mammals in the East Gippsland Forest Management Plan states that approximately 100 hectares of suitable habitat will be included in a Special Protection Zone where the threshold is met.
10. The purpose of the East Gippsland Forest Management Plan is to establish strategies for integrating the use of State forest for wood production and other purposes, with conservation of natural, aesthetic and cultural values across the whole East Gippsland Forest Management Area. In particular, the Forest Management Plan:
    - establishes guidelines for forest fauna species, including high density populations of arboreal mammals, and

- provides for the maintenance of sawlog supplies to meet industry commitments.

11. In the Forest Management Plan, a conservation guideline is defined as specifying the minimum levels of planned protection to be provided for natural values in State forest, taking into account the extent of those values in national parks and conservation reserves. The plan notes that where insufficient information is known about an area, a precautionary approach has been adopted in specifying conservation guidelines.

Victoria's National Parks and Biodiversity policy (2006)

12. *Victoria's National Parks and Biodiversity policy* (2006) commits to the addition of at least 41,000 hectares of State forest to the conservation reserve system in East Gippsland, with no net loss of resources or jobs (in keeping within the spirit and terms of the East Gippsland Regional Forest Agreement). Approximately 33,500 hectares of reserve is being created to protect old-growth forest values.

13. In designing the proposed additions to the conservation reserve system, the Department has captured the best examples of old-growth forest stands in East Gippsland, across a range of forest types, whilst balancing timber production objectives. Emphasis was placed on achieving connectivity with existing reserves and creating practical management boundaries.

14. The process of implementing this commitment is currently being finalised. Brown Mountain has not been proposed for addition to the conservation reserve system.

The Greater Glider and Yellow-bellied Glider

15. The Greater Glider and the Yellow-bellied Glider are common throughout East Gippsland. Neither species is listed under the **Flora and Fauna Guarantee Act 1988** or Advisory List of Threatened Vertebrate Fauna in Victoria (2007).

16. Common species are typically too large in number to provide an accurate account of population size. The estimated population of these species is in the many thousands.

17. Suitable habitat for these species includes variety of eucalypt dominated forests from low open forests in the coast to tall forests in the ranges. The area in which fauna surveys were conducted is predominately mature and old-growth mountain mixed species forest (damp and wet forest).

18. The presence of a high density population of Greater Gliders and Yellow-bellied Gliders at Brown Mountain is likely to be due to the presence of tree hollows, common in old-growth forest.

19. The Greater-Glider and Yellow-bellied Glider are sensitive to timber harvesting, largely due to the loss of hollow bearing trees.

20. Between 1983 and 1993, a program of pre-harvesting surveys were undertaken in East Gippsland. Approximately 1,200 sites were surveyed in State forest areas (a number of which has since been added to the conservation reserve system). While the species were found to be common, high densities of Greater Gliders were found on only five (5) occasions. At that time, the small number of high density populations of these arboreal mammals that were located, not the conservation status of the species, resulted in the development of the conservation guideline in the Forest Management Plan.

21. The surveys were not conducted in existing national parks and conservation reserves at that time.

Community and media interest

22. There has been significant community and media interest in timber harvesting operations at Brown Mountain Creek. The department has received a Freedom of Information (FOI) request from the Victorian Association of Forest Industries, Lawyers for Forests and Environment East Gippsland for information pertaining to this issue.
23. Conservation groups have conducted surveys in other timber harvesting coupes in East Gippsland and have claimed the presence of threatened species and that densities of arboreal mammals above the threshold have been located.[255]

681 Under the heading 'Issues and Options' the briefing went on to state:

ISSUES AND OPTIONS

24. The creation of a Special Protection Zone at Brown Mountain requires consideration of a number of matters:

(a) Suitable habitat to support high densities of Greater Gliders and Yellow-bellied Gliders;

(b) The extent of suitable habitat to support high densities of Greater Gliders and Yellow-bellied Gliders in national parks and conservation reserves;

(c) Whether the requirements for a zoning amendment are satisfied.

25. An analysis of these matters is provided at Attachment 3.[256]

682 Attachment 3 contains the following analysis:

Attachment 3

Suitable habitat to support high densities of Greater Gliders and Yellow-bellied Gliders

- The Greater Glider and Yellow-bellied Glider are common species, abundant throughout East Gippsland.
- Greater Gliders and Yellow-bellied Gliders have a wide distribution in East Gippsland forests. Suitable habitat for these species includes variety of eucalypt dominated forests from low open forests in the coast to tall forests in the ranges.
- The area in which fauna surveys were conducted at Brown Mountain is predominantly mature and old-growth (wet type) mixed species forest, with small stands of pure Shining Gum.
- It is not known what, if any, specific habitat attributes exist at Brown Mountain that are not replicated elsewhere, and have contributed to this site supporting a high density of these species. It is likely related to the presence of hollows in old-growth forest.
- Surveys undertaken between 1983 and 1993 found the high arboreal mammal threshold to be achieved in 5 of about 1200 sites visited. These sites were all in the Coast Range Forest Block on the north-eastern side of the Errinundra Plateau. They were in State forest at the time of the survey, but are now in Errinundra National Park.
- The Forest Management Plan identifies two Special Protection Zone in East Gippsland created for amongst a range of values, high densities of Greater Gliders and Yellow-bellied Gliders (2,344 hectares). A number of other Special Protection Zones were created for 'high densities of arboreal mammals' or 'rich arboreal mammal sites'.

Conclusion

Greater Gliders or Yellow-bellied Gliders are not threatened species, but are common throughout East Gippsland. While no recent and extensive surveys have been undertaken, it is most likely that the high densities of these species found at Brown Mountain was due to the productivity of the forest at this site, the presence of old-growth forest, and the related tree hollows.

The extent of suitable habitat to support high densities of Greater Gliders and Yellow-bellied Gliders in national parks and conservation reserves

- The Department is not aware of any surveys for Greater Gliders and Yellow-bellied Gliders in national parks and conservation reserves other tha[n] the State forest areas surveyed between 1983 and 1993 which subsequently became part of the Errinundra National Park.
- This type of forest is also present in adjacent State forest areas from which timber harvesting is excluded. The Department does not have forest typing for the adjacent Errinundra National Park (although i[t] can be reasonably assumed that the same forest type will continue across the tenure boundaries).
- An analysis of modelled hollow density in State forest areas does indicate that the survey area at Brown Mountain does have a higher hollow density. This is likely related to the presence of old-growth forest at the site. In East Gippsland, over 80% of old growth forest is excluded from timber harvesting within the national park and conservation reserve system.

Conclusion

Old-growth forest and the related tree hollows, being suitable habitat to support high densities of the Greater Glider and Yellow-bellied Glider, is well represented in the existing and proposed conservation reserve system in East Gippsland, including areas adjacent to Brown Mountain.

Whether the requirements for a zoning amendment are satisfied

- Adequately conserve the values listed in the Forest Management Plan
  - Given the lack of surveys in the East Gippsland Forest Management Area to determine the extent of high densities of Greater Gliders and Yellow-bellied Gliders in East Gippsland since the intensive surveying undertaken between 1983 and 1993, it is difficult to determine whether this value is adequately conserved. High density populations of Greater Gliders were located at 5 of about 1200 sites in State forest surveyed between 1983 and 1993.
  - Based on analysis of the apparent habitat requirements to support high densities of these species, suitable habitat is well represented within current and proposed additions to the reserve system in the East Gippsland.
- Maintain a well distributed, interconnected network of protected areas.
  - The existing network of protected areas in the East Gippsland Forest Management Area is well distributed and interconnected. It will be enhanced by the proposed additions to the conservation reserve system.
  - The addition of Brown Mountain as a protected area would further enhance this network.

- Minimise practical problems for timber harvesting or access to the General Management Zone;
    - The exclusion of timber harvesting will result in about 8,000m3 of sawlog being forgone which impact in VicForests' capacity to meet current supply commitments, impacting o[n] the viability of the timber industry in the area in the immediate term.
    - There are no obvious alternative sources of sawlog supply to offset the loss of resources from Brown Mountain.
    - The creation of a Special Protection Zone at Brown Mountain would result [in] access problems to the General Management Zone left remaining in the area.
- Make best use of areas that are unavailable for timber harvesting.
    - Similar forest types and well over 100ha of suitable habitat to support high densities of Greater Gliders and Yellow-bellied Gliders is found [in] areas of State forest and national park not available for timber harvesting.
    - Due to over 80 percent of old-growth forest in East Gippsland being unavailable for timber harvesting, the creation of a Special Protection Zone at Brown Mountain would not make best use of these areas.
- Avoid conflict with strategic burning corridors.
    - Brown Mountain is not within a strategic burning corridor.

Conclusion

While there is a lack of information on the extent of high densities of Greater Gliders and Yellow-bellied Gliders, all of the requirements for the creation of a Special Protection Zone have not been satisfied.

Whether refinements to the zoning scheme are objective and systematic and avoid any disruption to forward planning and conduct of timber harvesting.

- To be objective and systematic, zoning amendments should be undertaken in accordance with the requirements specified in the East Gippsland Forest Management Plan. These requirements have not been satisfied.
- Timber harvesting has been planned and commenced at Brown Mountain. Although a moratorium has been maintained while surveys were undertaken and a decision made on the future of timber harvesting in the area.
- The exclusion of timber harvesting will result in a [sic] about 8,000m3 of sawlog being forgone which will impact on VicForests' capacity to meet supply commitments
- There are no obvious alternative sources of sawlog supply to offset the loss of resources from Brown Mountain.

Conclusion

All of the requirements for the creation of a Special Protection Zone at Brown Mountain have not been satisfied and any refinement to the zoning scheme would not be objective and systematic. *Creating a Special Protection Zone will further disrupt forward planning and timber harvesting in East Gippsland.*[257]

683 It can been seen that the analysis takes the position that the Greater Glider and the Yellow-bellied Glider are common species although it implicitly recognises that the densities found at Brown Mountain are exceptional. This accepted density is likely to be due to the

presence of hollows in old growth forests. It is acknowledged that it is difficult to determine whether the value of high densities of the order specified in the FMP is adequately conserved, but it is said that suitable habitat for the species is well represented in the reserve system in East Gippsland. The addition of Brown Mountain as a protected area would enhance the network of protected areas in the FMA. On the other hand it would result in the foregoing of a quantity of sawlog.

684 Ultimately the view is taken that the best use of the area is not to create an SPZ.

685 It is also said that the creation of an SPZ would disrupt forward planning. It is difficult to see that the creation of an SPZ in response to the detection of threatened or sensitive species immediately before or during operations, could ever do other than carry with it the risk of disrupting forward planning. Nevertheless as I have said, the framework for control of timber harvesting in East Gippsland specifically requires response to the identification of species in the course of operations.

686 The briefing paper identifies four options:

(1) create an SPZ;

(2) do not create an SPZ;

(3) include Brown Mountain Creek in the new and expanded conservation reserve system in East Gippsland; or

(4) allow timber harvesting to continue under modified harvesting prescriptions.

687 After describing these options, the briefing paper embraces the fourth option and describes DSE's intended course of action.

Intended course of action

> 49. The intention of the conservation guideline for arboreal mammals is to ensure that suitable habitat is protected to support high density populations, by including it in a Special Protection Zone.
> 50. Suitable habitat to support a high density population of Greater Gliders and Yellow-bellied Gliders is extensively represented in areas in close proximity to Brown Mountain that are already excluded from timber harvesting (including in the new and expanded conservation reserves) and the creation of a Special Protection Zone will have a material impact on timber production in the area.
> 51. A decision to not create a Special Protection Zone at Brown Mountain (and to allow further timber harvesting) will impact on the high density population of Greater Gliders and Yellow-bellied Gliders. However, it will not affect the conservation status or viability of either species, as both are common throughout East Gippsland.
> 52. Considering all relevant matters, the Department does not intend to create a Special Protection Zone at Brown Mountain. In this case, the application of conservation guideline for arboreal mammals would not allow the strategic intent of the East Gippsland Forest Management Plan to be achieved, which is to conserve natural values but allow for a viable timber industry.
> 53. To better achieve this balance and minimise impacts on the high density population of Greater Gliders and Yellow-bellied Gliders at the site, the Department

intends to allow timber harvesting to occur at Brown Mountain to occur [sic] under modified prescriptions, namely:

- A 100 meter buffer along Brown Mountain Creek, where most animals were found during the survey that was conducted.
- The protection of hollow-bearing habitat trees identified by biodiversity officers of the Department (where it is safe to do so).

54. Subject to your comment on this decision, the Department intends to:

- Formally advise Environment East Gippsland (as proponents of the survey) and VicForests of the decision.
- Make the survey report available to the public on request.
- Assist VicForests in the development of a process for the conduct [of] pre-harvesting surveys.
- Continue to develop a decision framework to assist in responding to other flora and fauna surveys conducted by members of the public in timber harvesting coupes.

55. It is anticipated that this decision framework will be prepared in consultation with stakeholders and be made publicly available.[258]

688 The briefing paper also records the following consultation:

CONSULTATION

56. State-wide Services (biodiversity) staff in East Gippsland conducted the surveys and have been consulted on this issue.

57. Biodiversity and Ecosystem Services Division has been consulted on this issue.

58. Legal Services Branch was consulted. There are no apparent legal issues arising from the conclusion reached.

59. VicForests was consulted on this issue. VicForests has agreed to the implementation of modified harvesting prescriptions at Brown Mountain Creek.[259]

689 The Minister subsequently endorsed the proposed course of action on 29 June 2009 prior to the public announcement made in August 2009.

690 It can be seen that in substance a linear reserve generally of the type contemplated by the FMP was implemented, but the 100 hectare SPZ contemplated by the FMP in response to high densities of Greater Glider and Yellow-bellied Glider was not implemented.

691 In oral evidence Mr Miezis expressed the view that there is always a discretion as to whether the requirements of the FMP are implemented. With regard to DSE implementation of FMP guidelines, he stated ‘there is a choice in everything we do’.

692 He also stated that the prescriptions made in response to the glider survey results were made outside the framework of the FMP. According to Mr Miezis ‘prescriptions were determined to be applied outside of the existing regulatory framework’ so that ‘a special protection zone was not required to be created, and that these prescriptions were put on instead’. Mr Miezis was correct in his characterisation of what occurred as being outside the framework of the FMP.

693 The standard stated in the FMP is not expressed to be subject to the overriding discretion of DSE. It is not expressed to be conditional upon the formulation of a further opinion by DSE.

694 EEG contends that the controls governing logging in the Brown Mountain coupes are not able to be bypassed by the decision of DSE in the way Mr Miezis postulates. The allocation order and the TRP impose specific requirements to comply with standards specified in the relevant part of the FMP. The FMP is itself the product of a statutory process, and reflects the outcome of consultation with third parties.

695 The standard stated in the FMP guideline is that for each of the occurrences of specified high levels of arboreal mammals approximately 100 hectares of suitable habitat will be included in an SPZ.

696 This standard has not been complied with. The habitat prescriptions inserted in the MPR in October 2009 do not provide for relevant habitat in a form which might be regarded as giving effect to this standard. They provide for a linear reserve which incidentally includes logged areas and is of a fundamentally different character.

697 The MPR prescriptions transform the form of protection proposed for exceptionally high densities of arboreal mammals into something other than that provided for in the FMP. Whilst the word 'approximately' may give some flexibility to the standard of 100 hectares contained in the FMP, this is not a case of approximation. The standard has not been complied with.[260]

698 The guideline in issue is comparable to that applicable to rainforest which relevantly states:

All rainforest in State forest and the surrounding buffers of non-rainforest vegetation will be included in the SPZ.[261]

699 I accept the fundamental thrust of EEG's submission. Whilst it is true that the terms of the allocation order, the TRP and the FMP are themselves all capable of amendment, if they are not relevantly amended so as to remove the requirement to comply with the standard in the FMP that requirement applies.

700 VicForests submits that the requirement does not crystallise unless DSE specifies an SPZ. I accept that this is correct in the sense that it is not capable of performance until the form of an SPZ is finalised. Nevertheless the logging of the Brown Mountain coupes (and in particular coupe 15) will breach the requirements of the FMP if no SPZ has been created in response to the standard it specifies. In these circumstances, logging would take place in breach of the requirement to create an SPZ of approximately 100 hectares of suitable habitat. Accordingly, the better view is that logging should not be permitted to proceed until compliance with the FMP is achieved.

701 Mr Spencer and Mr McDonald also expressed the view that the obligation to comply with the standard in the FMP was subject to balancing the needs for conservation on the one hand and timber production on the other. I reject this view. The conditions of the allocation order and TRP require compliance with the standards comprised in the conservation guidelines contained in the FMP.

702 For the sake of completeness, I should also record that EEG took issue with the correctness of a series of aspects of the briefing note.

703 First, there is controversy over whether the high densities of gliders located at Brown Mountain were in fact on the evidence substantially located within the 100 metre buffer. In an email (with a map attachment) from Dr Henry to Mr Vaughan dated 23 June 2009, Dr Henry states:

Greater Gliders were reasonably evenly spread along the transect but appear to be a bit more concentrated on the lower slopes within about 200 metres of the creek[262]

704 Ultimately however, the critical question is simply whether the SPZ requirement has been effectively triggered or not. This proceeding does not involve a merits review of the Minister's decision.

705 Secondly, Dr Smith gave evidence that the low density and low fecundity of Yellow-bellied Gliders lend to their conservation by way of an especially large reserve. A reserve should include 18,000-35,000 hectares of forest in order to sustain viable populations of the Yellow-bellied Glider. A minimum area of 9,750 hectares would be adequate if habitat was uniform across its whole area. That is not the present case.

706 Dr Smith also gave evidence that he doubted the conservation reserve to the west of the Brown Mountain coupes would be sufficient for glider conservation because of the nature of the habitat within it. It is also unnecessary to make findings as to these aspects of the matter. The proceeding does not involve a merits review of the Minister's decision or its basis.

707 For present purposes, the relevant conclusion is that the requirements of the FMP in respect of the Greater Glider and the Yellow-bellied Glider have been triggered and they have not been fulfilled.

L The Square-tailed Kite

708 The Square-tailed Kite (Lophoictinia isura) is identified in the FMP as a threatened species deserving of protection. It is listed as 'threatened' in Victoria under s 16 of the FFG Act. This listing requires an FFGAS to be prepared, however no FFGAS has been prepared to date. It is also listed as 'vulnerable' on the DSE Advisory List of Threatened Vertebrate Fauna in Victoria - 2007.

709 Federally, the Square-tailed Kite is assessed within the category of 'lower risk, least concern' (ie the lowest category available, below vulnerable) on the Action Plan for Australian Birds 2000. It is not listed under the EPBC Act.

710 Evidence was given with respect to the conservation issues relating to the Square-tailed Kite and the probability of its presence within the proposed coupes in issue by Dr Stephen Debus.[263]

711 It was Dr Debus' evidence that the difference between Victorian and national classifications can be attributed to low population levels in Victoria. [264]

Biology, habitat preferences and distribution

712 The Square-tailed Kite is a medium-sized, brown and reddish-brown soaring hawk with a prominent white cap, pale 'windows' in the outer wings, and prominently banded wingtips It characteristically sails low over and around the tree canopy on raised wings with the wingtip feathers widely spread.

713 The Square-tailed Kite breeds annually as solitary, well-dispersed pairs in defended territories, laying a single clutch of two or three eggs. It has low fecundity of less than one young raised per pair per year, and high juvenile mortality.

714 The Square-tailed Kite hunts by soaring low down over the canopy searching the foliage for food items. It occupies a large home range of approximately 5,000-10,000 hectares2 in order to support its required prey density which is composed of many small prey items rather than one larger item per day. It thus requires 'ecologically productive' habitat.

715 The Square-tailed Kite inhabits mostly eucalypt dominated forests and woodlands, and also scrub and heath. It prefers 'structurally diverse' forest. It is not primarily old growth forest dependent in the sense that it or its prey require hollow or old trees, however it was Dr Debus' evidence that it does require mature trees.

716 Dr Debus conceded in cross-examination that when it is said that the Square-tailed Kite prefers a structurally diverse landscape, that to some extent would include a landscape that may have been harvested in part, because that would provide visual and physical access to the bird in order to catch prey. It would depend on the ratio of how much is taken and how much is left. Dr Debus wrote in a report tendered in evidence that he had:

...observed the effect of clearfell harvesting in southern NSW state forests, logged on the alternate-coupe system where logging coupes are small (approximately 20-30ha) and dispersed in space and time, and the Kites persist across the logging mosaic where there is extensive unlogged or maturing forest remaining. However, in such terrain with near-continuous forest cover Kite nests are difficult to find. A study in northern coastal NSW found that Kite nests have a 'high' (unspecified) proportion of young and older regrowth Blackbutt (i.e. fertile) forest within a 2 km radius, with most nests in regrowth forest 70-100 years of age.[265] However, in that landscape post-logging regrowth is the predominant age class of productive forest available. [266]

In cross-examination Dr Debus conceded that coupe logging of the type referred to did not appear to pose a threat to the species. Dr Debus stated that Square-tailed Kites would start to forage in forest regrowth 30 years and older.

717 The Square-tailed Kite is sparsely distributed throughout much of Victoria, except the most alpine, arid or treeless areas and in the extreme south. It is apparently migratory, leaving Victoria in the winter to migrate north.

718 Dr Debus' best estimate of the Square-tailed Kite population in East Gippsland is 'about 5 pairs' which constitutes 10 per cent of the population for Victoria of probably fewer than 50 pairs.

Threats

719 Dr Debus states threats to the Square-tailed Kite include continued loss of habitat for foraging and nesting, and decline of habitat quality through forest and woodland clearing. Dr Debus notes that this latter threat may be exacerbated by climate change causing tree death and drought induced loss of prey.

720 Dr Debus states that he:

...would expect those threats to be concentrated mostly in forested areas subject to coastal urban development, and to areas in the agricultural zone affected by rural tree decline, but also in areas subject to extensive (broad-acre) clearfell timber harvesting where harvested areas approximate a Kite's home range in size (estimated at 50-100 square kilometres per pair) or destroy Kite nest sites.[267]

721 Dr Debus notes that harvesting and post-harvesting burns can remove foraging habitat and prey which in turn can result in food stress and possible territory abandonment. Food stress can also mean a reduced chance of producing eggs or of the Square-tailed Kite surviving to successfully breed in the future.

Forest Management Plan

722 The FMP makes the following provision for the Square-tailed Kite:

Conservation Guideline Diurnal raptors. (Square-tailed Kite, White-bellied Sea-Eagle, Grey Goshawk, Peregrine Falcon and Little Falcon). All known nest sites will be included in Special Management Sites with a 250-m radius around the site. Timber harvesting, road construction and fuel-reduction burning will be avoided in this area during the breeding season. At other times harvesting and road construction will be permitted to within 100 m of nest trees. Visitors will be discouraged and sites will not be publicised.[268]

723 VicForests emphasises that the FMP does not deal with foraging activity but rather is concerned only with nest sites.

Habitat quality of Brown Mountain coupes

724 While Dr Debus has never visited the area of Brown Mountain in question, after examining photographs of the coupes he concluded that 'all of the four coupes contain potentially suitable habitat and potential nest trees for the Kite.'[269] He noted that the coupes had sufficiently open canopy to allow for nesting and manoeuvrability of a long winged bird like the Square-tailed Kite to be able to manoeuvre slowly in between tree crowns and take prey, sticks for their nests, etc from the outer foliage canopy.

725 Dr Debus specifically noted that the coupes provided suitable habitat for nesting:

because the trees are large and they have substantial horizontal or near horizontal branches that could support a large stick nest, and they have the sort of canopy structure, an open sort of canopy structure, that would permit the kites to manoeuvre and so on. So they appear to be suitable nesting habitat for the kite. [270]

726 VicForests submits that it is significant that the habitat in dispute represents only one to two per cent of a Square-tailed Kite's home range.

727 In his report Dr Debus noted that:

Based on the relevant map (exhibit VEB-8), the four relevant coupes fall within a radius of less than 2 km or approximately 10 square kilometres, or perhaps 10-20% of a Kite pair's home range. Of this area, the four coupes collectively total 81 ha (nearly 1 sq. km)of harvestable forest, or 1-2% of a Kite's home range, and the balance is split approximately evenly between reserves or protected zones and areas scheduled to be clearfell harvested over the next five years. Expanding the radius out to 5 km to approximate a Kite's home range, the area scheduled to be clearfell harvested over the next five years amounts to about 50% of a Kite's home range. Thus, cumulatively, the four Brown Mountain coupes and surrounding coupes within that 5 km radius, if all harvested, would remove about 50% of foraging habitat and prey for one pair of Kites. This loss could displace one pair of Kites and thus temporarily reduce the East Gippsland population by one pair. Thus, the impact would be at the level of individuals (one pair) and possibly the local population, but not on the species as a whole.[271]

728 The evidence as to a five kilometre radius was challenged in cross-examination on the ground that the map on which Dr Debus based the above calculation was outdated, and that there were in fact new reserves in the area after November 2009. Dr Debus conceded that the conclusions quoted above 'may no longer apply given the reservation status of some of the adjoining land, yes'. He also conceded that the situation likely to occur at Brown Mountain if logging proceeds, would replicate or closely replicate what occurred in the New South Wales study area reviewed by Kavanagh and others in 2003.

Presence / Detections of the Square-tailed Kite on Brown Mountain

729 Dr Bilney gave evidence that in the course of undertaking surveys for the purpose of his expert report on the Powerful Owl and the Sooty Owl, he made two incidental observations of the Square-tailed Kite.

730 The first observation was made at 6:45 pm on 11 November 2009 at the junction of Legges Road and the Bonang Highway, less than 500 metres from the northern end of coupe 26. Here, Dr Bilney observed a Square-tailed Kite glide above him at canopy height, flying in a southerly direction before being chased by an unidentified small bird and heading in a south westerly direction.

731 The second observation was made at 10:34 am on 15 December 2009 while standing within recently logged coupe 20. On this occasion a Square-tailed Kite was observed flying (again over Dr Bilney's head) in a fast and steep descending glide from a considerably high position in the sky heading west and then starting to slowly glide above the canopy of the unlogged forests of and between coupes 15 and 19. According to Dr Bilney, the bird 'appeared to be foraging and was covering an area of forest several hundred meters in size, and was observed gliding over the area for 8 minutes.'[272]

732 Prior to the sightings detailed above, Dr Bilney had observed the species on several occasions in Victoria, New South Wales and Queensland and at a nest near Coffs Harbour along with Dr Debus and other Australian raptor experts.[273] His ability to correctly identify the birds he had seen was not questioned in cross-examination.

733 Dr Debus knows Dr Bilney and gave evidence that he is 100 per cent confident in the accuracy of Dr Bilney's identification. Further, Dr Debus has:

100% confidence that the Kite will at least traverse the Brown Mountain forestry coupes, and a similar high level of confidence (at least 90%) that it will be present in and using those coupes, at least for foraging.[274]

734 He noted that the sightings were made during breeding season and that it is likely that there is a sparse breeding population in East Gippsland. He stated that the species may 'possibly' be using the coupes as nesting habitat. This opinion was made on the basis of the habitat type and structure, and the fact that Square-tailed Kite forages over, and is suspected to nest in, similar habitat within State forests in adjoining NSW.

735 Dr Bilney noted that the number and close proximity of the observations (less than 2.5 kilometres apart), one being in the late evening and both being in spring/early summer when the Square-tailed Kite is usually in the early stages of nesting meant that:

there is a good possibility that they may be nesting somewhere in the nearby vicinity (however, Square-tailed Kites can potentially have very large home-ranges of 10,000ha or larger).[275]

736 In cross-examination, Dr Debus accepted that there was no indication as to where the Square-tailed Kite(s) sighted by Dr Bilney may be nesting. He said there was a reasonable chance it might be in a fairly gentle valley but just looking at the map there is no way of predicting where it would be. More observations and plotting flight paths would be required.

737 Thus, while there is evidence of foraging, VicForests contends that there is no evidence of 'known nest sites' or 'nest trees' within the meaning of the FMP to trigger any guideline standard relevant to the Square-tailed Kite.

738 I accept this contention.

739 Both Dr Debus and Dr Bilney gave evidence as to how difficult it is to find a Square-tailed Kite nest. Dr Debus noted that unless found by chance, it would require a lot of time spent observing and plotting flight paths from a vantage point. Dr Bilney compared the task to being like trying to find a needle in a haystack and that it was likely that only a handful of nests would ever be found in Victoria.

740 Dr Debus is only aware of one active nest in Victoria and has never found one. Maps reveal that there are a number of records of sightings in the 1980s, 1990s and a few since 2000 in East Gippsland. However there is only one record of a nest in East Gippsland, namely near Orbost photographed in about 1980.

Precautionary Principle and the Square-tailed Kite

741 Given this evidence, EEG also puts its case with respect to the Square-tailed Kite by reference to application of the precautionary principle. It submits as follows:

> 258. In Dr Debus' view, in the absence of an AS, conservation measures should also include actions to conserve the Kite's status by minimizing actions that have an

> adverse impact on its foraging habitat and prey or that may disturb its nest sites during breeding. This is in the context of only 5 pairs presently being estimated to exist in East Gippsland.
> 259. ...

The coupes have not been surveyed by those with relevant biodiversity and raptor experience to identify and so protect a potential nest site. This is the 'don't look, don't find' mentality. Further, there remains scientific uncertainty on the impact of harvesting on the Square-tailed Kite. There is a lack of *"ecological information on the Kite's response to logging and its breeding success under the various harvesting regimes"*. Further information is required to determine on what scale and intensity of logging the Kite may survive, if at all. Breeding success is, of course, the key to recovery of a threatened species.

> 260. Dr Debus gave evidence of a study in NSW in relation to harvesting dispersed in space and time where Kites were observed in logged coupes which retained 30% of the basal area, seed trees, habitat trees and gully reserves. The defendant did not lead evidence on the extent of habitat and tree retention that will occur (in terms of basal retention) under the modified tree prescriptions. Dr Smith's evidence stands alone about the extremely poor survival rates of trees retained in harvested coupes in this area. Further, and as Dr Gillespie noted in relation to the frogs (recalling his example about koalas on the road), that Kites were observed over regrowth does not support a finding that the Kite may survive and continue to breed successfully if its habitat consists principally of harvested coupes. The Eden study is not evidence that the Square-tailed Kite(s) present in and around coupes 15 and 19 may survive the harvesting of those coupes and continue to live in that area.
> 261. In fact, and as Dr Debus notes in his report, harvesting and post harvesting burns can remove foraging habitat and prey which in turn can result in food stress and territory abandonment. Food stress can also mean a reduced chance of producing eggs or the Kite surviving to successfully breed in the future. [276]

742 VicForests submits that it is against the weight of evidence to suggest that the proposed harvesting presents a serious or irreversible threat to the Square-tailed Kite and that accordingly the precautionary principle is not engaged because:

(a) the Square-tailed Kite's conservation at the federal level is of "least concern";

(b) Dr Debus accepted that "to some extent" the loss of habitat by harvesting might be offset by the creation of suitable openings in formerly extensive forest;

(c) the Kite's home range is 5,000 - 10,000 hectares whereas the proposed harvesting would represent 1 – 2 percent of that range;

(d) Dr Debus acknowledged that his opinion had been predicated on an out of date map (which excluded the new reserves) and accepted that once the new reserves were taken into account, his conclusion on page 15 of his report that the harvesting might displace one pair of Kites may no longer apply;

(e) Dr Debus accepted there was no indication of where the Kite spotted by Dr Bilney may be nesting;

(f) Dr Debus conceded that:

(i) he would have to "moderate" his conclusions concerning the precautionary principle in the light of the new reserves;

(ii) he did not take into account any consequences other than those for the Kite;

(iii) "over the long-term the habitat is going to regenerate, so I would assume if you take a long-term perspective, [the harvesting] won't [sic] result in irreversible damage".

(g) Dr Debus agreed that the proposed harvesting in Brown Mountain (factoring in the additional reserves) would replicate the study area reviewed by Kavanagh and others in 2003 as referred to in answer to question 15(b) in his report and in that situation there did not appear to be any threat to the Kite.[277]

743 I accept VicForests' submission that the evidence does not establish that the proposed logging will constitute a threat to the survival of the Square-tailed Kite or a consequential threat of serious and irreversible damage to the environment.

(a) the Brown Mountain coupes constitute a very small portion of the probable range of the Square-tailed Kite;

(b) there is no evidence supporting the conclusion that the species nests in the coupes;

(c) the effect of the logging would to be create a patchwork of logged, unlogged and regrowth habitat; and

(d) the evidence does not demonstrate that such habitat would fail to support the Square-tailed Kite and favours the conclusion that it would.

744 For like reasons, EEG has not demonstrated that VicForests has relevantly failed to have regard to the objectives stated under s 4(1)(a) of the FFG Act.

M. **Hollow Bearing Trees**

745 The Statement of Claim alleges that VicForests has failed to identify significant stands of hollow bearing trees in the Brown Mountain coupes and failed to implement measures to maintain or enhance the extent and/or density of hollows in trees within the Brown Mountain coupes. The Code of Practice envisages the retention of habitat trees or patches in appropriate numbers and configurations and provision for the continuity and replacement of old hollow bearing trees within the harvestable area. The FMP also envisages provision for the retention of hollow bearing trees and in particular provision by way of the creation of linear reserves.

746 The FFGAS relating to hollow bearing trees describes their nature and occurrence as follows:

Description and occurrence

Hollows that form in trees provide essential breeding and roosting spaces for many native wildlife species. Native Australian trees do not usually develop hollows suitable for use by

vertebrates until they are very old. Large hollows, essential for some fauna, do not develop until trees are well over a hundred years old; the development of large hollows being a characteristic feature of tree senescence. Hollows develop in Australian trees largely as a result of natural branch shedding and damage by wind, lightning, fungi and wood-boring insects, particularly termites. Fire can accelerate this damage, but it also accelerates deterioration and collapse of existing hollow trees. In contrast to other parts of the world, where animals like woodpeckers actively excavate holes, the only primary hole-excavating vertebrate animals in Australia are a few species of tropical parrot.

Some eucalypt species (eg River Red Gum *Eucalyptus camaldulensis*) may survive for many centuries, providing a dynamic supply of hollows that suit different species at different stages of hollow development. Each animal species has its own requirements and preferences for factors such as hollow size, location (branch or trunk), tree species and surrounding vegetation. Old trees may continue to provide hollows for many years between death and eventual collapse and decay.

Hollow-bearing trees are usually the oldest and largest members of their communities. Therefore they often have values beyond the hollows they contain that cannot be provided by younger trees; by virtue of their age, size, form, root development and ability to sequester resources from surrounding vegetation. These include: landscape value; a large and diverse invertebrate fauna, particularly in peeling bark which provides a distinctive foraging substrate; non-hollow nest, roost and perch sites; nest materials; open stand structure; clusters of mistletoes and other epiphytes, and a more regular and prolific flowering and nectar production.

When large trees eventually collapse or fall, they provide a range of resources for different groups of fauna. Large hollow logs on the forest floor are used by ground-dwelling animals, particularly mammals, for shelter and as foraging sites. Branches and trees falling into water provide shelter for fish and other aquatic animals. Rotting wood contributes nutrients and organic matter to the soil, and fungi are used as food by various mammals including possums, bandicoots and potoroos.

Rates of formation and loss of hollow-bearing trees have been affected by European settlement in all Australian states. Usually this has involved accelerated rates of loss (principally through clearing for agriculture) and reduced rates of formation (by preventing regeneration of trees in farmland, or as a consequence of wildfire (eg 1939 fires) or timber harvesting activities in areas of forests); hence numbers of hollow-bearing trees are reduced.[278]

747 The FFGAS also records that the loss of hollow bearing trees from Victorian native forests is listed as a potentially threatening process under the FFG Act.

748 The FFGAS goes on to describe the ecological role of hollows. In the present case, the evidence supports the view that hollow bearing trees are likely to play a significant role in the survival of the Greater Glider, the Yellow-bellied Glider, the Spot-tailed Quoll, the Powerful Owl and the Sooty Owl.

749 VicForests' Amended Defence admits that the Spot-tailed Quoll, the Powerful Owl, the Sooty Owl, the Yellow-bellied Glider and the Greater Glider are hollow dependent species.

750 The FFGAS also notes in respect of forest harvesting:

Options available to forest managers to retain hollow densities include varying rotation periods, varying silvicultural systems, retaining areas of high hollow density, retaining existing hollow-bearing trees and trees likely to develop hollows in the future within areas available for harvesting.[279]

751 The FFGAS sets out a series of considerations relating to management options and ultimately states the following intended management actions for State forests:

7. Continue to identify significant areas or stands of hollow-bearing trees in State forest, using the State Forest Resource Inventory and other relevant information, to inform management decisions.

8. Continue to implement a range of measures to maintain or enhance the extent and/or density of hollows in State forest where this is known to be limiting the distribution and/or abundance of hollow-dependent species. These measures include:

• Application of management guidelines, including forest management zones and prescriptions, for fauna species as provided in Forest Management Plans (e.g. Leadbeaters Possum Special Protection Zones and prescriptions).

• The development and application of revised habitat retention prescriptions for areas within the General Management Zone (GMZ) in accordance with the principles and objectives established by the State Forest Flora and Fauna Habitat Management Working Group.

Responsibility: DSE Parks and Forests Division, DSE Regions[280]

752 In my view the allegations made in the Statement of Claim are satisfactorily answered by the prescriptions contained in the MPR relating to hollow bearing trees which were inserted following the Minister's decision of August 2009 (see [281] above). If these prescriptions are met then I accept that the management actions stated in the FFGAS will be given effect, regard will also have been had to the objectives stated in s 4(1)(a) of the FFG Act. In turn the FMP will not be breached in respect of hollow bearing trees and the evidence does not establish the precautionary principle requires further preservation of hollow bearing trees (save as part of the retained habitat required for specific species).

N Conclusion

753 EEG seeks an injunction restraining VicForests from harvesting coupes 15, 19, 26 and 27 at Brown Mountain. It also seeks a declaration or declarations that any timber harvesting within such coupes will be unlawful.

754 I accept the submission of VicForests that there must be some threatened action or inaction on its behalf that binds its conscience before equity will intervene by way of injunction against it.

755 I also accept that it is necessary to identify the legal or equitable rights which have been determined at trial and which form the potential basis of injunctive relief.[281]

756 In the present case I have concluded that unless VicForests complies with the requirements of relevant FFGASs and with the conditions stated in the allocation order and TRP, logging at Brown Mountain will be unlawful.

757 I accept EEG's submission that having reached this conclusion an injunction should issue because:

(a) VicForests maintains its threat to log at Brown Mountain; and

(b) there is a public interest in the making of the order preventing unlawful logging.

758 The potential breaches of conditions comprised in the FFGASs and (as adopted by the allocation order and TRP) the FMP which I have identified, nevertheless fall to be considered in the context of the role which is accorded to DSE under the relevant statutory scheme. I accept that it is contextually relevant to recognise:

(a) that it is DSE which has ultimate power to amend the zoning scheme creating either an SMZ or an SPZ, Long-footed Potoroo retained habitat area, POMA or SOMA;

(b) that if the presence of a threatened species is further detected, that finding would need to be reported to DSE in order for it to determine whether an SPZ was required and in what form;

(c) VicForests has acknowledged and maintained that it will modify timber harvesting boundaries in accordance with any zoning decisions made by DSE.

759 I also accept that if injunctive relief is granted then such relief should be framed by conditions limiting its impact to what is necessary to avoid the unlawful conduct which I have identified.

760 Further as was stated in Bridgewater v Leahy:[282]

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.

761 In my view VicForests should be restrained from logging the Brown Mountain coupes until:

(a) an SMZ and Long-footed Potoroo retained habitat area have been created in respect of detections of the Long-footed Potoroo within coupes 15, 19 and 26 and in accordance with Appendix I to the FFGAS to the satisfaction of the Director, Biodiversity Policy and Programs, DSE ('the Director');

(b) a survey is carried out for the presence of the Giant Burrowing Frog and the Large Brown Tree Frog within coupes 15, 19, 26 and 27 during appropriate climatic conditions by appropriately qualified persons to the satisfaction of the Director;

(c) a review of the provision of POMAs and SOMAs within the East Gippsland FMA taking into account the report of Dr Bilney dated December 2009 is completed to the satisfaction of the Director;

(d) a survey is carried out for the presence of the Spot-tailed Quoll within coupes 15, 19, 26 and 27 during the breeding season of the Spot-tailed Quoll in and between May and August by appropriately qualified persons to the satisfaction of the Director, and in the event of detection of the Spot-tailed Quoll, a review of the provision of reserves for the Spot-tailed Quoll within the East Gippsland FMA is completed to the satisfaction of the Director;

(e) an SPZ of approximately 100 hectares is created to the satisfaction of the Director in response to the detection of densities of Greater Gliders and Yellow-bellied Gliders in coupe 15 exceeding those specified in the guideline relating to arboreal mammals contained in the FMP.

762 It is necessary to formulate injunctive relief which crystallises in ascertainable obligations. In my view, the conditions should vest the function of ultimate determination of the practical content of the relevant obligations in the Director, whose function is to administratively endorse the relevant outcomes in any event.

763 It is also necessary to preserve the possibility that a single reservation may ultimately respond to a series of trigger requirements.

764 Mr Spencer's evidence was that VicForests would await direction from DSE if an event occurred triggering the potential application of a habit prescription.

765 There is no basis on which to conclude that if zones are formulated protecting and retaining habitat of the Long-footed Potoroo, the Greater Glider and the Yellow-bellied Glider, VicForests will do other than respect such zones.

766 The moratorium on logging imposed by DSE following the initial surveys forming the subject of evidence in this proceeding, confirms what might otherwise be expected, namely that DSE will consider the results of further surveys and respond properly to them.

767 Likewise, it cannot be concluded that it is probable that if Giant Burrowing Frogs or Large Brown Tree Frogs were detected, the requirements of the FFGAS relating to the Giant Burrowing Frog would not be implemented, nor that appropriate responses would not be made to any detections of the Large Brown Tree Frog.

768 Further it cannot be concluded that if the potential habitat of Brown Mountain were preserved until the current review of the FMA zoning scheme is completed, there would be other than proper reconsideration of the form of POMAs, SOMAs and reserves for the protection of owls or (in the event of detection) reserves for the Spot-tailed Quoll. In this regard I note that the review involves a public consultation process.

769 VicForests submits that if an injunction is granted with respect to the Long-footed Potoroo it should be in the following terms:

Subject to further order, VicForests be restrained from harvesting in any of the Brown Mountain coupes until [a specified date] on condition that the plaintiff forthwith provide to

the DSE all exhibits, evidence and any other documents in its possession relevant to the detection of a Long-footed Potoroo within any of the Brown Mountain coupes.[283]

770 I do not accept that this is a satisfactory formulation. It does not ensure compliance with the Long-footed Potoroo FFGAS. It reflects the assumption which I have rejected that logging by VicForests will be lawful if DSE does not formulate a habitat retention area. For reasons I have explained, the lawfulness of any logging is dependent upon the implementation of an FMZ and habitat retention area.

771 Nevertheless, I accept that injunctive relief with respect to protection of the Long-footed Potoroo should be conditioned by an undertaking:

(a) that the plaintiff provide to DSE copies of all photographic evidence it possesses relating to the presence of the Long-footed Potoroo in the Brown Mountain coupes; and

(b) the plaintiff take all reasonable steps to assist DSE to confirm the precise location of the taking of the images produced in evidence by Ms McLaren.

772 Insofar as declaratory relief is concerned, I have come to the view that the injunctions I have formulated are sufficient to both protect the interests which EEG seeks to protect and to provide a workable path forwards for VicForests which limits its obligations to what are strictly necessary.

773 Accordingly, I do not propose to make declarations in the detailed form sought by EEG. It is inherently difficult to do so when the injunctions I have proposed require steps to be undertaken which may change the present complexion of the facts.

774 I do not accept EEG's submissions that declarations should or can readily be formulated:

(a) as to the legal consequences of the detection of exceptionally high levels of Yellow-bellied Gliders and Greater Gliders;

(b) as to the legal consequences of the detection of Long-footed Potoroos within coupes 15, 19 and 26;

(c) as to the legal consequences of the detection of Sooty Owls and Powerful Owls; or

(d) in general terms as to the requirements of the precautionary principle.

775 The threatened conduct which I have characterised as unlawful is more appropriately restrained by way of conditional injunction.

776 I will give the parties a further opportunity to address the precise wording of the injunctions I propose before making final orders.

777 In summary, logging at Brown Mountain should be restrained because:

(a) SMZ and retained habitat protection has not been provided in accordance with the relevant FFGAS following the detections of the Long-footed Potoroo in coupes 15, 19 and 26;

(b) the precautionary principle requires surveys to be undertaken to ascertain the presence or otherwise of the Giant Burrowing Frog and the Large Brown Tree Frog within the Brown Mountain coupes in circumstances where they are threatened species, their presence is probable and adequate surveys have not been carried out;

(c) the precautionary principle requires the completion of the current review of management area reserves created under the East Gippsland FMP in respect of the habitat of the Powerful Owl and the Sooty Owl in circumstances where the current management areas comprise in part modelled habitat in which neither owl species has been detected;

(d) the precautionary principle requires surveys to be undertaken to ascertain the presence or absence of the Spot-tailed Quoll within the Brown Mountain coupes in circumstances where it is threatened with extinction, the coupes comprise optimal habitat, adequate surveys have not been carried out, and the system of reserves providing protected habitat for the Spot-tailed Quoll is currently under review. If the Spot-tailed Quoll is detected, the precautionary principle requires this review to be completed;

(e) the provisions of the FMP have not been complied with and require the creation of a reserve of approximately 100 hectares consequent upon the detection of exceptional levels of Greater Gliders and Yellow-bellied Gliders within the coupes.

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[1] Viewed at http://www.awardsaustralia.com.au/RACA_vic.html#4 on 15 July 2010.

[2] *Victorian Government Gazette* 2003, No S198, Melbourne, 28 October, 1.

[3] Old growth forest is relevantly defined in the terms adopted by the East Gippsland Forest Management Plan, 23:

Old-growth forest is forest which contains significant amounts of its oldest growth stage in the upper stratum – usually senescing trees – and has been subject to any disturbance, the effect of which is now negligible.

[4] Also referred to in evidence as the 'Valley of the Giants Walk'.

[5] Although the reference to coupe 840-502-0009 should be ignored.

[6] EEG 'Comments on TRP amendments – April 2007' Submission in response to request for public comment on TRP amendment, 17 May 2007.

[7] See the previous map above.

[8] Henry, Stephen and Mitchell, Tony S*urvey for arboreal mammals, Long-Footed Potoroo and spiny Crayfish in proposed logging coupes 840-502-0015 and 840-502-0019, Brown Mountain Creek Catchment, Brodribb Forest Block, Errinundra Plateau January-March 2009*, DSE, August 2009, 10-11.

[9] Letter from Cameron MacDonald to Jill Redwood, 15 April 2009.

[10] Minister for Environment and Climate Change 'Permanent Protection for Brown Mountain Area' (Media Release, 21 August 2009).

[11] [2009] VSC 386.

[12] (2000) 200 CLR 591, 628-9.

[13] *ACF case* (1980) 146 CLR 493, 526.

[14] Ibid (1980) 146 CLR 493, 530-1.

[15] [1981] HCA 50; (1981) 149 CLR 27.

[16] Ibid, 42.

[17] Ibid.

[18] Ibid, 37.

[19] [1994] FCA 1556; (1994) 55 FCR 492.

[20] Ibid, 502-511.

[21] Ibid, 512.

[22] Subsequently, in *Tasmanian Conservation Trust v Minister for Resources* [1995] FCA 1035; (1995) 55 FCR 516 , Sackville J applied these principles to a broadly analogous basket of circumstances and held that the Trust had standing to challenge a decision to grant an export licence in respect of woodchips.

[23] [1998] HCA 49; (1998) 194 CLR 247.

[24] Ibid, 267.

[25] Cf *Fraser Island Defenders Organisation v Hervey Bay Town Council* [1983] 2 Qd R 72.

[26] [23] above.

[27] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, iii.

[28] Ibid, 3.

[29] Affidavit of Jill Redwood sworn 28 August 2009.

[30] Affidavit of Jill Redwood sworn 17 November 2009, 2.

[31] *Forests Act* 1958, s 3 provides that 'Secretary' means the body corporate established by Part 2 of the *Conservation, Forests and Lands Act 1987*.

[32] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, v-vii (emphasis added).

[33] Repealed as at 28 April 1999.

[34] Repealed as at 1 July 1997.

[35] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 1.

[36] *Conservation, Forests and Lands Act 1987*, s 5.

[37] *Conservation, Forests and Lands Act 1987*, s 6(1).

[38] *Conservation, Forests and Lands Act 1987*, s 7.

[39] *Conservation, Forests and Lands Act 1987*, s 4, read with Sch 1.

[40] *Conservation, Forests and Lands Act 1987*, s 31.

[41] *Sustainable Forests (Timber) Act 2004*, s 1.

[42] The term 'forest stand' is used to refer to a section of forest that is relatively uniform in species, age, structure, quality and composition.

[43] *Victorian Government Gazette* 2007, No S57, Melbourne, 21 March, 7.

[44] *Victorian Government Gazette* 2004, No S176, Melbourne, 29 July, 2.

[45] *Victorian Government Gazette 2004*, No S176, Melbourne, 29 July, 2.

[46] *Allocation to VicForests Order 2004* as amended and applicable as at 23 March 2010.

[47] Dr Peter Appleford (as delegate to Secretary of Department of Sustainability and Environment) 'Preparation of Timber Release Plan 2009 to 2014', 5 June 2009, 3.

[48] Approved Timber Release Plan 2009–2014, Table 12 excerpt.

[49] Approved Timber Release Plan 2009–2014, Table 3 excerpt.

[50] Department of Sustainability and Environment *Code of Practice for Timber Production 2007* VGDSE Melbourne, 5.

[51] Ibid, 7.

[52] Ibid, 8.

[53] Ibid, 13.

[54] Ibid, 18.

[55] Ibid, 21-22 (emphasis added).

[56] See *Hastings v Brennan (No 3)* [2005] VSC 228, [28].

[57] Ibid, 78.

[58] The agreement is further described by Biscoe J in *Walker v Minister for Planning* [2007] NSWLEC 741; (2007) 157 LGERA 124 [61]-[65].

[59] (1993) 81 LGERA 270.

[60] Ibid, 282.

[61] (1997) 18 WAR 102.

[62] Ibid, 118-119 (citations omitted).

[63] [2006] NSWLEC 133; (2006) 67 NSWLR 256.

[64] Nicolas de Sadeleer *Environmental Principles: From Political Slogans to Legal Rules* (2nd ed, 2005), 155 in *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; (2006) 67 NSWLR 256, [128].

[65] *Telstra* case, 269, [131].

[66] [1980] HCA 12; (1980) 146 CLR 40.

[67] *Telstra* case, [133]-[134].

[68] World Commission on the Ethics of Scientific Knowledge and Technology, The Precautionary Principle (Paris, UNESCO, 2005), 31 in *Telstra* case, [133].

[69] European Court of Justice, Case C-236/01, 13 March 2003, unreported, [138] in *Telstra* case, [134].

[70] *Telstra* case, [141].

[71] Ibid, [142]-[148].

[72] Ibid, [150]-[155].

[73] Ibid, [150] - [151].

[74] Ibid, [156].

[75] Ibid, [157]-[160].

[76] Ibid, [161].

[77] Ibid, [163]-[164].

[78] Ibid, [166].

[79] Ibid, [167]-[171].

[80] Ibid, [172]-[178].

[81] Ibid, [179]-[181].

[82] Ibid, [182]-[183].

[83] Dr Stephen Henry, 'Preharvest Flora and Fauna Survey in Proposed Coupes on the TRP: Discussion Paper' Internal Paper, 5 April 2009, 1.

[84] Briefing Note from Department of Sustainability and Environment Forests and Parks to Minister for Environment and Climate Change 'Brown Mountain Creek', 18 June 2009, 1.

[85] *Flora and Fauna Guarantee Act 1988*, s 4.

[86] *Flora and Fauna Guarantee Act 1988*, s 8(2).

[87] The Committee is the Scientific Advisory Committee established by s 8.

[88] Emphasis added. A copy of regulations made in accordance with s 11(5) was tendered in evidence but need not be referred to.

[89] *Flora and Fauna Guarantee Act 1988*, ss 14-16.

[90] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 10-11 (citation omitted).

[91] Ibid, 27.

[92] Ibid, 28.

[93] Chapter 8 of the FMP provides in part:

GUIDELINES FOR REVIEWING MANAGEMENT STRATEGIES AND ZONES

Management guidelines in this Plan will be reviewed under the following circumstances:

• when research information on key species becomes available (for example, on completion of the current Long-footed Potoroo research, or population viability analyses for other threatened species).

• if new species are identified that are considered threatened.

• as required by new legislation, policies or action statements.

Management zone boundaries may require review if:

• changes to management strategies for certain species or values mean that the zoning system is more or less than adequate for those values.

• field inspections or better mapping indicate that minor amendments are required to create practical management boundaries.

• a zone is found not to contain the values for which it was identified; amendments may be required to ensure that conservation targets are met.

• new records are listed for species whose conservation targets have not been met.

• new records of some species warrant changes to zones to consolidate an area of good quality habitat in exchange for an area of poorer-quality habitat.

• existing boundaries are found to place unnecessary restrictions on the practical access to areas for timber production or for infrastructure development (easements etc).

Proposed zone amendments will be assessed according to whether they:

• adequately conserve the values listed in the zoning scheme register (Appendix B); there should be no net deterioration in the standard of protection of values in the SPZ.

• maintain a well-distributed, inter-connected network of protected areas.

• minimise practical problems for timber harvesting or access in the General Management Zone.

• make the best use of areas that are unavailable for timber harvesting due to other considerations such as slope, access and site quality.

• avoid conflict with strategic burning corridors.

[94] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 29

[95] Ibid, 28.

[96] Ibid, 30.

[97] Ibid, 33 (emphasis in original).

[98] Ibid, 30 (citations omitted).

[99] Ibid, 32.

[100] Ibid, 33.

[101] Ibid, 34.

[102] See footnote 93 above.

[103] Cf *Western Water v Rozen* [2008] VSC 382, [57].

[104] Department of Sustainability and Environment 'Management Procedures for Timber Harvesting Operations and Associated Activities in Victoria's State Forests' 3 September 2007, 3.

[105] Ibid.

[106] Ibid, 4.

[107] Ibid, 4.

[108] Ibid, 17. This provision was inserted in October 2009.

[109] Ibid. Clauses 1.4.4(b),(c) and (d) provide:

(b) Timber harvesting operations may be permitted in excluded areas specified in 1.4.4(a) of these Procedures for the purposes of:

i). safety or forest health;

ii). construction of roads or stream crossings where the location within SPZ or SMZ is on an approved TRP or WUP; or

iii). de-snagging, re-snagging or riverbank protection works approved by the relevant Catchment Management Authority.

(c) Timber harvesting operations permitted in accordance with 1.4.4(b)i). of these Procedures must be approved by a delegated person (under Schedule 2 of the *Sustainable Forests (Timber Harvesting) Regulations 2006*) and noted in the FCP or Site Plan.

(d) Timber harvesting operations permitted in accordance with 1.4.4(b)ii). and 1.4.4(b)iii). of these Procedures must be approved by the Area Manager.

[110] Ibid, 18.

[111] Diameter at breast height over bark.

[112] Department of Sustainability and Environment 'Management Procedures for Timber Harvesting Operations and Associated Activities in Victoria's State Forests' 3 September 2007, 20-21.

[113] Ibid, 26. (Emphasis added).

[114] Ibid, 64-65.

[115] Ibid, 80.

[116] Professor Ferguson holds a Bachelor of Science in Forestry from the University of Melbourne and a Doctor of Forestry from Yale University (1965). He has held numerous

positions at the University of Melbourne between 1981-2003 including Deputy Dean (1984-86) and Dean of the Faculty of Agriculture and Forestry (1987-89), Head of the School of Forestry and Resource Conservation (1994-97) and Head of the School of Forestry, Institute of Land and Food Resources (1998-2001). He is currently Professor Emeritus of Forest Science within the Department of Forest and Ecosystem Science, Melbourne School of Land and Environment at the University of Melbourne.

He is also a consultant, and has been appointed to many Commonwealth task forces reporting on ecologically sustainable forest management within Tasmania, Queensland Western Australia and Victoria. He was Chairman and sole Member of a Board of Inquiry into the Timber Industry in Victoria in 1984. Most recently and relevantly he has been a:

• sub consultant to VicForests for Poyry Forest Industry Pty Ltd's independent review of native forest valuation procedures commissioned by Forests NSW in July 2007; and

• consultant to the DSE on development of fire research strategy (Feb-July 2008), and strategic seed collection and storage (Mar-Sep 2009).

He has also authored or co-authored several books, chapters within books and more than 70 articles in peer reviewed journals and conference papers from 1972 to the present.

[117] Affidavit of Ian Stewart Ferguson sworn 29 January 2010, 4-5.

[118] The CAR system includes dedicated conservation reserves, special protection zones and habitat prescriptions.

[119] See, eg *Minister for Immigration and Ethnic Affairs v Teo* (1995) 57 FCR 194, 206.

[120] (1990) 96 ALR 739.

[121] Ibid, 749.

[122] Page 21.

[123] Page 28.

[124] *R v Hunt*; *Ex Parte Sean Investments Pty Ltd* [1979] HCA 32; (1979) 180 CLR 322, per Mason J, Gibbs J agreeing.

[125] *Cambridge Credit Corporation Ltd v Parkes Developments Pty Ltd* [1974] 2 NSWLR 590, 605 and 616.

[126] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 29 (emphasis added, citations omitted).

[127] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 58 (revised in 2009) Long-footed Potoroo *Potorous longipes*.

[128] Sites include clusters of records.

[129] The Long-footed Potoroo is primarily a fungivore, feeding on sporocarps (fruiting bodies) or hypogeous (underground fruiting) and sub-hypogeous fungi. The majority of such fungi are unlikely to persist in dry soil.

[130] Dr Charles Meredith, Report (Long-footed Potoroo) 2 February 2010, 10. This risk is also stated in Henry, Stephen and Mitchell, Tony S*urvey for arboreal mammals, Long-Footed Potoroo and spiny Crayfish in proposed logging coupes 840-502-0015 and 840-502-0019, Brown Mountain Creek Catchment, Brodribb Forest Block, Errinundra Plateau January-March 2009*, DSE, August 2009, 10-11, 9.

[131] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 58 (revised in 2009) Long-footed Potoroo *Potorous longipes*, 5.

[132] Ibid, 2.

[133] The procedure is that recommended by the IUCN Species Survival Commission (Species Survival Commission 2001).

[134] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 58 (revised in 2009) Long-footed Potoroo *Potorous longipes*, 7.

[135] Ibid, 7.

[136] 'Core Protected Areas' replace the previous 'Special Management Areas' (SMAs).

[137] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 58 (revised in 2009) Long-footed Potoroo *Potorous longipes*, 9.

[138] Ibid, 13. Appendix I appears to have its genesis in an agreement between DSE and VicForests.

[139] Affidavit of Barbara Ellen Triggs sworn 10 February 2010, 2.

[140] Email from Stephen Henry to Ryan Incoll, 3 February 2009.

[141] Ibid.

[142] Ibid.

[143] Henry, Stephen and Mitchell, Tony S*urvey for arboreal mammals, Long-Footed Potoroo and spiny Crayfish in proposed logging coupes 840-502-0015 and 840-502-0019, Brown Mountain Creek Catchment, Brodribb Forest Block, Errinundra Plateau January-March 2009*, DSE, August 2009, 9 and 11.

[144] Mr Lincoln has been conducting native fauna surveys in the East Gippsland region on a voluntary full time basis for about a year. He has received basic training in the set up of cameras and different techniques for conducting surveys on specific animals. The information gathered in his surveys is shared with DSE, EEG, and any other persons and organisations interested in his work. He is not a member of EEG.

[145] Both Moultrie and Scoutguard cameras were used. The survey had been in progress since 5 May 2009.

[146] Affidavit of David Treasure sworn 12 March 2010.

[147] Mr Scotts is recognised as one of the main experts on potoroos in Australia. He holds a Bachelor of Science with Honours in Zoology. He worked for nine years as a fauna ecologist for the Victorian State government where he was involved in threatened species research including and specifically in respect of the Long-footed Potoroo. During that time Mr Scotts participated in a number of flora and fauna surveys in the forests of East Gippsland. Since 1992 he has worked in north east New South Wales as a professional ecologist and zoologist, both for the NSW State Government and as a sole trader environmental consultant.

[148] Ms Poole is a qualified consultant zoologist specialising in the conservation and management of threatened species. She holds a Bachelor of Arts / Bachelor of Science degree with Honours majoring in Environmental Studies, Environmental Science and Zoology, and a Master of Environment majoring in Conservation, Restoration and Land Management from the University of Melbourne. As part of her masters degree, Ms Poole undertook research into the distribution of terrestrial marsupials including the Long-footed Potoroo, in the Little River Earth Sanctuary near Werribee.

[149] Dr Meredith holds a Bachelor of Science in Botany and Genetics and a Doctorate of Philosophy in Zoology. He has over 25 years experience in environmental management, the conduct and management of flora and fauna surveys, conservation value assessment, biodiversity issues, and conservation and land-use planning and policy. He has served on a broad range of committees, including the Scientific Advisory Committee to the Flora and Fauna Guarantee Act. He is an Inaugural Fellow of the Environment Institute of Australia and New Zealand, and is a Member of the Ecological Society of Australia and the Royal Society of Victoria. In relation to the Long-footed Potoroo, Dr Meredith was Project Manager for an extensive fauna survey in East Gippsland as part of the Very Fast Train environmental assessments in 1990. This involved designing potoroo surveys in consultation with key DSE researchers involving the full range of techniques known at the time: trapping, predator scat analysis, hair tubing and direct observations. Dr Meredith also made a number of visits to already known potoroo sites to familiarise himself with their habitat.

[150] Ms McLaren has been conducting native fauna surveys in the East Gippsland region on a voluntary basis for seven years. She has had experience in using infrared and motion sensor cameras and planting hair tubes in the conduct of such surveys. She has not received professional camera training, nor read the camera manual. The information gathered in these surveys is shared with interested individuals and organisations including EEG. Ms McLaren has been a member of EEG for ‘roughly a few years’ however does not attend meetings.

[151] Affidavit of David John Treasure sworn 12 March 2010.

[152] Affidavit of David Joseph Scotts sworn 25 November 2009, 2.

[153] Dr Charles Meredith, Report (Long-footed Potoroo) 2 February 2010, 13.

[154] Email from Natasha MacLean (Threatened Species and Communities Manager, Biodiversity and Ecosystem Services, DSE) to Lee Miezis, 14 September 2009.

[155] Department of Sustainability and Environment ‘Management Procedures for Timber Harvesting Operations and Associated Activities in Victoria’s State Forests’ 3 September 2007, 26.

[156] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 128 Orbost Spiny Cray

Euastacus diversus, 1-2.

[157] Ibid.

[158] Ibid, 2 (citations omitted).

[159] Ibid, 4.

[160] Originally a technical engineer, Mr McCormack developed what is now the largest crayfish and Australian bass farm in NSW between 1983 and 2003. He is the Research and Aquaculture Director for Australian Aquatic Biological Pty Ltd and President of the NSW Aquaculture Association. He has also sat on many aquaculture advisory and statutory committees including the CSIRO and Rural Industries Research and Development Corporation Steering Committee, the Aquaculture Research Advisory Committee and the Land Based Aquaculture Consultative Group. He is a Research Associate with the Carnegie Museum of Natural History in Pittsburgh, USA, and has co-published several scientific research papers and authored several self published books that predominantly relate to yabby farming and keeping.

[161] Mr Robert McCormack, ’Aquatic Biological Survey Report’, 7 December 2009, 43.

[162] Mr Robert McCormack, ’Aquatic Biological Survey Report’, 7 December 2009, 28.

[163] Ibid.

[164] See the terms of clause 2.2.2 of the Code quoted above at [168].

[165] Department of Conservation and Natural Resources ‘Forest Management Plan for the East Gippsland Forest Management Area’ December 1995, 32.

[166] The FFGAS was first published in 1994.

167. [167] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Revised Edition No. 61 Giant Burrowing Frog *Heleioporus australiacus*, 2.

[168] Department of Conservation and Natural Resources, now the Department of Sustainability and Environment.

[169] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Revised Edition No. 61 Giant Burrowing Frog *Heleioporus australiacus*, 2.

[170] Ibid.

[171] Ibid, 3.

[172] Ibid, 3-4.

[173] Dr Gillespie holds a PhD in Zoology from the University of Melbourne, awarded in 2002 for a thesis on the Spotted Tree Frog, and has authored and co-authored more than 50 refereed scientific papers and technical reports on herpetological conservation, ecology and management since 1990. He has held the position of Director of Wildlife Conservation and Science for Zoos Victoria since 2004. Between 1997 and 2004, Dr Gillespie was a senior scientist with the Arthur Rylah Institute for Environmental Research, which is a subdivision of the Biodiversity and Ecosystems Services Division of the DSE. Prior to this, between 1986 to about 1991 he was employed by the DSE or its predecessor in pre-logging surveys in the East Gippsland area as a specialist herpetologist and sometime team supervisor.

[174] Gillespie, G (1990) Distribution, Habitat and Conservation Status of the Giant Burrowing Frog *Heleioporus australiacus* (Myobatrachidae) 107 *Victorian Naturalist* 144.

[175] Dr Graeme Gillespie, Report (Giant Burrowing Frog) 24 February 2010, 5.

[176] Ibid, 10.

[177] Ibid, 8-9. Note that references to Penman et al. (2008b) are to a report which was tendered by VicForests into evidence: Penman et al (2008) Applied conservation management of a threatened forest dependent frog, *Heleioporus australiacus* 5 *Endangered Species Research* 45.

[178] Penman et al (2008) Spatial Ecology of the Giant Burrowing Frog (*Heleioporus australiacus*): implications for conservation prescriptions 56 *Australian Journal of Zoology* 179, 184.

[179] The Penman Report, 184.

[180] Between 1-30cm subsurface, with an average of 10cm; see Penman et al (2008) Applied conservation management of a threatened forest dependent frog, *Heleioporus australiacus* 5 *Endangered Species Research* 45, 47.

[181] Ibid, 46 and 48-9.

[182] Males are 38 to 56 millimetres from snout to vent, females 48 to 72 millimetres.

[183] *Flora and Fauna Guarantee Act 1988*, s 11.

[184] Dr Graeme Gillespie, Report (Large Brown Tree Frog) 22 December 2009, 11-13 (citations omitted).

[185] Ibid, 19-20. (Emphasis in original).

[186] Transcript of Proceedings, *EEG v VicForests* (Supreme Court of Victoria, Osborn J, 18 March 2010) .

[187] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 30-31.

[188] Dr Bilney holds a Bachelor of Science (Zoology, Ecology and Evolution) from Monash University, a Bachelor of Environmental Science (Honours) from Deakin University and a Doctor of Philosophy from Deakin University. Dr Bilney has been studying various ecological aspects of both the Powerful Owls and Sooty Owl, mainly from the foothill forests of East Gippsland since 2003 as part of his Honours and PhD theses. The research included investigation of the diet, roost and nest site characteristics, breeding seasonality and success, home-range and habitat usage, primarily for the Sooty Owl. Dr Bilney has published a number of articles principally on the Sooty Owl, and currently works as a consultant.

[189] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 9.

190. [190] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 3.

[191] In addition to requiring hollows for roosting, breeding and nesting, an average of 75% of both the Powerful Owl and Sooty Owls' diets consist of hollow dependent mammals.

192. [192] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 2.

[193] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 2.

[194] Ibid.

[195] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Sooty Owl *Tyto tenebricosa*, 3.

[196] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 11 (citations omitted).

[197] Ibid, p 26 (citations omitted).

[198] Ibid, 16 (citations omitted).

[199] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 30-31.

[200] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 7.

[201] Ibid, 2; DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Sooty Owl *Tyto tenebricosa*, 3.

[202] Powerful Owl Management Areas.

[203] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 6.

[204] Ibid, Table 1, 6.

[205] Ibid, 7 (citations omitted) .

[206] Sooty Owl Management Action.

[207] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Sooty Owl *Tyto tenebricosa*, 4.

[208] Ibid, 4.

[209] Ibid, 5.

[210] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 7.

[211] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 27.

[212] Minutes of meeting: Threatened Species Management Meetings (DSE/VicForests) 7 April 2009, 2.

[213] Attachment to email from Ryan Incoll to Lee Miezis, 5 February 2009, 5.

[214] If an owl calls on or immediately after dusk, it is likely to indicate that a roost is nearby.

[215] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 22-23.

[216] Ibid, 23.

[217] See Dr Rohan Bilney, Reply Report (Sooty Owls and Powerful Owls) 22 February 2010: 'Applying Fergusons logic means that virtually all state forest can be logged because there are no known sooty owl nests in these areas...Locating sooty owl nests is a particularly difficult process, which is why less than 12 nests have ever been located in south-eastern Australia...Preserving owl nests is therefore virtually an impossible conservation measure to apply in practice.'

[218] Henry, Stephen and Mitchell, Tony S*urvey for arboreal mammals, Long-Footed Potoroo and spiny Crayfish in proposed logging coupes 840-502-0015 and 840-502-0019, Brown Mountain Creek Catchment, Brodribb Forest Block, Errinundra Plateau January-March 2009*, DSE, August 2009, 10-11, 7.

[219] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 23 (citation omitted).

[220] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 6.

[221] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Sooty Owl *Tyto tenebricosa*, 4.

[222] Attachment to email from Ryan Incoll to Lee Miezis, 5 February 2009, 3.

[223] Briefing Note from Department of Sustainability and Environment Natural Resources to Minister for Environment and Climate Change 'Fauna Values at Brown Mountain', 16 February 2009, 2.

[224] The figure required by the FFGAS is 131 not 133. The figure of 131 is used earlier in the same email.

[225] Email from Paul Smith to Lee Miezis, 6 October 2009, 2-3.

[226] Dr Rohan Bilney, Report (Sooty Owls and Powerful Owls), December 2009, 27.

[227] Defendants' Closing Submissions, [225].

[228] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No. 92 Powerful Owl *Ninox strenua*, 6.

[229] See footnote 93 above.

[230] Dr Belcher holds a PhD in biology awarded for a thesis on the Ecology of the Tiger Quoll (another name for *Dasyurus maculatus*, or the Spot-tailed Quoll), and an MSc awarded for a thesis on the diet of the Tiger Quoll. He has authored many refereed scientific papers and technical reports on the diet, habitat and conservation of the Spot-tailed Quoll. His expertise covers work on quoll populations in both Victoria and NSW, and includes a number of studies on the Spot-tailed Quoll, including remote camera and hairtube surveys in East Gippsland, the Otway National Park, Mt Eccles National Park and the Badja and Tallaganda State Forests in NSW. He was also a major contributor to the Draft National Recovery Plan for the Spotted-tailed Quoll (Long, K & J. Nelson (2010) (Draft) National Recovery Plan for the Spotted-tailed Quoll Dasyurus maculatus. Victorian Department of Sustainability and Environment) which is a plan made under the EPBC Act.

[231] Dr Chris Belcher, Report (Spot-tailed Quoll) December 2009, 6.

[232] This poison, sodium monofluroacetate, is used widely in Australia to control a variety of pests such as foxes, wallabies, rabbits and kangaroos due to its toxicity to mammals.

[233] Dr Chris Belcher, Report (Spot-tailed Quoll) December 2009, 11.

[234] May-August.

[235] Dr Chris Belcher, Report (Spot-tailed Quoll) December 2009, 11.

[236] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* Revised Edition No. 15 Spot-Tailed Quoll *Dasyurus Maculatus*, 7.

[237] Ibid, 8-9.

[238] Dr Chris Belcher, Report (Spot-tailed Quoll) December 2009, 14.

[239] Statement of Claim, [82].

> 240. [240] Dr Smith holds a PhD at Monash University awarded for a thesis on the ecology of the Leadbeater's Possum and the Sugar Glider. He has been working in forest ecology, planning and management in Victoria, NSW and Queensland since 1977. During this time he was a PhD candidate, a lecturer, Associate Professor and Sub-Dean in the faculty of Natural Resources at the University of New England conducting and supervising research into aspects of forest fauna ecology and management. Since 1992 he has been Director and Principal of Austeco Environmental Consultants, where he has prepared policy documents, management plans and environmental impact statements for many forestry operations from northern Victoria to southern Queensland.

Dr Smith has studied and surveyed both the Greater Glider and Yellow-bellied Glider. He has applied survey and habitat modelling methods for predicting arboreal mammal distribution and abundance in Victorian forests. He has published many articles between on the effects of timber harvesting on arboreal mammals including the Greater Glider and Yellow-bellied Glider. He has been commissioned by the New South Wales Government to develop guidelines for regulation and implementation of ecologically sustainable forestry operations on private land throughout New South Wales. He has devised a range of ecologically sustainable forest management standards, or 'conservation protocols', that have been implemented and adopted in Regional Forest Agreements including standards for hollow dependent wildlife and for sensitive and poorly known threatened species and ecological communities. He has advised the NSW Department of Environment and Planning, and the Queensland Department of Natural Resources on prescriptions for old growth tree hollows in State forests.

[241] Dr Andrew Smith, Report (Greater Glider and Yellow-bellied Glider) 27 January 2010, 6.

[242] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 28.

[243] Ibid.

[244] Ibid, 30.

[245] Dr Andrew Smith, Report (Greater Glider and Yellow-bellied Glider) 27 January 2010, 7.

[246] Dr Rohan Bilney, 'Nocturnal surveys for arboreal mammals and large forest owls from Brown Mountain, East Gippsland'

[247] Henry, Stephen and Mitchell, Tony S*urvey for arboreal mammals, Long-Footed Potoroo and spiny Crayfish in proposed logging coupes 840-502-0015 and 840-502-0019, Brown Mountain Creek Catchment, Brodribb Forest Block, Errinundra Plateau*, DSE, August 2009.

[248] Email from Stephen Henry to Ryan Incoll, 6 February 2009.

[249] Email from Stephen Henry to Ryan Incoll, 13 March 2009.

[250] Dr Andrew Smith, Report (Greater Glider and Yellow-bellied Glider) 27 January 2010 at 21 indicates this was on 16 January 2010 which was taken as a misprint.

[251] Count of gliders emerging from hollows in the first hour after sunset.

252. [252] The transect that Dr Smith followed was the same as that used by Dr Bilney in January 2009. However, Dr Smith adjusted the distance of the transect by 50m, because, as he explained under examination, the first portion of the transect was log regrowth and was unsuitable habitat for gliders, and so shouldn't have been counted in the transect assessment.

[253] Dr Andrew Smith, Report (Greater Glider and Yellow-bellied Glider), 27 January 2010, 24.

[254] Transcript of Proceedings, *EEG v VicForests* (Supreme Court of Victoria, Osborn J, 9 March 2010).

[255] Briefing Note from Department of Sustainability and Environment Forests and Parks to Minister for Environment and Climate Change 'Brown Mountain Creek', 18 June 2009, [5]-[23].

[256] Ibid, [24]-[25].

[257] Ibid, Attachment 3.

[258] Ibid, [49]-[55].

[259] Ibid, [56]-[59].

[260] Cf. *Latitude Fisheries Pty Ltd v Minister for Primary Industries & Energy* (1992) 110 ALR 209, 230 per French J.

[261] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 23.

[262] Email from Stephen Henry to Barry Vaughan, 23 June 2009.

[263] Dr Debus holds a Bachelor of Arts in Biology and Behavioural Sciences, a Diploma of Natural Resources (Wildlife), a Diploma of Education (Science), a Masters of Science in Zoology and a PhD in Zoology. He is currently an Adjunct Lecturer and Research Associate in Zoology at the University of New England, NSW. He has studied the ecology of raptors (birds of prey) for thirty years and conducted, participated in and coordinated several studies of the Square-tailed Kite, mainly in NSW. Although he has not observed the Square-tailed Kite in Victoria, he has regularly observed them over the past twenty years just across the border from East Gippsland, in NSW State forests of the Eden-Bombala region.

[264] Dr Stephen Debus, Report (Square-tailed Kite), 11 February 2010.

[265] Kavanagh, R.P., Cann, B., Ellis, B. & Williams, J. 'Habitat selection by the Square-tailed Kite *Lophoictinia isura* on the mid-north coast of New South Wales, Abstracts, p 27, Australian Orthinological Conference, Canberra, December 2001.

[266] Dr Stephen Debus, Report (Square-tailed Kite), 11 February 2010, q 7(a)(ii).

[267] Ibid, q 7(a)(i).

[268] Department of Conservation and Natural Resources 'Forest Management Plan for the East Gippsland Forest Management Area' December 1995, 31.

[269] Dr Stephen Debus, Report (Square-tailed Kite), 11 February 2010, q 12(b).

[270] Transcript of Proceedings, *EEG v VicForests* (Supreme Court of Victoria, Osborn J, 12 March 2010) .

[271] Dr Stephen Debus, Report (Square-tailed Kite), 11 February 2010, q 15(a).

[272] Dr Bilney, 'Report on the Square-tailed Kite (*Lophoictinia isura*) from Brown Mountain, East Gippsland', 4 February 2010. A note taken at the time of the second observation was tendered in evidence. Dr Bilney also stated that he had made a contemporaneous posting on the internet for other interested bird watchers regarding the first observation.

[273] Affidavit of Rohan John Bilney sworn 1 March 2010, 2.

[274] Dr Stephen Debus, Report (Square-tailed Kite), 11 February 2010, q 13.

[275] Dr Rohan Bilney, 'Report on the Square-tailed Kite (*Lophoictinia isura*) from Brown Mountain, East Gippsland', 4 February 2010, 1 (citations omitted).

[276] Plaintiff's Closing Submissions [258]-[261].

[277] Defendant's Closing Submissions, [234] (citations omitted).

278. [278] DSE, Action Statement, *Flora and Fauna Guarantee Act 1988* No 192 Loss of hollow-bearing trees from Victorian native forests and woodlands, 1 (citations omitted).

[279] Ibid, 3.

[280] Ibid, 6.

[281] Cf *ABC v Lenah Game Meats Pty Ltd* (2001) 208 CLR 199, 241.

[282] [1998] HCA 66; (1998) 194 CLR 457, 494 per Gaudron, Gummow and Kirby JJ.

[283] Defendant's Closing Submissions, [241].