

**INVESTIGATION REPORT ON FLORA SPECIES PRESENCE  
AND RARE AND THREATENED PLANT DETECTIONS [including:]**

***Lastreopsis hispida***  
(Bristly Shield-fern)

**KUARK - LARISSA LANE**

830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004

**Abstract**

Sections of VicForests clear-fell logging coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004 were investigated to assess the flora species composition of these scheduled logging coupes and identify the presence of rare or threatened plants. Flora species presence was documented and rare and threatened flora species location details and photographic records were obtained.

This investigation identified the presence of at least 91 species of vascular flora and 7 rare plant species within and/or adjacent to VicForests clear-fell logging coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004.

Analysis of this information shows that poor planning and operational practices have led to logging operations occurring near the location of rare plant species and has impacted on the ability of the forest ecosystem at this location to maintain the critical micro-climatic conditions required for the persistence of many of these rare plant species.

VicForests operations were found not to have complied with their obligations to conserve significant ecological values, including through a failure to apply the precautionary principle and implement Special Protection and Management Zones for rare and threatened species identified at this location.

Recommendations are made to the Department of Environment, Land, Water and Planning (DELWP) to pursue breaches of the precautionary principle and the failure to apply appropriate management zones, enforce the regeneration of affected areas within the study location and ensure that similar impacts on rare and threatened species throughout the State Forest estate affected by logging operations are avoided.

**Relevant Legislation**

- Code of Practice for Timber Production 2014, Department of Environment and Primary Industries, The State of Victoria, 2014
- “Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014”, Department of Environment and Primary Industries, The State of Victoria, 2014
- “Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014”, Department of Environment and Primary Industries, The State of Victoria, 2014

**Organisations participant in breach**

- VicForests
- Logging contractors operating in coupe 830-510-0008

**Status of Site**

Coupe 830-510-0008 has been logged; coupes 830-510-0006 and 830-510-0004 have been logged in part; and coupe 830-509-0004 remains scheduled for logging

**Date of Investigation**

08/03/2015, 13/03/2015,  
14/03/2015, 15/07/2015,  
16/03/2015 et. al.

**Surveyors**

Andrew Lincoln  
Owen Hanson  
Joe Henderson  
Ed Hill  
Tony Chandler

**Author**

Andrew Lincoln  
Fauna and Flora Research Collective Inc.  
asl80@hotmail.com

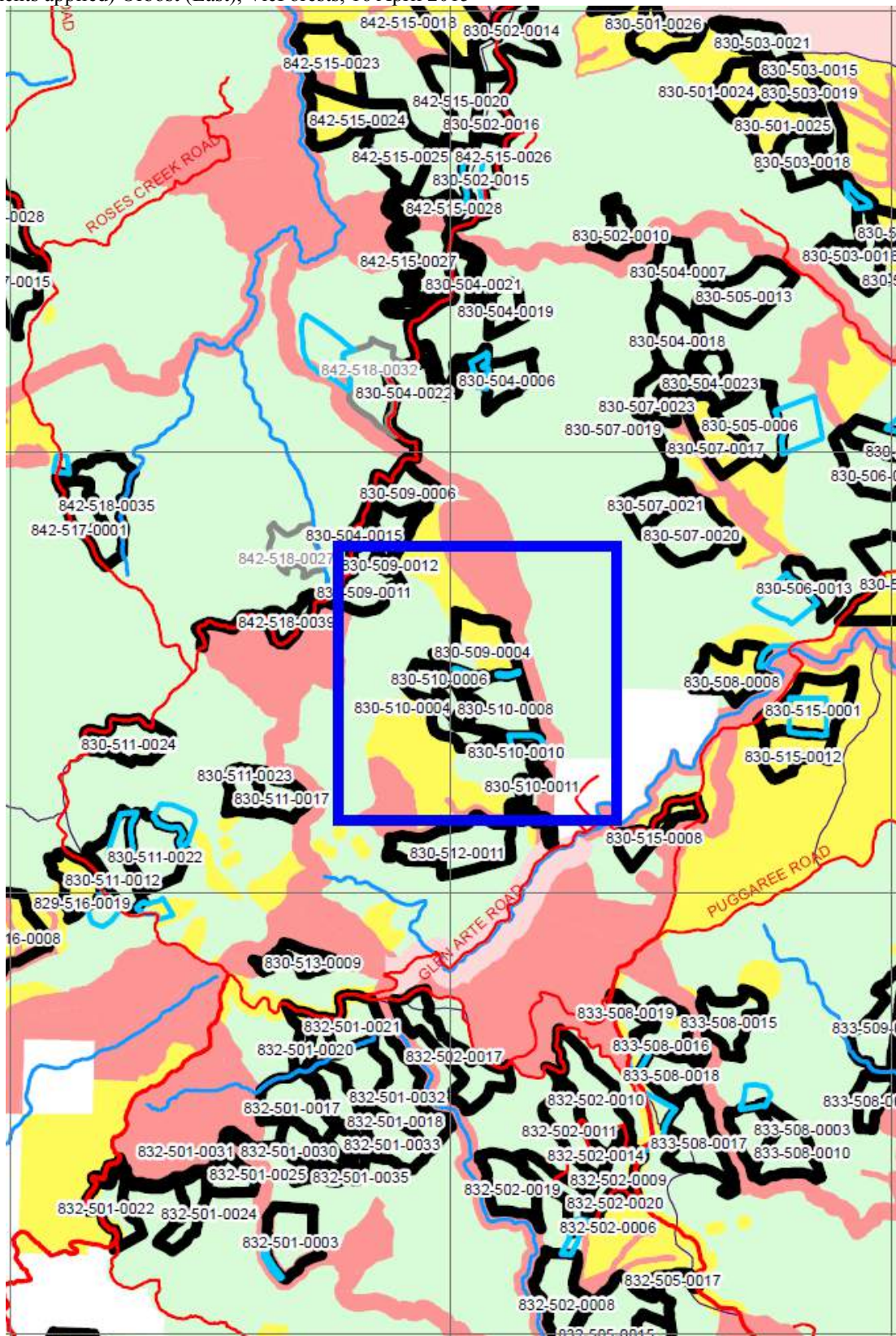
**Date of report**

16/07/2015

## Location details

Within VicForests logging coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004 accessed via Larissa Lane in the Kuark Forest Block of East Gippsland.

Figure A. Detail from: "Approved Timber Release Plan 2013 - 2016 Change Map; April 2015 (with all approved amendments applied) Orbost (East), VicForests, 16 April 2015



\*Investigation location within blue box

## Method 1 (Flora species and rare plant detection)

Flora species (general) and rare plant detection [08/03/2015 and 13/08/2014 – 16/09/2014 et. al.]

*Survey technique and Method used:*

1. Sections of VicForests scheduled logging coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004 – with a particular focus on the rare ecological community “Cool Temperate – Warm Temperate Overlap Rainforest” stand within this area – were searched for the presence of vascular flora species.
2. Most species encountered were known to participating surveyors. Where species were not previously known or further clarity was required on species identification, flora identification guides were consulted to achieve clarification and positive identification. Where a positive identification of a species was not obtained the particular taxon has not been included for consideration in this report.
3. During the course of the general flora species search described above, where plants encountered were known to be rare or threatened to the surveyors, location details and photographic records of these species were obtained where possible.
4. All plant species recorded were checked against the “Advisory List of Rare or Threatened Plants in Victoria – 2014”<sup>1</sup> maintained by [now] DELWP to ascertain the current conservation status according to this list.
5. **See the Results section below for a full list of species positively identified within the study location of this investigation as well as their conservation status where appropriate, selected photographic records, location details and spatial distribution.**

“Forest management practices (timber harvesting and fuel reduction) have the potential to adversely affect populations of *Cyathea cunninghamii* and *Cyathea x marcescens*. Presently, in all jurisdictions, both taxa are now protected via threatened species planning provisions and forest practices codes, although **the strength of these approaches relies on the population being identified during the pre-harvesting planning process.** ... In addition to possible changes to microclimate and hydrology, timber harvesting has the potential to increase exposure to high winds and consequent tree fall. ... The deterioration of this small rainforest stand is most likely a response to intensive harvesting without adequate buffering.”<sup>2</sup>

---

1 [http://www.depi.vic.gov.au/\\_data/assets/pdf\\_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf](http://www.depi.vic.gov.au/_data/assets/pdf_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

2 Peacock, R.J., et. al., “Distribution, habitat preferences and population sizes of two threatened tree ferns, *Cyathea cunninghamii* and *Cyathea x marcescens*, in south-eastern Australia” in *Cunninghamia* (2013) 13: 001–024, The Royal Botanic Gardens and Domain Trust, [www.rbgsyd.nsw.gov.au/science/Scientific\\_publications/cunninghamia](http://www.rbgsyd.nsw.gov.au/science/Scientific_publications/cunninghamia), 2013, p.15

## Method 2 (analysis/recommendations)

Excerpts from: “Code of Practice for Timber Production 2014, Department of Environment and Primary Industries, The State of Victoria, 2014”<sup>3</sup>

### 1 General

#### 1.2 The Code of Practice for Timber Production

##### 1.2.6 Compliance on State forest

Under the *Sustainable Forests (Timber) Act 2004*, compliance with this Code is mandatory for any person planning for or conducting a timber harvesting operation on **State forest**. Penalties for noncompliance may apply if timber harvesting operations on State forest are not in accordance with the Code.

Timber harvesting operations on public land other than State forest are governed by lease and licence conditions which may specify a requirement to comply with this Code.

The Code is a prescribed legislative instrument made and enforced under relevant law listed in the *Conservation, Forests and Lands Act 1987*. For the purposes of each relevant law the **Secretary** is an **authorised officer** and is therefore responsible for ensuring compliance with the Code on State forest. Compliance is also monitored by other authorised officers appointed by the Secretary pursuant to the *Conservation, Forests and Lands Act 1987*.

### 2 Code Application – State Forests

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

#### 2.2 Environmental Values in State forests

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

##### 2.2.2 Conservation of Biodiversity

###### Operational Goal

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

Harvested State forest is managed to ensure that the **forest** is regenerated and the biodiversity of the **native forest** is perpetuated.

The natural floristic composition and representative gene **pools** are maintained when regenerating native forests by protecting long-lived **understorey** species and using appropriate seed sources and mixes of dominant species.

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

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

###### Mandatory Actions

###### **Addressing biodiversity conservation risks considering scientific knowledge**

2.2.2.1 Planning and management of timber harvesting operations must comply with relevant

---

3 *Code of Practice for Timber Production 2014*, pp. 11, 21, 23, 31-32, 34-35

biodiversity conservation measures specified within the **Management Standards and Procedures**.

- 2.2.2.2 The **precautionary principle** must be applied to the conservation of biodiversity values. The application of the precautionary principle will be consistent with relevant monitoring and research that has improved the understanding of the effects of forest management on forest ecology and conservation values.
- 2.2.2.3 The advice of relevant experts and relevant research in conservation biology and flora and fauna management must be considered when planning and conducting timber harvesting operations.
- 2.2.2.4 During planning identify biodiversity values listed in the Management Standards and Procedures prior to roading, harvesting, **tending** and **regeneration**. Address risks to these values through management actions consistent with the Management Standards and Procedures such as appropriate location of **coupe infrastructure**, **buffers**, **exclusion areas**, modified harvest timing, modified silvicultural techniques or retention of specific structural attributes.
- 2.2.2.5 Protect areas excluded from harvesting from the impacts of timber harvesting operations.
- 2.2.2.6 Ensure chemical use is appropriate to the circumstances and provides for the maintenance of biodiversity.
- 2.2.2.7 **Rainforest** communities must not be harvested.

#### ***Perpetuating the biodiversity of harvested native forests***

- 2.2.2.8 Long-term (strategic) **forest** management planning must incorporate **wildlife corridors**, comprising appropriate widths of retained forest, to facilitate animal movement between patches of forest of varying ages and stages of development, and contribute to a linked system of reserves.
- 2.2.2.9 Modify **coupe** size and **rotation** periods to maintain a diversity of forest structures throughout the landscape.
- 2.2.2.10 Retain and protect **habitat trees** or habitat patches and long-lived **understorey** species to provide for the continuity and replacement of old hollow-bearing trees and existing vegetation types within each coupe.
- 2.2.2.11 Use silvicultural systems that suit the ecological requirements of the **forest type**.
- 2.2.2.12 Regenerate harvested areas using seed from **overstorey** species with **provenances** native to the area.

#### ***Maintaining forest health***

- 2.2.2.13 Implement appropriate vehicle and equipment hygiene precautions when moving from areas of known pest plant, pest animal and pathogen infestations.
- 2.2.2.14 Implement appropriate control actions where **timber harvesting operations** have introduced or exacerbated a pathogen or weed.
- 2.2.2.15 Report the suspected introduction of new or unknown **exotic** agents to DEPI's Biosecurity section.
- 2.2.2.16 Where Myrtle Wilt (*Chalara australis*), Cinnamon Fungus (*Phytophthora cinnamomi*) or Root Rot (*Armillaria*) is known to exist, apply appropriate measures to minimise the spread of these pathogens.

## **Glossary**

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

## Method 3 (analysis/recommendations)

Excerpts from: “*Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014*”<sup>4</sup>

### “4. Biodiversity

#### 4.5 Flora – detection based zoning

##### 4.5.1 Statewide

- 4.5.1.1 Apply the management actions outlined in Table 5 (Detection based FMZ rules for flora) below for zoned rare or threatened flora values.
- 4.5.1.2 Implement FMZ amendments and reviews in accordance with Table 5 (Detection based FMZ rules for flora) below for new verified rare or threatened flora records and FMZ amendment requirements outlined in section 2.

##### 4.5.2 East Gippsland FMA

- 4.5.2.1 Include all verified populations of species regarded as threatened at a State or national level in the SPZ or SMZ.
- 4.5.2.2 Include substantial representative populations of species that are rare in Victoria, and poorly known, have few records or are at the edge of their range in East Gippsland in the SPZ or SMZ.
- 4.5.2.3 Wherever practicable include populations in larger parts of the SPZ or SMZ in combination with other values.
- 4.5.2.4 Plan disturbances in SMZ in consultation with DEPI biologists to ensure the species is adequately protected.

**Table 5 Detection based FMZ rules for flora.**<sup>5</sup>

FMA	Common name	Scientific name	Zoning management actions	Management actions	Review
East Gippsland	Slender Tree-fern	Cyathea cunninghamii	Establish a SMZ of 250 m radius over verified populations.	Conduct a site inspection and detailed planning in consultation with DEPI to ensure the species is adequately protected during timber harvesting operations.	

<sup>4</sup> *Planning Standards*, pp. 16, 69, 71, 78

<sup>5</sup> *Planning Standards*, “Table 5 Detection based FMZ rules for flora”, p. 71, 78

## Results 1 – Flora Species Presence

The following table lists all species positively identified within VicForests scheduled logging coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004.

Table 1. Larissa Lane – Vascular Flora Species Investigation List

SPECIES	
1	<i>Acacia frutescens</i> Frosted Wattle
2	<i>Acacia melanoxylon</i> Blackwood
3	<i>Allantodia australis</i> Austral Lady-fern
4	<i>Asplenium bulbiferum</i> ssp. <i>Gracillimum</i> Mother Spleenwort
5	<i>Asplenium flaccidum</i> Weeping Spleenwort
6	<i>Atherosperma moschatum</i> Sothorn Sassafras
7	<i>Australina pusilla</i> ssp. <i>Muelleri</i> Shade Nettle
8	<i>Bedfordia arborescens</i> Blanket-leaf
9	<i>Blechnum cartilaginum</i> Gristle Fern
10	<i>Blechnum chambersii</i> Lance Water-fern
11	<i>Blechnum patersonii</i> Strap Water-fern
12	<i>Blechnum watsii</i> Hard Water-fern
13	<i>Calomeria amaranthoides</i> Incense Plant
14	<i>Calystegia marginata</i> Forest Bindweed
15	<i>Cassinia trinerva</i> Three-nerved Cassinia
16	<i>Cephalomanes caudatum</i> (r) Jungle Bristle-fern
17	<i>Cissus hypoglauca</i> Jungle Grape
18	<i>Clematis australia</i> Mountain Clematis
19	<i>Coprosma quadrifida</i> Prickly Currant-bush
20	<i>Correa lawrenciana</i> Mountain Correa
21	<i>Cyathea australia</i> Rough Tree-fern
22	<i>Cyathea cunninghamii</i> (v) Slender Tree-fern
23	<i>Cyathea X marcescens</i> (v) Skirted Tree-fern
24	<i>Dianella tasmanica</i> Tasman Flax-lily
25	<i>Dicksonia antarctica</i> Soft Tree-fern
26	<i>Elaeocarpus holopetalus</i> Black Oliveberry
27	<i>Elaeocarpus reticulatus</i> Blue Oliveberry
28	<i>Eucalyptus cypellocarpa</i> Mountain Grey Gum
29	<i>Eucalyptus denticulata</i> (r) Errinundra Shining Gum
30	<i>Eucalyptus elata</i> River Peppermint
31	<i>Eucalyptus fastigata</i> Cut-tail
32	<i>Eucalyptus obliqua</i> Messmate
33	<i>Eucalyptus smithii</i> Gully Gum
34	<i>Eustrephus latifolius</i> Wombat Berry
35	<i>Exocarpos cupressiformis</i> Cherry Ballart
36	<i>Fieldia australia</i> Fieldia
37	<i>Gahnia melanocarpa</i> Black-fruit Saw-sedge
38	<i>Goodenia ovata</i> Hop Goodenia
39	<i>Grammitis billardieri</i> Common Finger-fern
40	<i>Hedycarya angustifolia</i> Austral Mulberry
41	<i>Histiopteris incisa</i> Bat's Wing Fern
42	<i>Hydrocotyle geraniifolia</i> Forest Pennywort
43	<i>Hymenophyllum australe</i> Austral Filmy Fern
44	<i>Hymenophyllum flabellatum</i> Shiny Filmy-fern
45	<i>Kennedia rubicunda</i> Dusky Coral-pea
46	<i>Lasiopetalum macrophyllum</i> Shrubby Velvet-bush
47	<i>Lastreopsis acuminata</i> Shiny Shield-fern
48	<i>Lastreopsis hispida</i> (r) Bristly Shield-fern
49	<i>Marsdenia rostrata</i> Milk-vine
50	<i>Microsorium pustulatum</i> Kangaroo Fern
51	<i>Microsorium scandens</i> Fragrant Fern
52	<i>Morinda jasminoides</i> Jasmine Morinda
53	<i>Notelaea venosa</i> Large Mock-olive
54	<i>Olearia argophylla</i> Musk Daisy-bush
55	<i>Onopordum acanthium</i> Scotch Thistle
56	<i>Oxylobium arborescens</i> Tall Oxylobium
57	<i>Pandorea pandorana</i> Wonga Vine
58	<i>Parsonsia brownii</i> Twining Silkpod
59	<i>Passiflora cinnabarina</i> Red Passion-flower
60	<i>Pimelea axiflora</i> Bootlace Bush
61	<i>Pittosporum bicolor</i> Banyalla
62	<i>Pittosporum undulatum</i> Sweet Pittosporum
63	<i>Podarris aspera</i> Hazel Podarris
64	<i>Polyphlebium venosum</i> Veined Bristle-fern
65	<i>Polyscias sambucifolia</i> Eldeberry Panax
66	<i>Polystichum proliferum</i> Mother Shield-fern
67	<i>Prostanthera lasianthos</i> Victorian Christmas-bush
68	<i>Pyrosia rupestris</i> Rock Felt-fern
69	<i>Rapanea howittiana</i> Muttonwood
70	<i>Rubus fruticosus</i> sp. Blackberry
71	<i>Rubus hillii</i> Queensland Bramble
72	<i>Rubus rosifolius</i> Rose-leaf Bramble
73	<i>Rumohra adiantiformis</i> Leathery Shield-fern
74	<i>Sambucus gaudichaudiana</i> White Elderberry
75	<i>Sarcochilus australis</i> Butterfly Orchid
76	<i>Sarcopetalum harveyanum</i> Pearl Vine
77	<i>Smilax australis</i> Austral Sarsaparilla
78	<i>Solanum prinophyllum</i> Forest Nightshade
79	<i>Syzygium smithii</i> Lilly Pilly
80	<i>Tasmania lanceolata</i> Mountain Pepper
81	<i>Telopea oreades</i> Gippsland Waratah
82	<i>Tetrarrhena juncea</i> Forest Wire-grass
83	<i>Tmesipteris obliqua</i> Long Fork-fern
84	<i>Tmesipteris parva</i> (r) Small Fork-fern
85	<i>Tylophora barbata</i> Bearded Tylophora
86	<i>Uncinia nemoralis</i> (r) River Hook-sedge
87	<i>Uncinia tenella</i> Delicate Hook-sedge
88	<i>Urtica incisa</i> Scrub Nettle
89	<i>Viola hederacea</i> Ivy-leaf Violet
90	<i>Xerochrysum bracteatum</i> Golden Everlasting
91	<i>Zieria arborescens</i> Stinkwood

<b>Conservation Status Legend:</b>	Listed as Threatened	Flora and Fauna Guarantee Act (1988)
(r: rare; v: vulnerable)	Rare or Threatened	Advisory List of Rare or Threatened Plants in Victoria (2014)

## Results 2 – Rare and Threatened plant photographs; Figures 1(a-f).

Figure 1(a). *Lastreopsis hispida* (Bristly Shield-fern) at: [55 H 655296 // 5842510](#) (GDA94 UTM)



Figure 1(b). *Cephalomanes caudatum* (Jungle Bristle-fern) at: [55H 655517 // 5842502](#); [55H 655144 // 5842358](#) (GDA94 UTM)





## Results 2 – Rare and Threatened plant photographs; Figures 1(a-f).

Figure 1(c). *Cyathea cunninghamii* (Slender Tree-fern) at various locations including: 55H 655891 5842511; 55H 655215 5842479; 55H 655079 5842528; 55H 655133 5842506; 55H 655987 5842245; 55H 655090 5842503 (GDA94 UTM). Indicative photo from study site [see Results 3. Figure 3.]



Figure 1(d). *Cyathea X marcescens* (Skirted Tree-fern) at various locations including: 55H 655133 5842506; 56H 655879 5842513; 57H 654951 5842554; 55H 655455 5842455 (GDA94 UTM). Indicative photo from study site [see Results 3. Figure 3.]



## Results 2 – Rare and Threatened plant photographs; Figures 1(a-f).

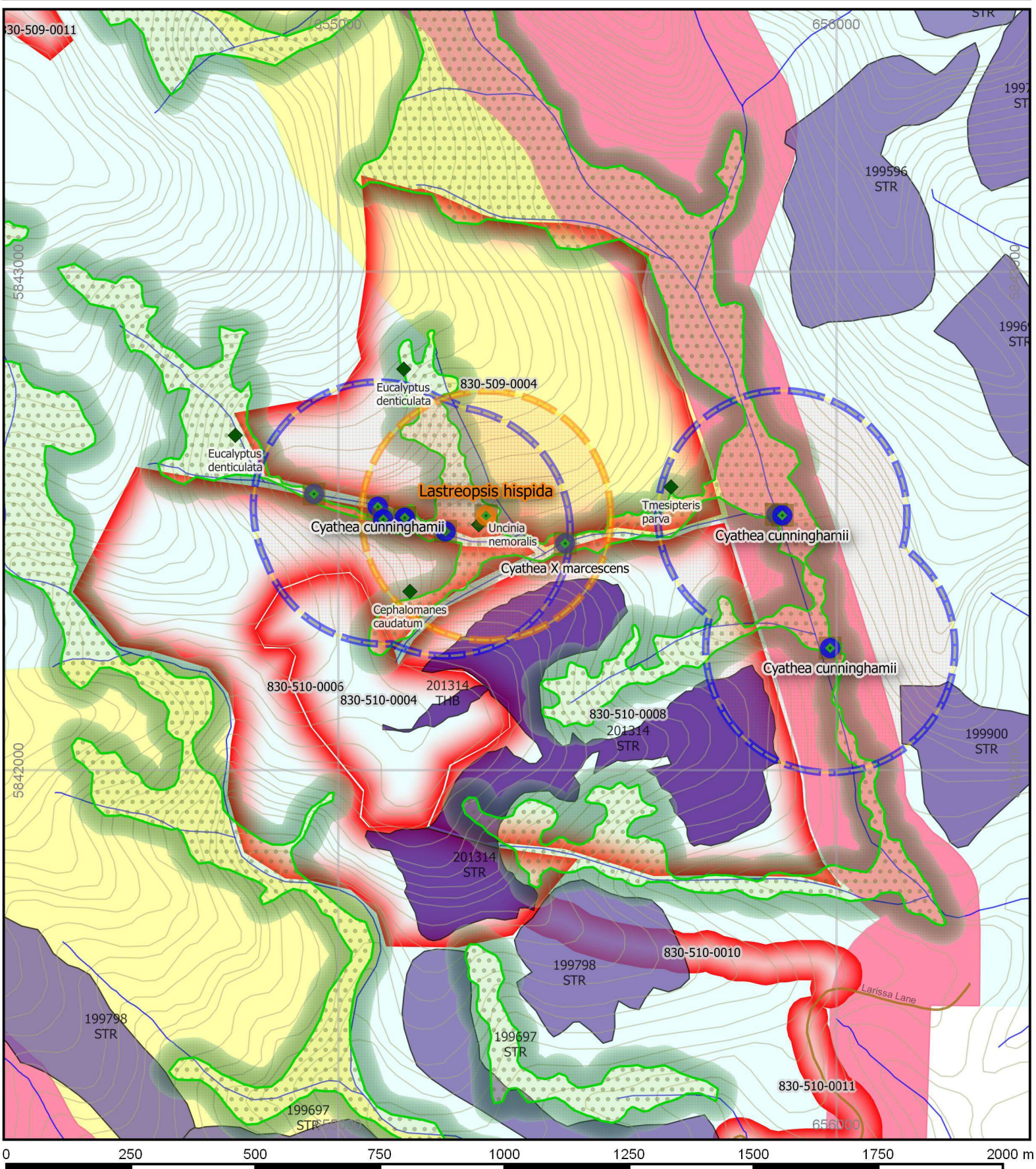
Figure 1(e). *Tmesipteris parva* (Small Fork-fern) at various locations including [55H.0655668.5842568](#) (GDA94 UTM)



Figure 1(f). *Uncinia nemoralis* (River Hook-sedge) at various locations including [55 H.0655282.5842493](#) (GDA94 UTM)



Results 3. Figure 2. Larissa Lane - Rare or Threatened Plant Detections; Bristly Shield-fern & Slender Tree-fern 250m SPZ Buffers; Forest Management Zoning [DEPI, June, 2014]; Prior logging history [DELWP; April, 2015]; Roads, Watercourses, Contours



**Legend**

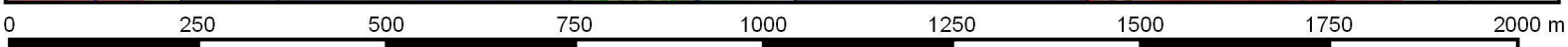
Lastreopsis hispida (Bristly Shield-fern)	250m buffer on C. cunninghamii	General Management Zone
Cyathea cunninghamii (Slender Tree-fern)	Potential Rainforest Extent (modelled)	Roads
Cyathea X marcescens (Skirted Tree-fern)	40m Buffer on Potential Rainforest Extent	Watercourses
Rare plants	<b>Forest Management Zones [DEPI; June 2014; FMZ100]</b>	Contours
250m buffer on L. hispida	Special Protection Zone	Timber Release Plan (VicForests) [Approved_TRP_April2015]
	Special Management Zone	

Prior Logging History [DELWP; April 2015; LASTLOG25]

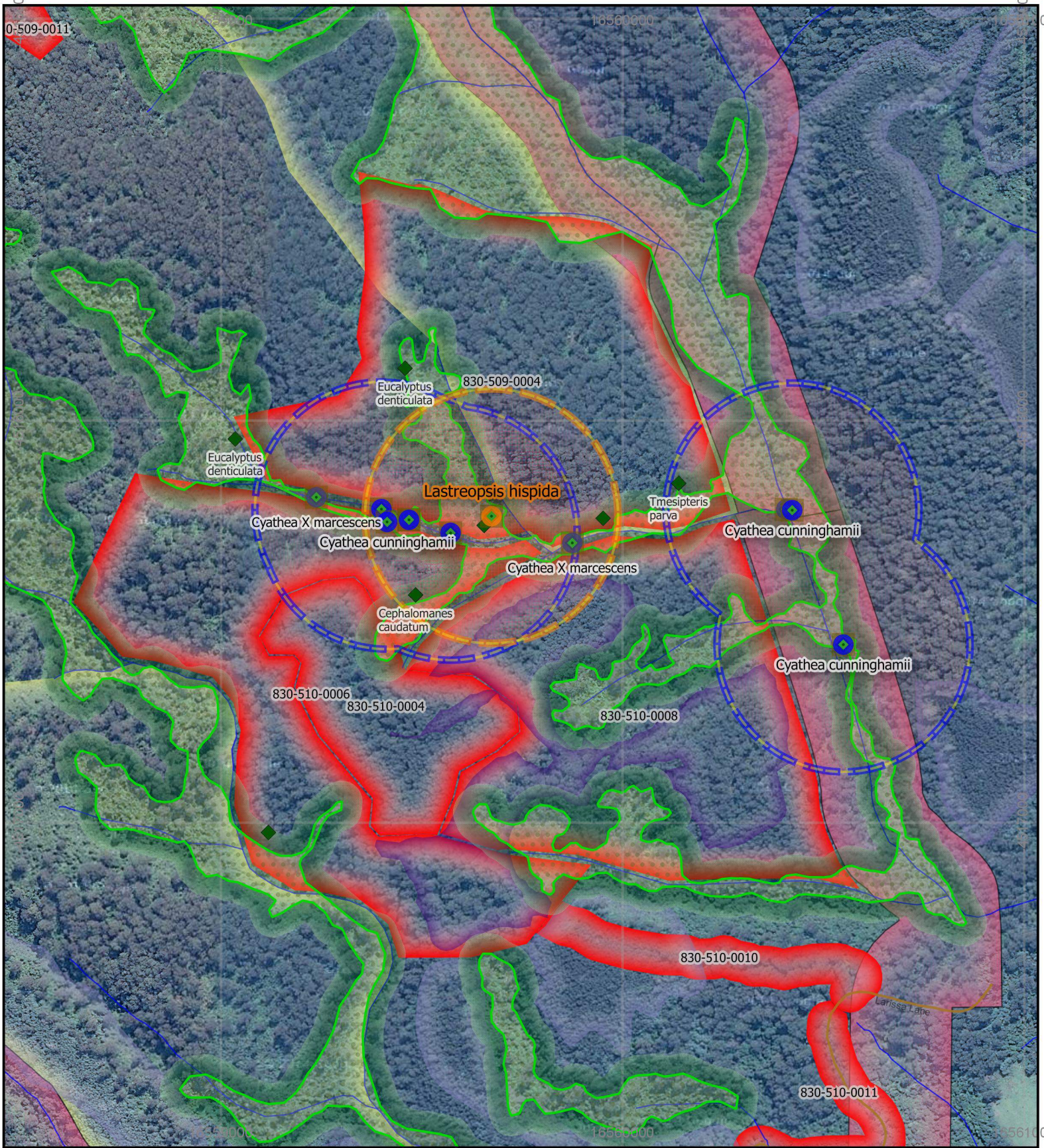
	199394
	199596
	199697
	199798
	199900
	201314

Projection: EPSG: 28355  
GDA94/MGA Zone 55

Map Scale:  
**1:10,000**



Results 3. Figure 3. Larissa Lane - Rare or Threatened Plant Detections; Bristly Shield-fern & Slender Tree-fern 250m SPZ Buffers; Forest Management Zoning [DEPI, June, 2014]; Prior logging history [DELWP; April, 2015]; Roads, Watercourses, Satellite



**Legend**

Lastreopsis hispida (Bristly Shield-fern)	250m buffer on C. cunninghamii	Special Management Zone
Cyathea cunninghamii (Slender Tree-fern)	Potential rainforest extent (modelled)	General Management Zone
Cyathea X marcescens (Skirted Tree-fern)	40m buffer on potential rainforest extent	Roads
Rare plants	<b>Forest Management Zones [DEPI; June 2014; FMZ100]</b>	Watercourses
250m buffer on L. hispida	Special Protection Zone	Timber Release Plan (VicForests) [Approved_TRP_April2015]

**Prior Logging History [DELWP; April 2015; LASTLOG25]**

	196970
	197980
	198990
	199900
	200910
	201314

**Projection: EPSG: 3857  
WGS 84 Pseudo Mercator**

**Map Scale:  
1:12,500**

## Discussion/Conclusions/Recommendations

### Considering the following management prescriptions

From: “Code of Practice for Timber Production 2014, Department of Environment and Primary Industries, The State of Victoria, 2014”<sup>6</sup>

#### Mandatory Actions

##### Addressing biodiversity conservation risks considering scientific knowledge

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

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

From: “Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014”<sup>7</sup>

#### 4.5 Flora – detection based zoning

##### 4.5.2 East Gippsland FMA

4.5.2.1 Include all verified populations of species regarded as threatened at a State or national level in the SPZ or SMZ.

4.5.2.2 Include substantial representative populations of species that are rare in Victoria, and poorly known, have few records or are at the edge of their range in East Gippsland in the SPZ or SMZ.

4.5.2.3 Wherever practicable include populations in larger parts of the SPZ or SMZ in combination with other values.

**Table 5 Detection based FMZ rules for flora.**<sup>8</sup>

FMA	Common name	Scientific name	Zoning management actions	Management actions	Review
East Gippsland	Slender Tree-fern	Cyathea cunninghamii	Establish a SMZ of 250 m radius over verified populations.	Conduct a site inspection and detailed planning in consultation with DEPI to ensure the species is adequately protected during timber harvesting operations.	

### Rare and Threatened flora detection records

#### Lastreopsis hispida (Bristly Shield-fern)

1. *Lastreopsis hispida* was identified and recorded from within VicForests scheduled logging coupe 830-509-0004 (adjacent to coupes 830-510-0006, 830-510-0008 and 830-510-0004) at the locations displayed as the “orange circle” symbols in Results 3. Figure 2. above.
2. *Lastreopsis hispida* is considered “rare” in Victoria according to the Department of Environment, Land, Water and Planning (DELWP) “Advisory list of rare or threatened plants in Victoria – 2014”.<sup>9</sup>

<sup>6</sup> Code of Practice for Timber Production 2014, pp. 11, 21, 23, 31-32, 34-35

<sup>7</sup> Planning Standards, pp. 16, 69, 71, 78

<sup>8</sup> Planning Standards, “Table 5 Detection based FMZ rules for flora”, p. 71, 78

<sup>9</sup> [http://www.depi.vic.gov.au/\\_\\_data/assets/pdf\\_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf](http://www.depi.vic.gov.au/__data/assets/pdf_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

3. The Victorian Biodiversity Atlas (VBA) records *Lastreopsis hispida* as occurring within the Otway region of Western Victoria as well as less than 50 records to the east of Melbourne in the region predominantly between Bunyip and Powelltown east to Jindivick.
4. The *Lastreopsis hispida* identification at the location within this investigation was supported by staff at the “Identifications and Information Service, Royal Botanic Gardens Victoria” in May 2015. (The species' specific identification was first obtained using multiple literary fern identification sources and by latter comparison with plants from known locations in the Bunyip State Forest area to the east of Melbourne).
5. The discovery of *Lastreopsis hispida* at the location within this investigation constitutes a significant extension to the previously known range of this species and is a range extension of around 260 km east-north-east of the known populations to the east of Melbourne.
6. The existence of this significant rare species presence at this location is not apparently known to either VicForests or DELWP. This implication is inferred through considering the absence of any flora records of this species on the VBA and the lack of any responsive management zoning present on the Forest Management Zone Scheme (FMZ\_100 and/or FMZ\_100MAP) or via <http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=forestexplorer>.
7. The “Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014” (section 4.5.2.2) requires that this *substantial representative population of Lastreopsis hispida, been rare in Victoria and at the edge of its range in East Gippsland* must be “[included ]in the SPZ or SMZ”.
8. These measures have not occurred and logging operations have occurred in nearby coupe 830-510-0008 and less than 200m from the *Lastreopsis hispida* records identified within this investigation.
9. The failure of both VicForests and DELWP to detect and adaptively manage for this significant conservation value in an appropriate way constitutes a serious breach of planning and operational obligations to abide by the 'precautionary principle' as mandated in the *Code of Practice for Timber Production 2014*.
10. As a regulator of operations within Victoria's State Forests, and notwithstanding DELWP's own failure to ensure abidance to the 'precautionary principle' by VicForests, DELWP must prosecute VicForests for not abiding by these mandatory principles and prescriptions.
11. DELWP must restrain VicForests from further logging in the area of this *Lastreopsis hispida* detection including within coupes 830-509-0004, 830-510-0006, 830-510-0004 and 830-510-0008 as well as any additional surrounding areas.
12. A thorough search for the presence of and evaluation of the extent and population health of *Lastreopsis hispida* must be undertaken at least within the Arte River catchment of the Kuark Forest Block from which these records have been obtained.
13. A full investigation into the regional conservation status of the species must be undertaken by appropriately qualified persons with appropriate botanical and ecological expertise in addition to a thorough assessment of the environmental impacts of further disturbance on the

population, including the already completed and scheduled logging operations within this area, and serious protective management prescriptions must be incorporated within the regulatory framework governing forest management in Victoria.

IN ADDITION

14. *Lastreopsis hispida* remains an extremely restricted species, at least in eastern Victoria, in terms of known population distribution, with very few records listed on the Victorian Biodiversity Atlas. The 2009 wildfires in the Central Highlands of Victoria in the Bunyip Forest area impacted upon the only other eastern Victorian stands of *Lastreopsis hispida*. While listed as 'rare' on the DELWP 'advisory list' this species is not currently 'listed' under the Flora and Fauna Guarantee Act Threatened List and, if has not already occurred, or in light of this new information, should be considered for such listing.

*Cyathea cunninghamii* (Slender Tree-fern) & *Cyathea X marcescens* (Skirted Tree-fern)

15. *Cyathea cunninghamii* and *Cyathea X marcescens* were identified and recorded from within and/or adjacent to VicForests scheduled logging coupes 830-509-0004, 830-510-0006, 830-510-0004 and 830-510-0008 at the locations displayed as the “blue and grey circle” symbols in Figure 2. in Results 3 above.
16. *Cyathea cunninghamii* and *Cyathea X marcescens* are considered “vulnerable” in Victoria according to the Department of Environment, Land, Water and Planning (DELWP) “Advisory list of rare or threatened plants in Victoria – 2014”.<sup>10</sup>
17. The existence of these vulnerable species at this location was not apparently known to either VicForests or DELWP. This implication is inferred through considering the absence of any flora records of this species on the VBA and the lack of any responsive management zoning present on the Forest Management Zone Scheme (FMZ\_100 and/or FMZ\_100MAP) or via <http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=forestexplorer>.
18. The “Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014” (section 4.5.2.1) requires that all verified populations of *Cyathea cunninghamii* be “[included] in the SPZ or SMZ”. Further, these “Planning Standards” require that on detection of verified *Cyathea cunninghamii* records, an SMZ of 250m radius must be established over each population.
19. These measures have not occurred and logging operations have occurred in nearby coupe 830-510-0008 and less than 200m from at least two of the *Cyathea cunninghamii* records identified within this investigation.
20. The failure of both VicForests and DELWP to detect and adaptively manage for these significant conservation values in an appropriate way constitutes a serious breach of planning and operational obligations to abide by the 'precautionary principle' as mandated in the *Code of Practice for Timber Production 2014* and to adhere to section 4.5.2.1 of the “Planning Standards for timber harvesting operations in Victoria’s State forests 2014, Appendix 5 to the Management Standards and Procedures for timber harvesting operations in Victoria’s State forests 2014”.

---

<sup>10</sup> [http://www.depi.vic.gov.au/\\_\\_data/assets/pdf\\_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf](http://www.depi.vic.gov.au/__data/assets/pdf_file/0005/277565/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf)

21. As a regulator of operations within Victoria's State Forests, and notwithstanding DELWP's own failure to ensure abidance to the 'precautionary principle' by VicForests, DELWP must prosecute VicForests for not abiding by these mandatory principles and prescriptions.
22. DELWP must restrain VicForests from further logging in the area of these *Cyathea cunninghamii* and *Cyathea X marcescens* records including within coupes 830-509-0004, 830-510-0006, 830-510-0004 and 830-510-0008 as well as any additional surrounding areas where the species is present.
23. A thorough search for the presence of and evaluation of the extent and population health of *Cyathea cunninghamii* and *Cyathea X marcescens* must be undertaken within any further areas where VicForests intends to log and the species presence is possible.
24. All records of *Cyathea cunninghamii* and *Cyathea X marcescens* should be placed in a Special Protection Zone of a minimum 250m buffer from which logging is excluded around each record and, where the record is located along a watercourse, that watercourse should be buffered by a minimum 100m vegetated buffer for a minimum of 1km up and down stream.

Additional 'rare' plant species: *Uncinia nemoralis* (River Hook-sedge)  
*Cephalomanes caudatum* (Jungle Bristle Fern)  
*Tmesipteris parva* (Small Fork Fern)  
*Eucalyptus denticulata* (Errinundra Shinning Gum)

25. The following four 'rare' plants were also identified as present within and/or adjacent to coupes 830-509-0004, 830-510-0006, 830-510-0008 and 830-510-0004:
  - *Uncinia nemoralis* (River Hook-sedge)
  - *Cephalomanes caudatum* (Jungle Bristle Fern)
  - *Tmesipteris parva* (Small Fork Fern)
  - *Eucalyptus denticulata* (Errinundra Shinning Gum)
26. Each of the plants identifies as present on site and listed as 'rare' should be given a minimum 100m vegetative buffer around each of the detection location shown in Figure 2. of the Results 3. section above, and any other locations where these species are found throughout Victoria's State Forests subject to logging.





## Overlap Rainforest

27. Most of the species identified within this report, as listed in Results 1. Table 1., were found within or adjacent to the rainforest stand(s) identified at this location. This rainforest is constituted by elements of each of the following communities:
- Cool Temperate Rainforest (CTRF);
  - Warm Temperate Rainforest (WTRF), and;
  - Cool Temperate Rainforest/Warm Temperate Rainforest Overlap (CTRF/WTRF Overlap Rainforest)
28. The presence of all of these floristic communities contributes significantly to the extremely high conservation values identified within the investigation location. CTRF is 'listed' as a threatened community in Victoria, WTRF is considered 'rare', and CTRF/WTRF Overlap Rainforest, while only considered as 'rare' in East Gippsland is known to occupy (according to publicly available Victorian Government spatial data) only about 250 hectares in all of Victoria. The confluence of these communities accounts for the rainforest canopy co-dominance and overlap of the rainforest species such as Southern Sassafras (*Atherosperma moschatum*), Lilly Pilly (*Syzygium smithii*) and Black Olive-berry (*Elaeocarpus holopetalus*) among others.
29. Given the rare and threatened nature of these communities, the extremely rare presence of CTRF/WTRF Overlap rainforest, the presence of multiple rare and threatened rainforest dependant plant species, including *Lastreopsis hispida* occurring 260km outside of its known range in Victoria, no further logging should be undertaken within the Arte River catchment area considered in this investigation and the presence of these communities should be assessed for inclusion in the Victorian Government's "Rainforest Site of Significance" register.



