

## INVESTIGATION REPORT

# HIGH DENSITY RECORDING OF GREATER GLIDERS (*Petauroides volans*)

## COTTONWOOD RANGE ROAD – TUCKER CREEK

VicForests' Logging Coupes:  
895-509-0004, 895-509-0006 and 895-509-0007

### Abstract

Forest areas within and/or adjacent to VicForests scheduled logging coupes 895-509-0004, 895-509-0006 and 895-509-0007 were investigated to assess the presence and density of Greater Glider (*Petauroides volans*) individuals and other nocturnal fauna.

Large numbers of Greater Glider individuals were recorded from this location during nocturnal spotlighting survey.

The Greater Glider records obtained within the survey of this investigation were assessed using spatial analysis which demonstrated high densities of Greater Gliders requiring protection under the relevant mandatory biodiversity conservation measures set out in the regulatory framework governing logging operations in Victoria's State Forests.

Further, Greater Glider records made within this report on the edge of recently logged coupe 895-509-0004 and contiguous with those in scheduled coupe 895-509-0006 form a high density of Greater Glider area which has now been logged in part in breach of the regulatory framework's requirement to establish a 100ha Special Protection Zone for this biodiversity conservation value.

Recommendations are made to the Department of Environment, Land, Water and Planning (DELWP) and to VicForests to ensure that the areas of high Greater Glider densities are protected from logging through their inclusion in the "Special Protection Zone" of the "Forest Management Zone Scheme". The methodology, results, discussion and recommendations arising from this investigation are further detailed within this report.

### 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
- Forest Management Plan For The East Gippsland Forest Management Area, Victoria Department of Conservation and Natural Resources, East Melbourne, December 1995

### Relevant Organisations

- VicForests

### Status of Site

Forest areas under investigation remain scheduled for logging.

### Date of Investigation

21/06/2016 - 22/06/2016

### Surveyors

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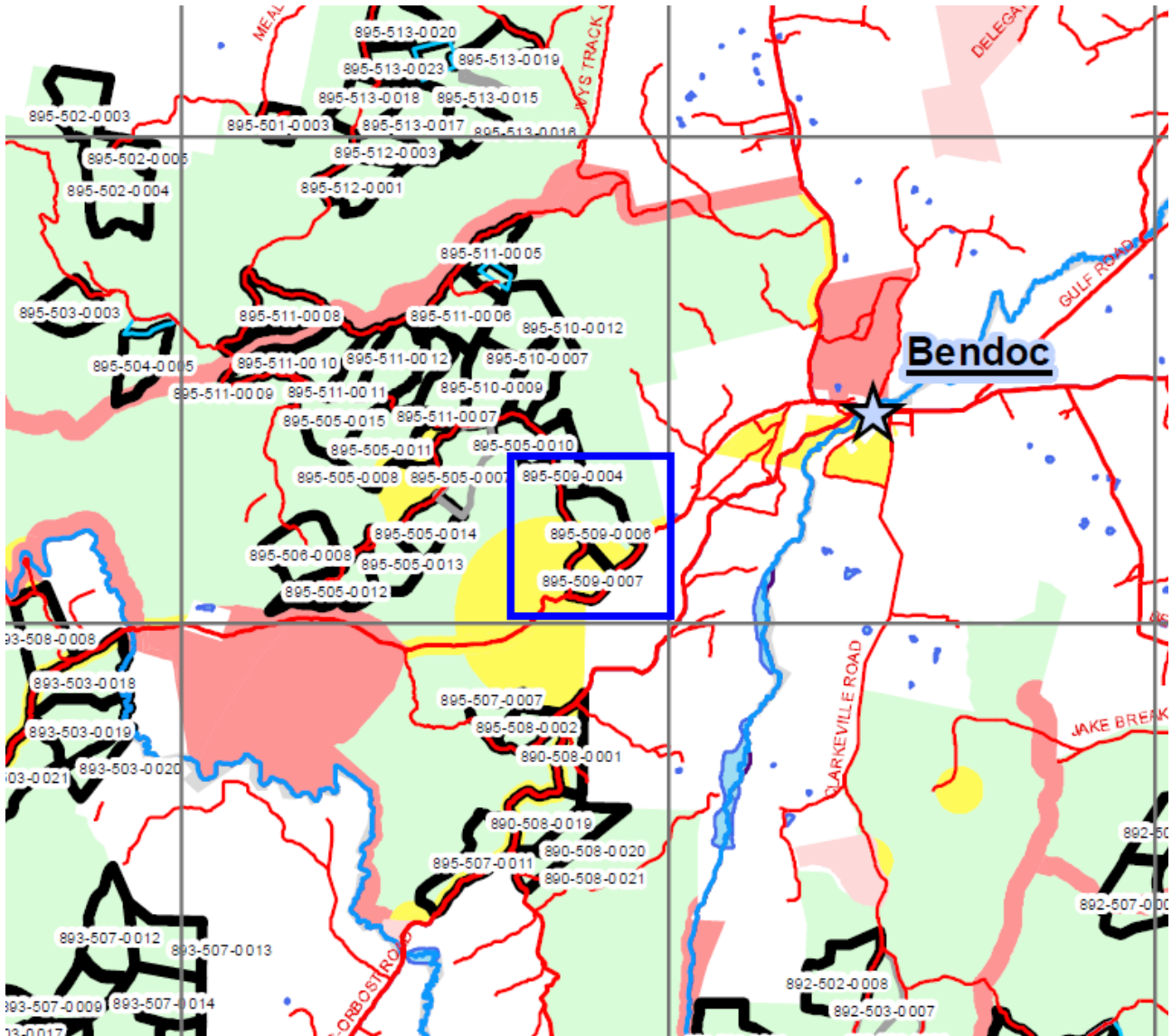
### Date of report

23/06/2016

## Study Location Overview

Within and adjacent to VicForests scheduled logging coupes 895-509-0004, 895-509-0006 and 895-509-0007 off Cottonwood Range Road and Old Bonang-Bendoc Road in the Cottonwood Forest Block near Bendoc in East Gippsland.

Figure A(i). Detail from: "Approved Timber Release Plan 2013 - 2016 Change Map; August 2015 (with all approved amendments applied) Bendoc, VicForests, 31 August 2015



\*Investigation location within blue box

## Method 1 - Nocturnal Fauna Spotlighting Survey

Nocturnal Fauna Surveys [27/09/2015; 30/09/2015; 01/10/2015; 03/10/2015; 04/10/2015]

### *Equipment Used*

- Hand-held Spotlight
- Binoculars
- Digital Camera
- Global Positioning System (GPS)  
[Garmin GPSMAP 62s]
- Compass, pen and paper

### *Method - General*

1. On the night of 21 June and morning of 22 June 2016 a spotlighting survey was undertaken from approximately 07:30pm in the Cottonwood Forest Block to the West of Bendoc in East Gippsland. Surveying commenced from Cottonwood Range Road and headed east into the forest within coupes 895-509-0006 around the locations shown in the map of Figure 2. within this report. The approximate survey transect is shown in Figure 2. as the "brown and white-dashed" line.
2. The forest visible from the survey transect shown in Figure 2. was searched for the presence of nocturnal fauna principally by shining a hand-held spotlight to detect fauna movement or "eye shine".
3. Additional Greater Gliders were observed along Old Bonang-Bendoc Road within scheduled coupe 895-509-0007.
4. As fauna were observed their locations were marked with a GPS and time, species, bearing from and an approximate estimate of the distance from observation location were noted where applicable.

**See the Table in "Results 1" below for details of the fauna encountered.**

5. Fauna record location data were analysed using Geographic Information Systems (GIS) mapping software to determine compliance requirements with the regulatory framework governing logging operations in Victoria's State Forest with respect to fauna detection based biodiversity conservation measures.
6. Further presentation of these results, as well as conclusions and discussion arising from this investigations results are provided in their relevant sections below.

## Method 2 - analysis/recommendations/legislation considered [as at August 2015]

From: “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.<sup>1</sup>

### “2. Planning and Record Keeping

#### 2.1 FMZ and planning information

2.1.1.3 Where evidence of a value that requires protection via the establishment or amendment of an SPZ or SMZ is found in the field application must be made to the Secretary or delegate prior to commencement of the timber harvesting operation to create or amend an SPZ or SMZ in accordance with Appendix 5 the Planning Standards. SMZ applications must be accompanied by an SMZ plan and must be complied with during timber harvesting operations.

### 4. Biodiversity

#### 4.2 Fauna

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

**Table 13 Rare or threatened fauna and invertebrate prescriptions.**

FMA	Common name	Scientific name	Management action
East Gippsland	Greater Glider	<i>Petauroides volans</i>	Where evidence of this value is found in the field follow clause 2.1.1.3 of this document using table 4 in Appendix 5 the Planning Standards for information.

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>2</sup>

### “4. Biodiversity

#### 4.2 Fauna – fixed zoning

##### 4.2.1 Statewide

4.2.1.1 Plan management actions for rare and endangered fauna in accordance with Table 3 (Fixed FMZ rules for fauna) below.

4.2.1.2 Maintain FMZ schemes for rare and endangered fauna in accordance with Table 3 (Fixed FMZ rules for fauna) below.

#### 4.3 Fauna - detection based zoning

##### 4.3.1 Statewide

4.3.1.1 Apply the management actions outlined in Table 4 (Detection based FMZ rules for fauna) below for zoned rare or threatened fauna.

4.3.1.2 Implement FMZ amendments and reviews in accordance with Table 4 (Detection based FMZ rules for fauna) below for new verified rare or threatened fauna records and FMZ amendment requirements outlined in section 2.

**Table 4 Detection based FMZ rules for fauna.**

FMA	Common name	Scientific name	Zoning management actions	Management actions	Review
East Gippsland	Greater Glider	<i>Petauroides volans</i>	Establish a SPZ of approximately 100 ha of suitable habitat where verified records report more than 2 individuals per hectare, more than 10 individuals per km or more than 15 individuals per hour of spotlighting, or where substantial populations are located in isolated or unusual habitat.		

1 “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, p. 23, 32, 36, 76, 79

2 “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, pp. 16, 17, 20, 43

## **"Chapter 3 BIODIVERSITY CONSERVATION**

### **3.4 - NATIVE FAUNA**

#### **CONSERVATION GUIDELINE 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.



<sup>3</sup> Forest Management Plan For The East Gippsland Forest Management Area, Victoria Department of Conservation and Natural Resources, East Melbourne, December 1995, p. 12, 27, 29, 30

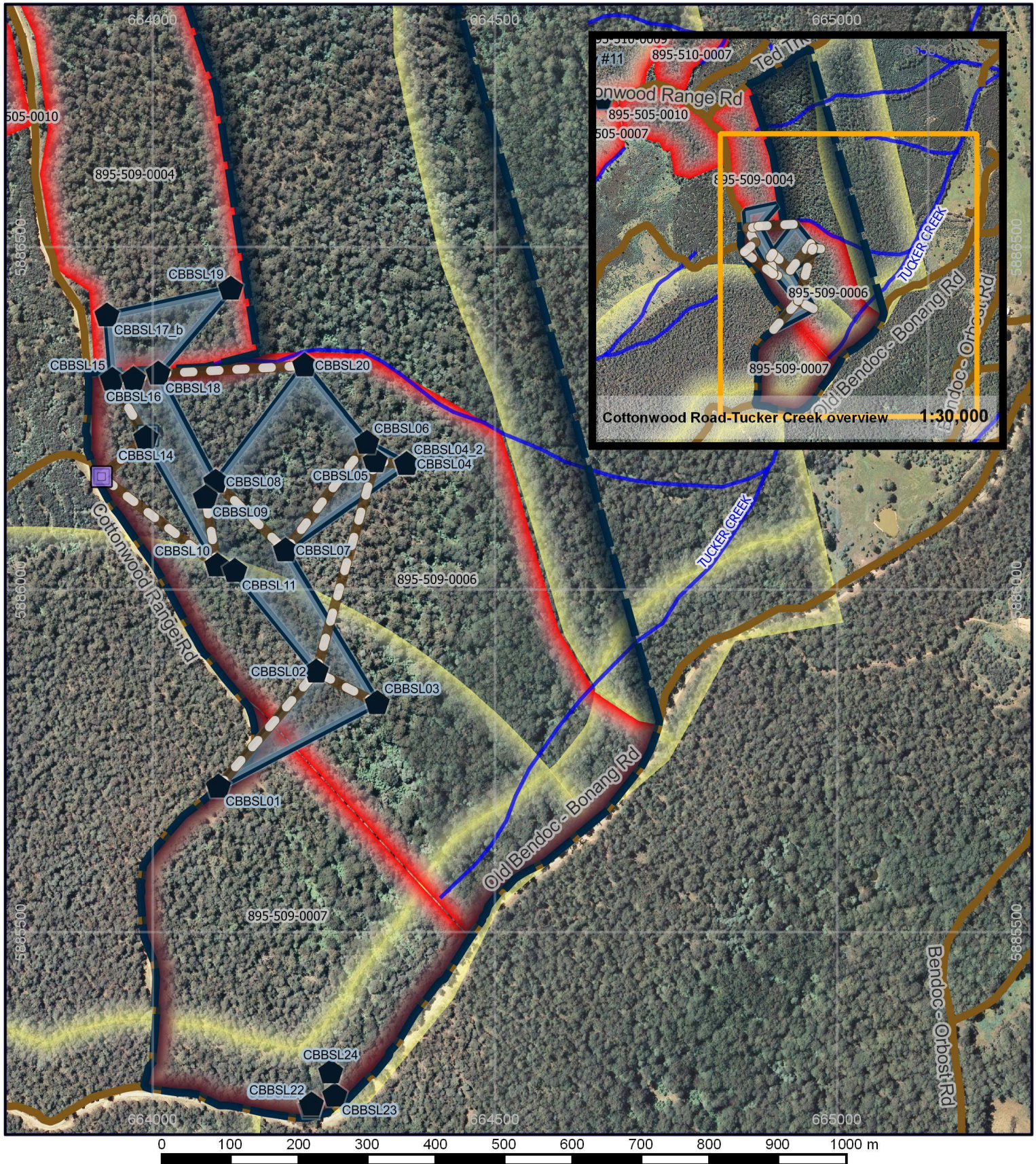
## Results 1 – Nocturnal Spotlighting Survey Results Table

Table 1. Cottonwood Range Road/Bonang-Bendoc Road Nocturnal Fauna Records – 21-22/06/2016

ID	Time	Waypoint	Recording Location	Species	Common Name	Type	Bearing	Distance	Animal Location (projected)	Animal Location ID	Minimum unique individuals (cumulative Tally)	Photo
1	19:39	CBBSL01	55 H 664096 5885701	<i>Petauroides volans</i>	Greater Glider	Visual	0°	11m	55 H 664096 5885712	CBBSL01	1	YES
2	20:00	CBBSL02	55 H 664239 5885880	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664239 5885880	CBBSL02	2	YES
3	20:08	CBBSL03	55 H 664309 5885851	<i>Petauroides volans</i>	Greater Glider	Visual	130°	25m	55 H 664328 5885834	CBBSL03	3	TREE
4	20:41	CBBSL04	55 H 664371 5886183	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664371 5886183	CBBSL04	4	YES
4b	20:41	CBBSL04b	55 H 664371 5886183	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664371 5886183	CBBSL04_2	5	YES
5	20:43	CBBSL05	55 H 664325 5886187	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664325 5886187	CBBSL05	6	YES
6	20:48	CBBSL06	55 H 664313 5886214	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664313 5886214	CBBSL06	7	YES
7	21:16	CBBSL07	55 H 664194 5886057	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664194 5886057	CBBSL07	8	YES
8	21:34	CBBSL08	55 H 664092 5886157	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664092 5886157	CBBSL08	9	YES
9	21:39	CBBSL09	55 H 664077 5886134	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664077 5886134	CBBSL09	10	YES
10	21:59	CBBSL10	55 H 664094 5886035	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664094 5886035	CBBSL10	11	YES
11	22:04	CBBSL11	55 H 664120 5886027	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664120 5886027	CBBSL11	12	YES
12	22:29	CBBSL12	55 H 663925 5886165	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum	Visual	N/A	0m	55 H 663925 5886165	CBBSL12		YES
13	22:42	CBBSL13	55 H 663993 5886225	<i>Trichosurus cunninghami</i>	Mountain Brush-tail Possum	Visual	N/A	0m	55 H 663993 5886225	CBBSL13		YES
14	22:46	CBBSL14	55 H 663990 5886221	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 663990 5886221	CBBSL14	13	YES
15	22:52	CBBSL15	55 H 663941 5886306	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 663941 5886306	CBBSL15	14	YES
16	22:53	CBBSL16	55 H 663972 5886307	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 663972 5886307	CBBSL16	15	YES
17	22:59	CBBSL17	(55 H 663966 5886322)	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 663933 5886400	CBBSL17_b	16	YES
18	23:04	CBBSL18	55 H 664008 5886315	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664008 5886315	CBBSL18	17	YES
19	23:13	CBBSL19	55 H 664133 5886405	<i>Petauroides volans</i>	Greater Glider	Visual	330°	40m	55 H 664114 5886439	CBBSL19	18	NO
20	23:23	CBBSL20	55 H 664222 5886327	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664222 5886327	CBBSL20	19	YES
21	00:14	CBBSL21	55 H 664231 5885244	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664231 5885244	CBBSL21	20	YES
22	00:20	CBBSL22	55 H 664232 5885248	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664232 5885248	CBBSL22	21	YES
23	00:21	CBBSL23	55 H 664266 5885261	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	0m	55 H 664266 5885261	CBBSL23	22	YES
24	00:25	CBBSL24	55 H 664259 5885254	<i>Petauroides volans</i>	Greater Glider	Visual	0°	40m	55 H 664260 5885295	CBBSL24	23	YES

NB: Bearing details of "N/A" and distance details of "0m" indicate waypoint record was obtained from the animal location. Records "CBBSL17\_b" and "CBBSL19" were detected from remnant trees in recently logged coupe 895-509-0004. Records "CBBSL21" to "CBBSL24" were made in close proximity to each other though forest areas near to these records in coupes 895-509-0006 and 895-509-0007 along Old Bonang-Bendoc Rd were not searched in a similar way to forest areas in the north of coupe 895-509-0006.

**Results 2 Figure 2.** Greater Glider Records and High Densities of Greater Gliders spotlighting survey transect and areas



**Legend**

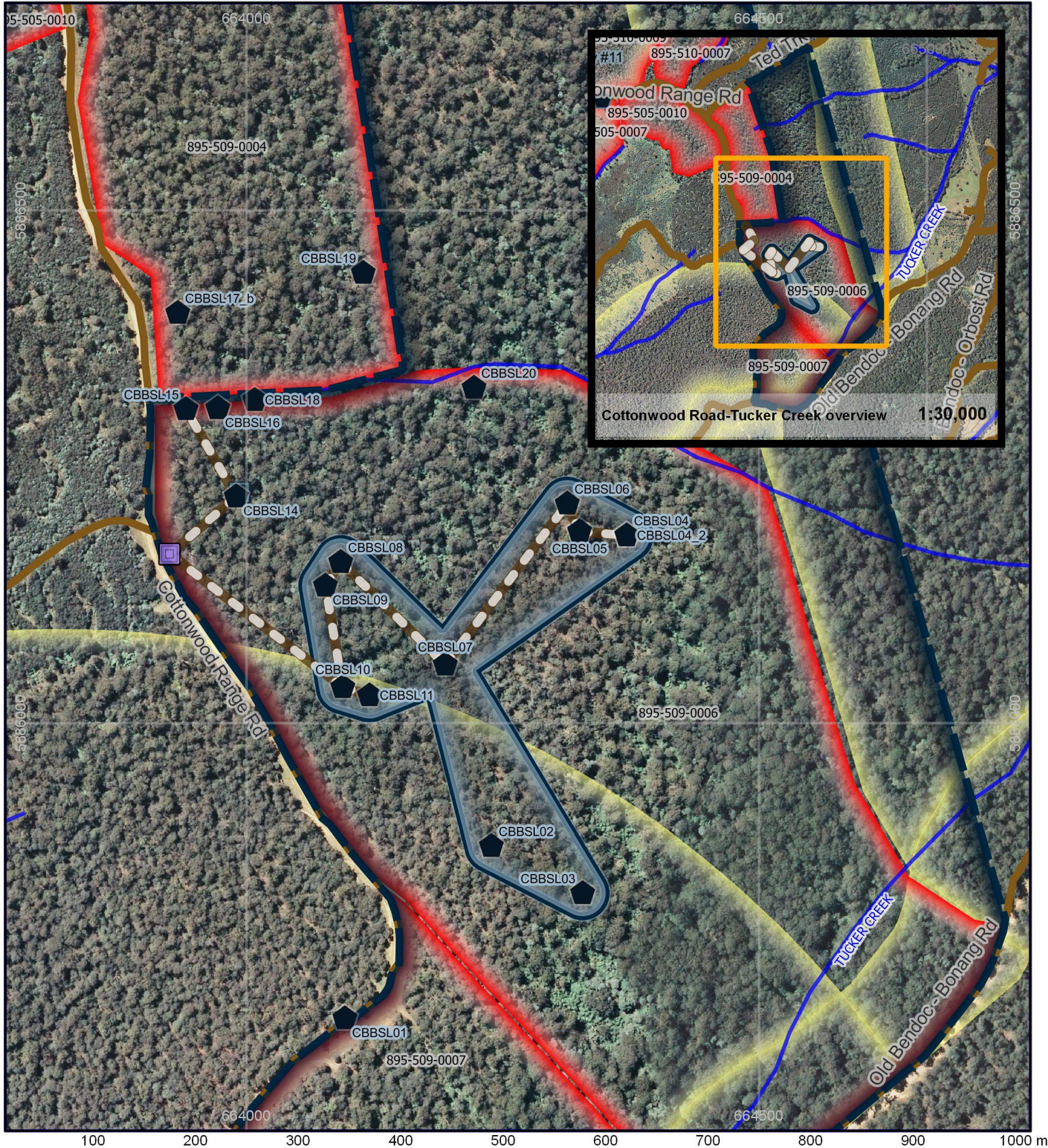
Greater Glider Record	High Density of Greater Gliders per/km (Approximate Survey Transect) [19 GG's over 1.89km @ 10.05 GG's p/km]	Forest Management Zones [Selected from FMZ100 DEPI; June 2014]
Mountain Brushtail Possum	100ha Special Protection Zone for High Density Greater Glider Area	Special Management Zone
Common Ringtail Possum	Scheduled logging Coupes Timber Release plan (TRP) [VicForests: August 2015]	General Management Zone
High Density of Greater Glider Area [19 GG's in 9.39ha @ 2.02 GG's p/ha]		Roads
		Watercourses

Projection: EPSG: 28355  
GDA94/MGA Zone 55




Map Scale:  
**1:7,500**

23 June 2016

**Results 2 Figure 3.** Greater Glider Records and High Densities of Greater Glider spotlighting survey transect and areas



**Legend**

-  Greater Glider Record
-  Mountain Brushtail Possum
-  Common Ringtail Possum
-  High Density of Greater Gliders per/km (Approximate Survey Transect) [11 GG's over 0.97km @ 11.34 GG's p/km]
-  High Density of Greater Glider Area [11 GG's in 5.37ha @ 2.05 GG's p/ha]
-  100ha Special Protection Zone for High Density Greater Glider Area
-  Scheduled logging Coupes Timber Release plan (TRP) [VicForests: August 2015]
-  Forest Management Zones [Selected from FMZ100 DEPI; June 2014]
-  Special Management Zone
-  General Management Zone
-  Roads
-  Watercourses

Projection: EPSG: 28355  
GDA94/MGA Zone 55

Map Scale:  
1:5,000



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**Results 3 - Photos: Greater Glider (*Petauroides volans*); Figures 4(a-f).**

Figure 4(a). Greater Glider (*Petauroides volans*)  
55 H 664096 5885712 (CBBSL01)



Figure 4(b). Greater Glider (*Petauroides volans*)  
55 H 664239 5885880 (CBBSL02)



Figure 4(c). Greater Glider (*Petauroides volans*) location  
after Glider left field of view. 55 H 664328 5885834 (CBBSL03)

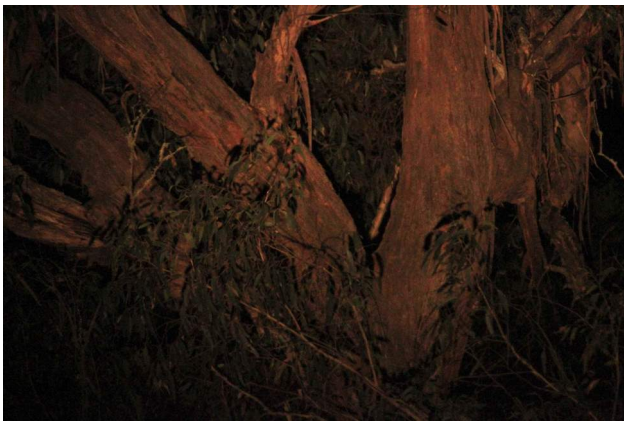


Figure 4(d). Greater Glider (*Petauroides volans*)  
55 H 664371 5886183 (CBBSL04)



Figure 4(e). Greater Glider (*Petauroides volans*)  
55 H 664371 5886183 (CBBSL04 2)

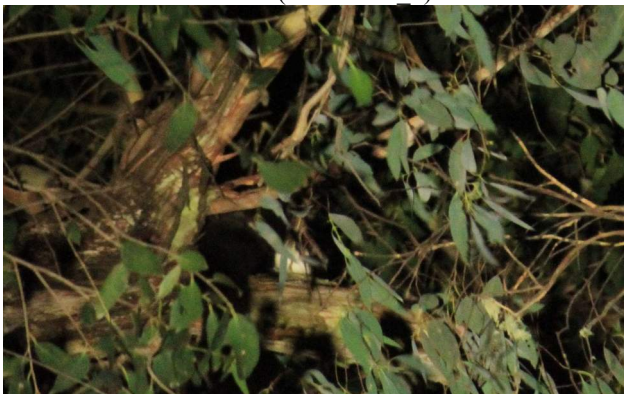


Figure 4(f). Greater Glider (*Petauroides volans*)  
55 H 664325 5886187 (CBBSL05)



**Results 3 - Photos: Greater Glider (*Petauroides volans*); Figures 4(g-l).**

Figure 4(g). Greater Glider (*Petauroides volans*)  
55 H 664313 5886214 (CBBSL06)



Figure 4(h). Greater Glider (*Petauroides volans*)  
55 H 664194 5886057 (CBBSL07)



Figure 4(i). Greater Glider (*Petauroides volans*) location  
55 H 664092 5886157 (CBBSL08)



Figure 4(j). Greater Glider (*Petauroides volans*)  
55 H 664077 5886134 (CBBSL09)

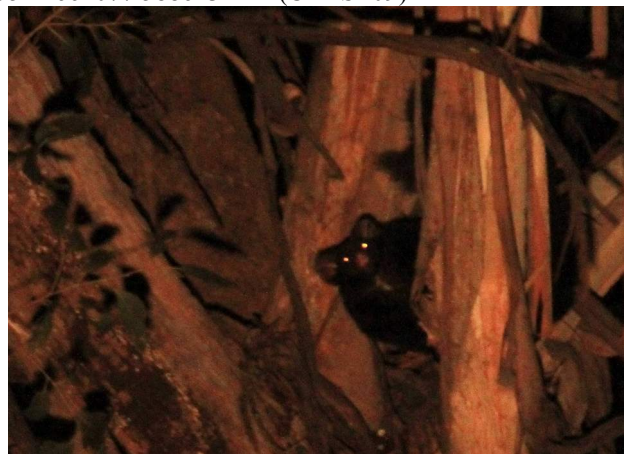


Figure 4(k). Greater Glider (*Petauroides volans*)  
55 H 664094 5886035 (CBBSL10)



Figure 4(l). Greater Glider (*Petauroides volans*)  
55 H 664120 5886027 (CBBSL11)



**Results 3 - Photos: Greater Glider (*Petauroides volans*); Figures 4(m-r).**

Figure 4(m). Greater Glider (*Petauroides volans*)  
55 H 663990 5886221 (CBBSL14)



Figure 4(n). Greater Glider (*Petauroides volans*)  
55 H 663941 5886306 (CBBSL15)



Figure 4(o). Greater Glider (*Petauroides volans*) location  
55 H 663972 5886307 (CBBSL16)



Figure 4(p). Greater Glider (*Petauroides volans*)  
55 H 663933 5886400 (CBBSL17 b)



Figure 4(q). Greater Glider (*Petauroides volans*)  
55 H 664008 5886315 (CBBSL18)



Figure 4(r). Greater Glider (*Petauroides volans*)  
55 H 664222 5886327 (CBBSL20)



**Results 3 - Photos: Greater Glider (*Petauroides volans*) et. al. ; Figures 4(s-x).**

Figure 4(s). Greater Glider (*Petauroides volans*)  
55 H 664231 5885244 (CBBSL21)



Figure 4(t). Greater Glider (*Petauroides volans*)  
55 H 664232 5885248 (CBBSL22)



Figure 4(u). Greater Glider (*Petauroides volans*) location  
55 H 664266 5885261 (CBBSL23)



Figure 4(v). Greater Glider (*Petauroides volans*)  
55 H 664260 5885295 (CBBSL24)



Figure 4(w). Common Ringtail Possum (*Pseudocheirus peregrinus*)  
55 H 664266 5885261 (CBBSL12)



Figure 4(x). Mountain Brush-tail Possum (*Trichosurus cunninghami*)  
55 H 664260 5885295 (CBBSL13)



## Summary/Conclusions/Discussion

### High-density of Greater Gliders (*Petauroides volans*)

1. Within and adjacent to VicForests scheduled logging coupes 895-509-0004, 895-509-0006 and 895-509-0007 large numbers of Greater Gliders (*Petauroides volans*) were observed and recorded within a nocturnal fauna spotlighting survey on the evening of 21/06/2016 and the morning of 22/06/2016. These record locations are displayed in the Tables, Maps and Photos of Results 1-3. including as the “dark blue pentagon” points in the maps.
2. Both 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) through its “*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*” and the Forest Management Plan For The East Gippsland Forest Management Area (Victorian Department of Conservation and Natural Resources, East Melbourne, December 1995) require that an SPZ (Special Protection Zone) of approximately 100ha of suitable habitat be established for records of > 2 individual Greater Gliders per hectare of spotlighting.
3. Results 1-3 above details 2 polygon areas, shown in the maps of Results 2. as the “dark blue solid outlined” polygons, where Greater Glider individuals were recorded at densities > 2 Greater Gliders per hectare.
4. Also, Results 1-3 above details 2 survey transects, shown in the maps of Results 2. as the “brown/white dashed” lines, where Greater Glider individuals were recorded at a rate of > 10 Greater Gliders per kilometre.
5. Each of the maps presented within Results 2. shows the recommended Special Protection Zone (SPZ) of approximately 100ha of suitable habitat that can be transferred into SPZ in closest proximity to the high density of Greater Glider areas and transects identified within this report (the “dark blue dashed outlined” polygon). This SPZ design take into account the closest and most suitable forest types required for the species habitat requirements, the distribution of prior logging operations in the nearby area and the investigation locations topographic configurations and infrastructural features.
6. In order to meet the requirements of the High Density of Greater Glider prescriptions contained within the regulatory framework governing logging operations in Victoria's State Forests this Special Protection Zone must be fully implemented prior to any further logging planning or operations within this area.
7. **Greater Glider records made within this report on the edge of recently logged coupe 895-509-0004 and contiguous with those in scheduled coupe 895-509-0006, shown in the map of Results 2. Figure 2., form a high density of Greater Glider area which has now been logged in part in breach of the regulatory framework's requirement to establish a 100ha Special Protection Zone for this biodiversity conservation value.**
8. **VicForests must refrain from and The Department of Environment, Land, Water and Planning must restrain VicForests from logging within the 100ha SPZ displayed in the map of Results 1. and ensure that area is protected from the effects of logging including “regeneration” burns.**