

INVESTIGATION REPORT

HIGH DENSITY RECORDING OF YELLOW-BELLIED GLIDERS (*Petaurus australis*)

WILSON CREEK-ROCKY CREEK TRACK - PYRAMID FMB

VicForests' logging coupes 870-501-0015, 870-501-0019 & 870-501-0022

Abstract

Forest areas within and/or adjacent to VicForests scheduled logging coupes 870-501-0015, 870-501-0019 & 870-501-0022 were investigated to assess the presence and density of Yellow-bellied Glider (*Petaurus australis*) individuals and other nocturnal fauna.

Spatial analysis of the Yellow-bellied Glider records obtained within this investigation were assessed using Geographic Information System software and were found to exist at "high densities" requiring protection under the relevant mandatory biodiversity conservation measures set out in the regulatory framework governing logging operations in Victoria's State Forests.

An endangered Masked Owl (*Tyto novaehollandiae novaehollandiae*) was also seen, heard and recorded during this investigation.

Recommendations are made to the Department of Environment, Land, Water and Planning (DELWP) and to VicForests to ensure that the area of high Yellow-bellied Glider density is protected from logging through its 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

Coupes 870-501-0015, 870-501-0019 & 870-501-0022 are scheduled for logging with 870-501-0015 listed as "Harvest Pending"

Date of Investigation

30/04-01/05/2017

Surveyors

Owen Hanson
Andrew Lincoln

Authors

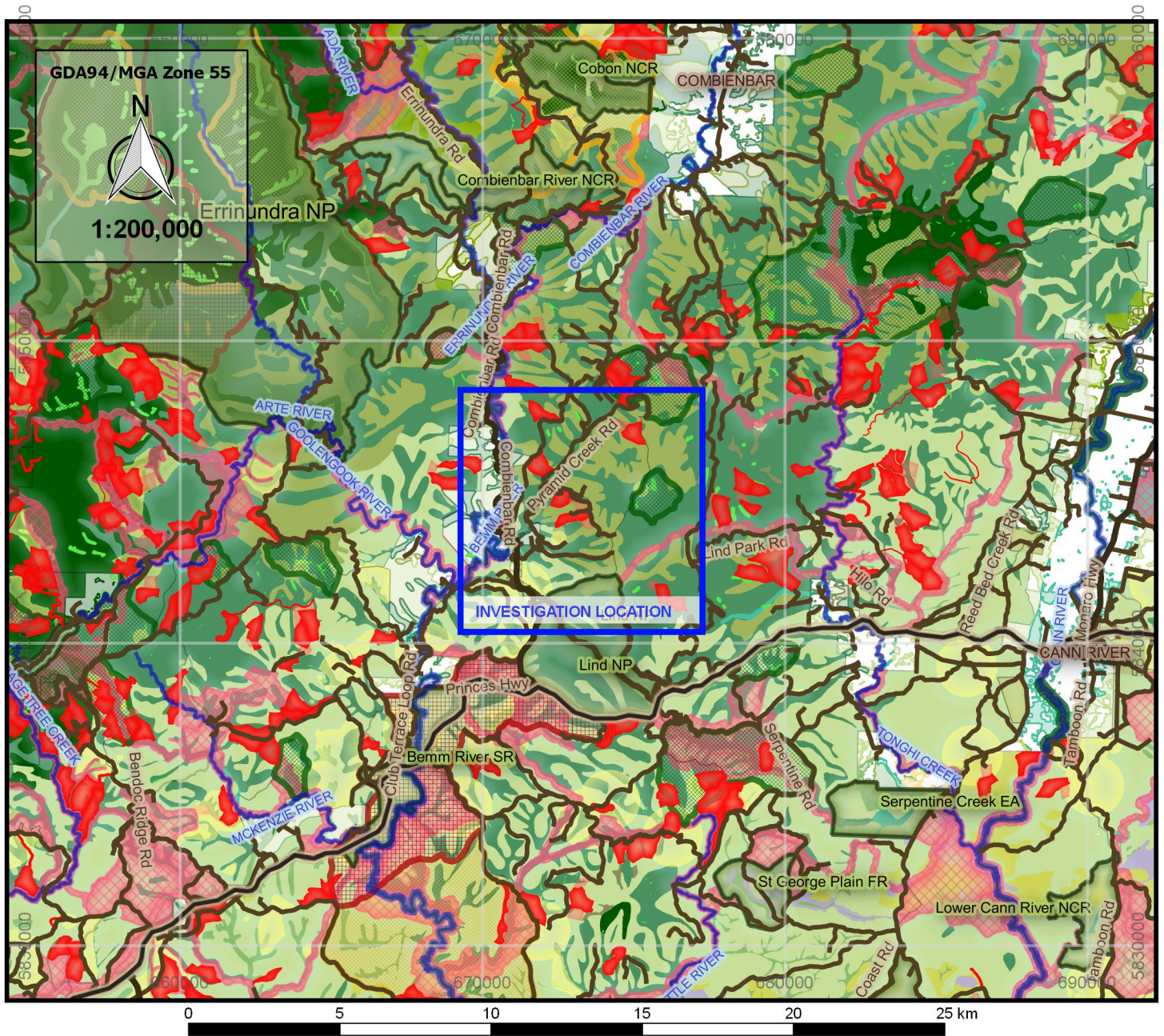
Andrew Lincoln
Fauna and Flora Research Collective Inc.
asl80@hotmail.com

Date of report

09/05/2017

Study Location Overview

Figure A. VicForests scheduled logging coupes 870-501-0015, 870-501-0019 and 870-501-0022 off Rocky Creek Track adjacent to Wilson Creek in the “Pyramid Forest Block” of East Gippsland between Club Terrace and Cann River.



Method 1 (Nocturnal Fauna Spotlighting Survey)

Nocturnal Fauna Survey [30/04-01/05/2017]

Equipment Used

- Hand-held Spotlight
- Binoculars
- Digital Camera
- Global Positioning System (GPS) [Garmin GPSMAP 62s]
- Compass, pen and paper
- Hand-held megaphone
- MP3 Player

Method used

1. On 30 April 2017 (concluding 01/05/2017), at around 09:00pm surveyors commenced a spotlighting and call-play-back survey at approximately 55 H 673513 5844350 (GDA94/UTM).
2. The survey involved intermittent broadcasts of pre-recorded Yellow-bellied Glider and Large Forest Owl vocalisation using a hand-held megaphone from an MP3 player followed by listening for nocturnal fauna aural response as well as spotlighting in to the adjacent forest, principally the canopy of overstorey and understorey trees adjacent to the surveyors searching for "eye-shine" and fauna movement.
3. Surveyors searched parts of Rocky Creek track and the forest within and adjacent to coupe 870-501-0015.
4. As fauna were observed recording locations were marked with the GPS and time, species, bearing from and an estimate of the distance from observation location were noted.
5. The results of this survey, including details of the survey undertaken and the species encountered, are presented in "Results 1. Table 1. Nocturnal Fauna Spotlighting Survey Results Summary; 30/04-01/05/2017" below (to be read in conjunction with the maps in Results 3.)
6. Due to the high density of the Yellow-bellied Gliders (and other nocturnal fauna) present at this location, four distinct "search sequences" were undertaken in order to best record the number of unique Yellow-bellied Glider individuals encountered. While Results 1. Table 1. contains duplicate records of Yellow-bellied Glider individuals, each "search sequence" contains a cumulative tally of unique individuals. Each sequence is demarcated in Results 1. Table 1. by the column labeled "Search Sequence for unique YBG individuals" and each readily distinguished individual Yellow-bellied Glider is cumulatively tallied under the column "Minimum unique YBG's per search (cumulative tally)". While sequences 3 and 4 record 6 unique Yellow-bellied Gliders per search it is highly likely that more unique individuals were actually present within or adjacent to the area searched for Yellow-bellied Gliders.
7. 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.
8. Further presentation of these results, as well as conclusions and discussion arising from this investigations results are provided in their respective sections below.

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, 2014.¹

“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	Yellow-bellied Glider	<i>Petaurus australis</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”²

“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	Yellow-bellied Glider	<i>Petaurus australis</i>	Establish a SPZ of approximately 100 ha of suitable habitat where verified records report more than 0.2 individuals per hectare, more than 5 individuals per km or more than 7 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, 47

From: "Forest Management Plan For The East Gippsland Forest Management Area, Victoria Department of Conservation and Natural Resources, East Melbourne, December 1995".³

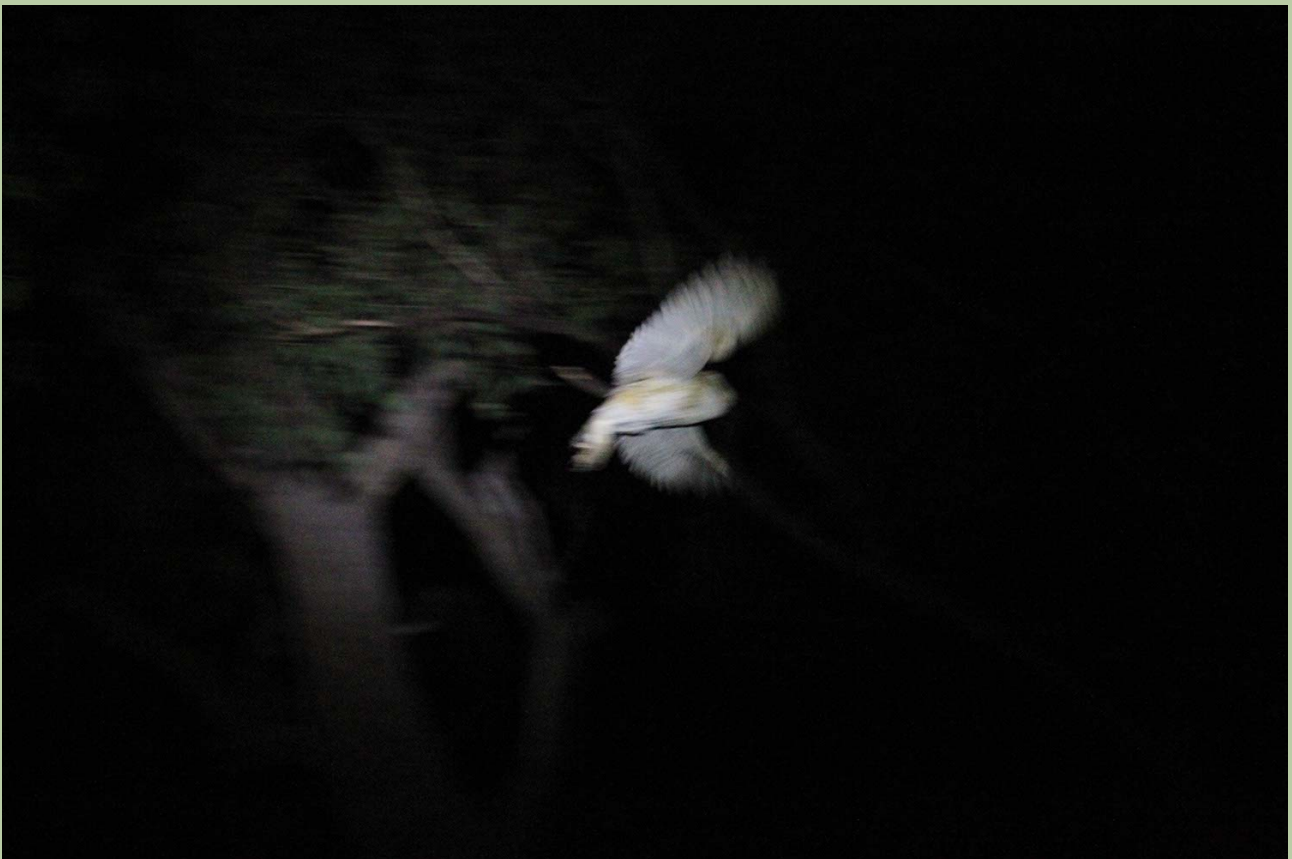
"Chapter 3 BIODIVERSITY CONSERVATION

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. "



³ [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 Fauna Spotlighting Survey Results Summary)

Table 1. Nocturnal Fauna Spotlighting Survey Results Summary; 30/04-01/05/2016

ID	Time	Waypoint	Recording Location	Species	Common Name	Type	Bearing	Distance	Animal Location (projected)	p_WP_ID	Minimum unique YBG's per search (cumulative tally)	Search Sequence for unique YBG individuals
1	09:05	RRT01Y	55H 673477 5844322	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	170	100m	55H 673494 5844223	01Y	1	1
2	09:16	RRT02C	55H 673476 5844320	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	Visual	100	15m	55H 673491 5844317	02C		
3	09:23	RRT03Y	55H 673490 5844340	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	20	100m	55H 673524 5844434	03Y	2	
4	10:36	RRT201	55H 673513 5844350	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	200	50m	55H 673496 5844303	201	1	2
5	~10:38	RRT202	55H 673512 5844349	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	200	100m	55H 673478 5844255	202	2	
6	10:40	RRT203	55H 673513 5844348	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	5	100m	55H 673522 5844447	203	3	
7	10:42	RRT204	55H 673513 5844349	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	310	150m	55H 673398 5844445	204	4	
8	11:04	RRT205	55H 673525 5844392	<i>Acrobates pygmaeus</i>	Feathertail Glider	Visual	0	0m	55H 673525 5844392	205		
9	11:32	RRT301	55H 673533 5844470	<i>Petaurus australis</i>	Yellow-bellied Glider	Visual	330	15m	55H 673526 5844483	301	1	3
10	11:33	RRT302	55H 673536 5844465	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	320	100m	55H 673472 5844542	302	2	
11	11:45	RRT303	55H 673487 5844342	<i>Trichosurus cunninghami</i>	Mountain Brushtail Possum	Visual	330	15m	55H 673480 5844355	303		
12	11:50	RRT304	55H 673468 5844326	<i>Petaurus breviceps</i>	Sugar Glider	Aural	150	150m	55H 673543 5844196	304		
13	12:14	RRT305	55H 673392 5844319	<i>Petaurus australis</i>	Yellow-bellied Glider	Visual	0	0m	55H 673392 5844319	305	3	
14	12:15	RRT306	55H 673385 5844302	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	270	200m	55H 673185 5844302	306	4	
15	12:21	RRT07Y	55H 673333 5844287	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	130	50m	55H 673372 5844255	07Y	5	
16	12:29	RRT308	55H 673214 5844322	<i>Trichosurus cunninghami</i>	Mountain Brushtail Possum	Visual	0	0m	55H 673214 5844322	308		
17	12:37	RRT09Y	55H 673152 5844364	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	25	100m	55H 673194 5844455	09Y		
18	12:41	RRT310	55H 673133 5844362	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	310	200m	55H 672979 5844491	310	6	
19	12:44	RRT311	55H 673146 5844359	<i>Tyto novaehollandiae novaehollandiae</i>	Masked Owl	Visual	350	100m	55H 673129 5844458	311		
20	12:48	RRT312	55H 673146 5844363	<i>Petaurus breviceps</i>	Sugar Glider	Visual	0	0m	55H 673146 5844363	312		
21	12:57	RRT313	55H 673147 5844360	<i>Acrobates pygmaeus</i>	Feathertail Glider	Visual	0	0m	55H 673147 5844360	313		
22	01:27	RRTREC	55H 673162 5844424	<i>Tyto novaehollandiae novaehollandiae</i>	Masked Owl	Aural	0	0m	55H 673162 5844424	REC		
23	02:55	RRT401	55H 673148 5844247	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	80	70m	55H 673217 5844260	401	1	
24	03:06	RRT402	55H 673150 5844246	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	260	30m	55H 673121 5844241	402	2	
25	03:16	RRT403	55H 673214 5844328	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	20	150m	55H 673265 5844469	403	3	
26	03:17	RRT404	55H 673218 5844334	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	40	170m	55H 673327 5844464	404	4	
27	03:37	RRT405	55H 673388 5844300	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	120	40m	55H 673423 5844280	405	5	
28	03:51	RRT406	55H 673543 5844405	<i>Petaurus australis</i>	Yellow-bellied Glider	Visual	270	15m	55H 673528 5844405	406	6	
29	04:06	RRT407	55H 673568 5844261	<i>Petaurus australis</i>	Yellow-bellied Glider	Aural	300	70m	55H 673508 5844296	407		

Results 2 – Yellow-bellied Glider and Masked Owl Photos; Figures 1(a-d).

Figure 1(a). Yellow-bellied Glider [p_WP_ID /Projected Animal Location (map label): 301; 55H 673526 5844483]



Figure 1(b). Yellow-bellied Glider [p_WP_ID /Projected Animal Location (map label): 305; 55H 673392 5844319]



Figure 1(c). Masked Owl [p_WP_ID /Projected Animal Location (map label): 311; ~55H 673129 5844458]

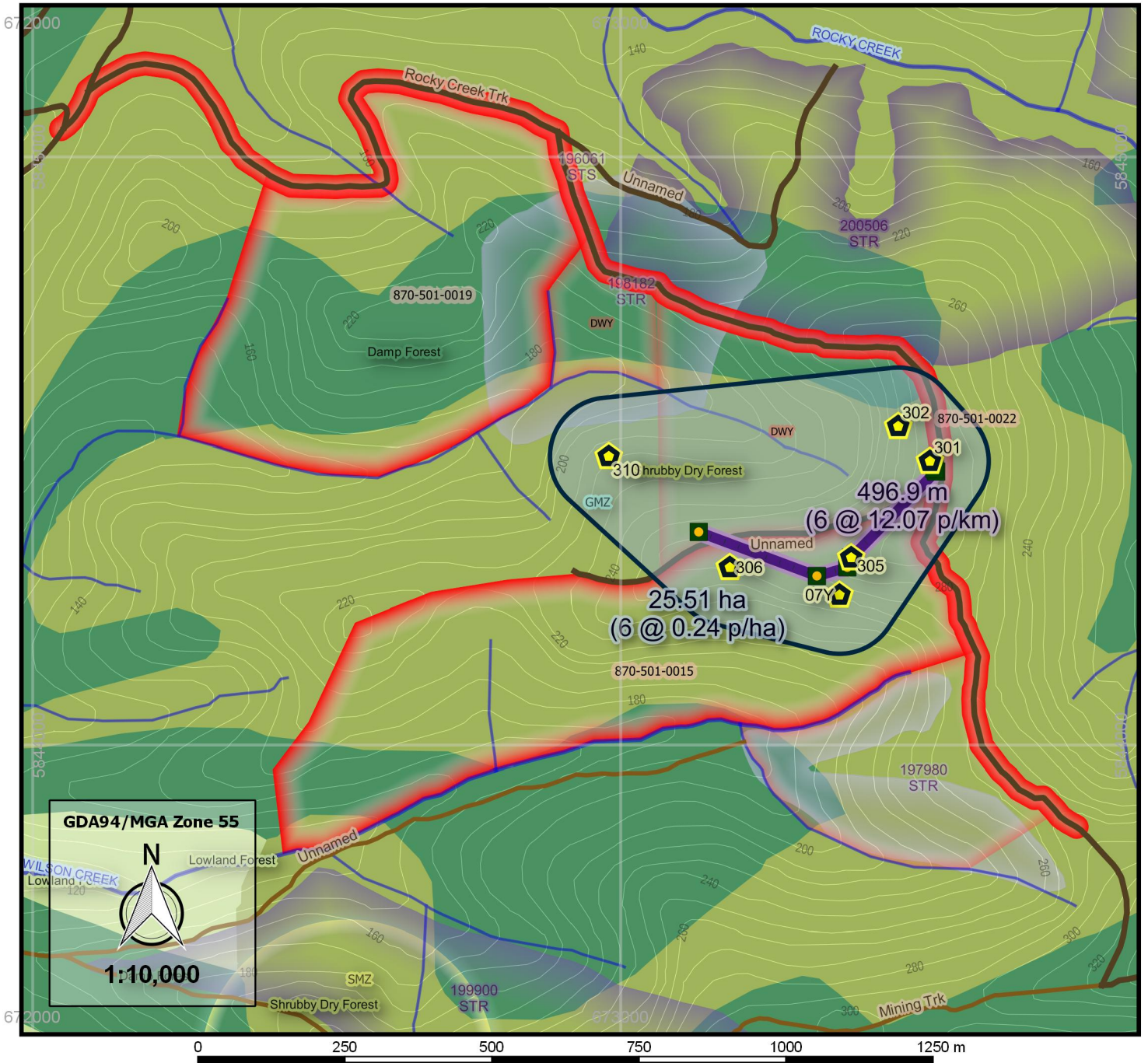


Figure 1(d). Yellow-bellied Glider [p_WP_ID /Projected Animal Location (map label): 406; 55H 673528 5844405]



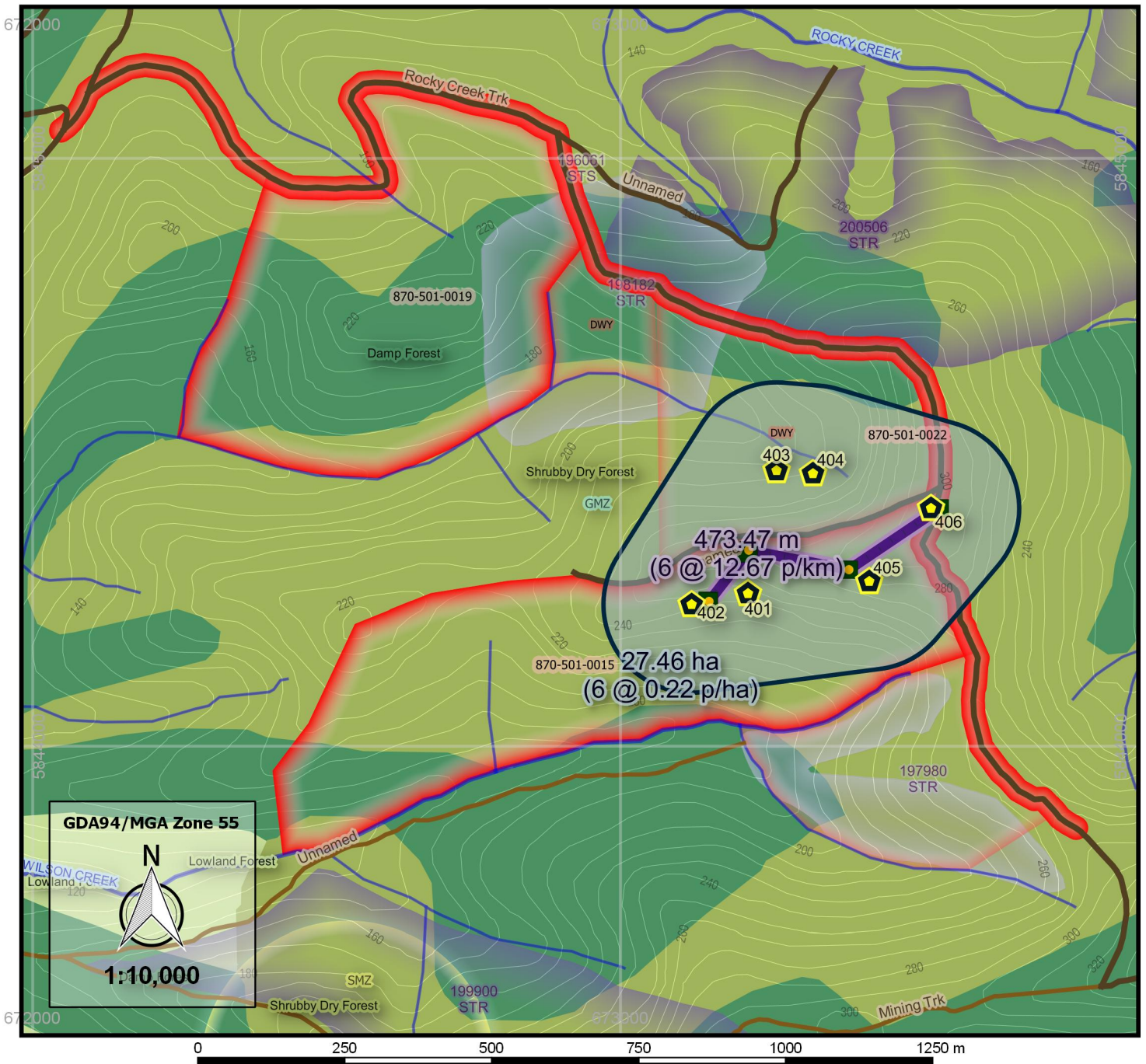
Results 3 (Maps)

Figure 2. Sequence #3 – Yellow-bellied Glider records and "high density" arboreal mammal areas



Legend	
Current Investigation	Scheduled Logging
Yellow-bellied Glider	VicForests Timber Release Plan [Approved_TRP_Boundaries_October_2016]
Yellow-bellied Glider Recording Locations	VicForests Timber Release Plan [Approved_TRP_Driveways_October_2016]
High Density Recording of Yellow-bellied Gliders (6 YBG's in 25.51 ha @ 0.24 YBG's p/ha)	Prior Logging History [LOG_SEASON]
High Density Recording of Yellow-bellied Gliders (6 YBG's along 496.9 m @ 12.07 YBG's p/km)	196061
	197980
	198182
	199900
	200001
	200506
	Forest Management Zones [FMZ100; DELWP Oct 2016]
	Special Management Zone
	General Management Zone
	Ecological Vegetation Classes [NV2005_EVCBCS (modelled)]
	Damp Forest
	Lowland Forest
	Shrubby Dry Forest
	Roads
	Roads
	Watercourses
	Watercourses
	Contours

Figure 3. Sequence #4 – Yellow-bellied Glider records and "high density" arboreal mammal areas



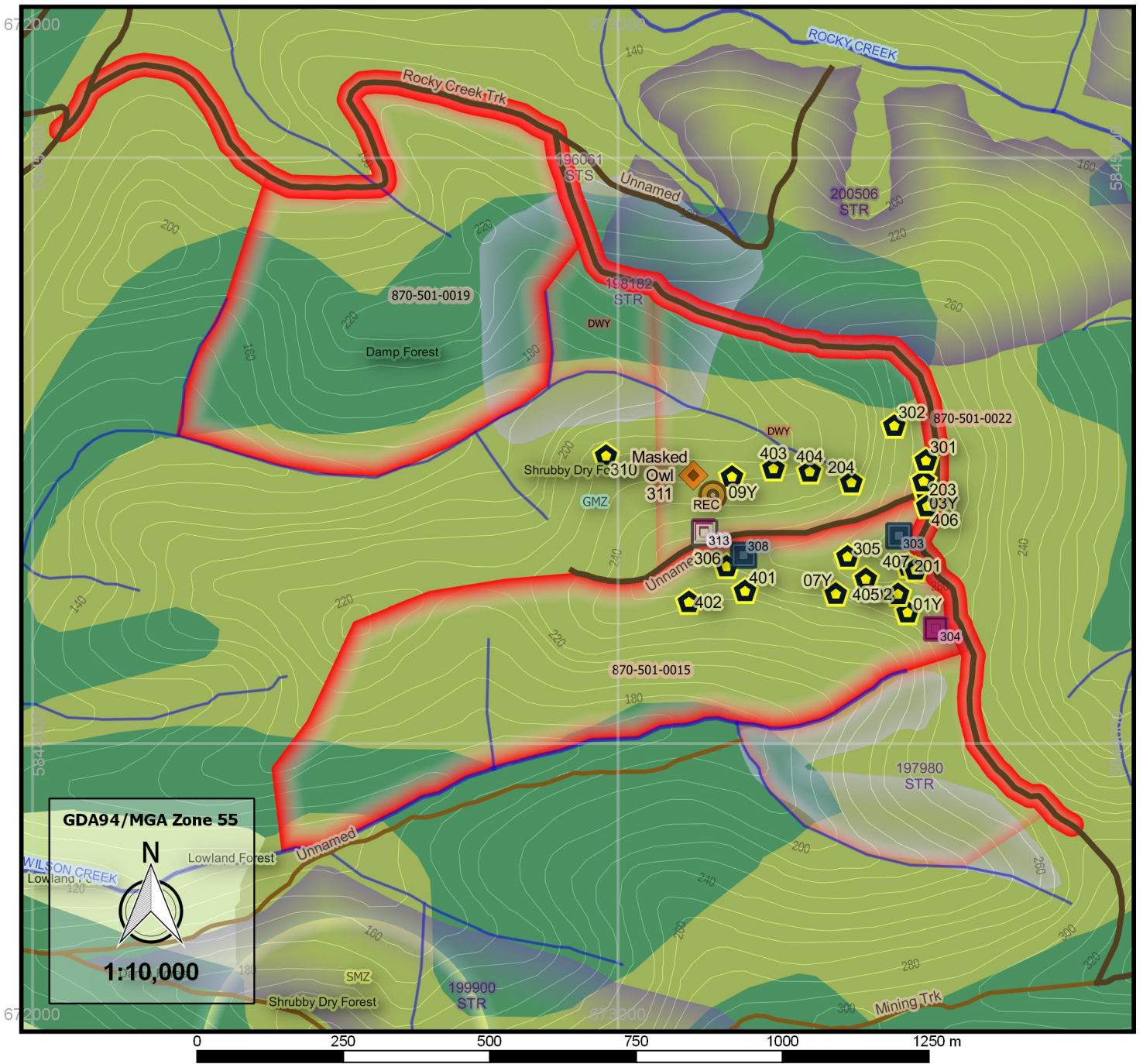
GDA94/MGA Zone 55

N

1:10,000

Legend	
Current Investigation	Scheduled Logging
Yellow-bellied Glider	VicForests Timber Release Plan [Approved_TRP_Boundaries_October_2016]
Yellow-bellied Glider Recording Locations	VicForests Timber Release Plan [Approved_TRP_Driveways_October_2016]
High Density Recording of Yellow-bellied Gliders (6 YBG's in 27.46 ha @ 0.22 YBG's p/ha)	Prior Logging History [LOG_SEASON]
High Density Recording of Yellow-bellied Gliders (6 YBG's along 473.47m @ 12.67 YBG's p/km)	196061
	197980
	198182
	199900
	200001
	200506
	Forest Management Zones [FMZ100; DELWP Oct 2016]
	Special Management Zone
	General Management Zone
	Ecological Vegetation Classes [NV2005_EVCBCS (modelled)]
	Damp Forest
	Lowland Forest
	Shrubby Dry Forest
	Roads
	Roads
	Watercourses
	Watercourses
	Contours

Figure 4. All Yellow-bellied Glider and other nocturnal faunal recorded



GDA94/MGA Zone 55

N

Wilson Creek Lowland

1:10,000

Legend			
Current Investigation	Scheduled Logging	197980	Ecological Vegetation Classes
Yellow-bellied Glider	VicForests Timber Release Plan [Approved_TRP_Boundaries_October_2016]	198182	[NV2005_EVCBCS (modelled)]
Other Fauna Recorded	VicForests Timber Release Plan [Approved_TRP_Driveways_October_2016]	199900	Damp Forest
Masked Owl	Prior Logging History [LOG_SEASON]	200001	Lowland Forest
Recording Location	196061	200506	Shrubby Dry Forest
Mountain Brushtail Possum		Forest Management Zones	Roads
Feathertail Glider		Special Management Zone	
Sugar Glider		General Management Zone	Watercourses
			Contours

170506 - High Density of Yellow-bellied Gliders - Wilson Crk_Rocky Crk Trk_Pyramid FMB - 870-501-0015 - FFRC 11/12

Summary/Conclusions/Discussion

High-density of Yellow-bellied Gliders (*Petaurus australis*)

1. Within and adjacent to VicForests scheduled logging coupes 870-501-0015, 870-501-0019 and 870-501-0022 20 Yellow-bellied Glider (*Petaurus australis*) observations were made within the nocturnal fauna survey described above on 30/04-01/05/2017. These record locations are displayed in Results 3. Figure 4. as the “yellow and black pentagon” points.
2. At least 6 unique Yellow-bellied Glider detections were identified within two "search sequences" from a combination of (a): differentiation of individuals encountered during the survey; as well as (b): through post-survey differentiation using GPS waypoint data recorded on site in conjunction with the estimated projected location of each individual animal based on estimates of each glider's distance and bearing from the surveyors as well as time of observation considerations. This information is detailed in Results 1. Table 1. within the column "Minimum unique YBG's per search (cumulative tally)".

NOTE: Results 1. Table 1. Shows that 20 observations of Yellow-bellied Gliders were made throughout the survey. Records from rows 1, 3, 4-7, 17 and 29 were not included in either of the "search sequences" 3 or 4 concerning analysis of Yellow-bellied Glider density calculations.

3. 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, Victoria 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 > 0.2 individual [Yellow-bellied Gliders] per hectare, > 5 individuals per km or > 7 per hour of spotlighting.
4. The at least 6 Yellow-bellied Glider individual records detailed above were made in close proximity to each other and were recorded within;
 - a) the 25.51 ha area for "Sequence #3" shown in Results 3. Figure 2. as the “blue solid outlined/grey shaded” polygon at a density of 0.24 Yellow-bellied Gliders p/ha, and;
 - b) the 27.46 ha area for "Sequence #4" shown in Results 3. Figure 3. as the “blue solid outlined/grey shaded” polygon at a density of 0.22 Yellow-bellied Gliders p/ha.
5. The at least 6 Yellow-bellied Glider individual records detailed above were made in close proximity to each other and were recorded within;
 - a) the 496.9 m line shown in Results 3. Figure 2. as the “purple, dashed and white outlined” line at a rate of 12.07 Yellow-bellied Gliders per kilometre, and;
 - b) the 473.47 m line shown in Results 3. Figure 3. as the “purple, dashed and white outlined” line at a rate of 12.67 Yellow-bellied Gliders per kilometre.
6. In order to meet the requirements of the High Density of Yellow-bellied Glider prescriptions contained within the regulatory framework governing logging operations in Victoria's State Forests a Special Protection Zone must be established and fully implemented prior to any further logging planning or operations within this area.
7. **VicForests must refrain from and The Department of Environment, Land, Water and Planning must restrain VicForests from logging within coupes 870-501-0015, 870-501-0019 and 870-501-0022 and ensure these areas are protected from the effects of logging including “regeneration” burns.**