

INVESTIGATION REPORT

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

BENDOC RIVER - CLARKEVILLE ROAD

**VicForests' Logging Coupes:
892-502-0011 and 892-502-0012**

Abstract

Forest areas within and/or adjacent to VicForests scheduled logging coupes 892-502-0011 and 892-502-0012 were investigated to assess the presence and density of Greater Glider (*Petauroides volans*) individuals and other nocturnal fauna.

High numbers of Greater Glider (*Petauroides volans*) individuals were recorded from this location within a nocturnal spotlighting survey.

The locations of the Greater Gliders (*Petauroides volans*) recorded within this investigation were assessed using Geographic Information Systems (GIS) software which demonstrated that the forest areas surveyed supported "high densities of Greater Glider" requiring protection under the relevant mandatory biodiversity conservation measures set out in the regulatory framework governing logging operations in Victoria's State Forests.

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 (*Petauroides volans*) 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

Organisations involved

- VicForests

Status of Site

Coupes 892-502-0011 and 892-502-0012 are scheduled for logging.

Date of Investigation

17-18/04/2017

Surveyors

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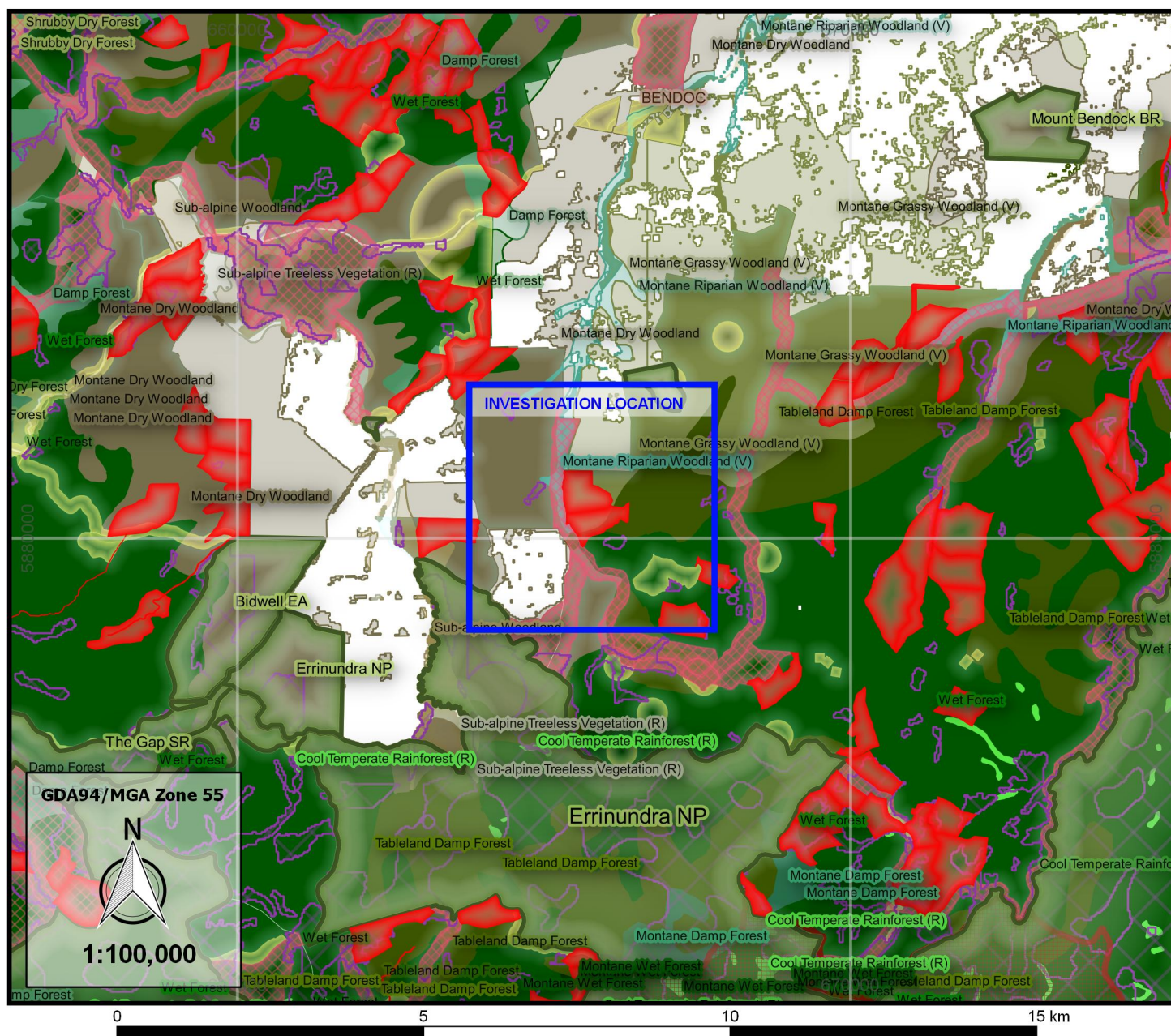
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Date of report

19/04/2017

Investigation Location Overview

Figure A. Investigation location: VicForests logging coupes 892-502-0011 and 892-502-0012 between the Bendoc River and Clarkeville Road in the Bendoc State Forest of East Gippsland ("East Gippsland FMA") ~7km South of Bendoc.



Legend

Logging Disturbance and Scheduled Logging

- VicForests Timber Release Plan [Approved TRP_Boundaries_October_2016]

Forest Management Zones [FMZ100; DELWP Oct 2016]

- Special Protection Zone

- Special Management Zone
 - General Management Zone
 - Conservation Parks and Reserves
 - Other Public Land
- Ecological Vegetation Classes [NV2005_EVCBCS (modelled)]*
- (selected - smaller EVC's not listed)
- Cool Temperate Rainforest

- Damp Forest
- Montane Damp Forest
- Montane Dry Woodland
- Montane Grassy Woodland
- Montane Riparian Woodland
- Montane Wet Forest
- Shrubby Dry Forest
- Sub-alpine Woodland

- Tableland Damp Forest
 - Wet Forest
- Other Layers*
- Parks and Reserves [PARKRES]
 - Rainforest Sites of Significance
 - National

Roads

Watercourses

Method 1 (Nocturnal Fauna Spotlighting Survey)

Nocturnal Fauna Survey [12-13/08/2016]

Equipment Used

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

Method - General

1. On the 17th April 2017 a spotlighting survey was commenced around the initial locations and times listed below in the Table of the Results 2. section in the Queensborough Forest Block.
2. Parts of the forest within and adjacent to logging coupes 892-502-0011 and 892-502-0012 were searched for the presence of nocturnal fauna principally by shining a hand-held spotlight to detect fauna movement or “eye shine”.
3. As fauna were observed their locations were marked with a GPS and time, species, bearing from recording location, an estimate of the distance from observation location were noted and where possible photographs were taken.

(NB: where distance is recorded as "N/A" or 0, location coordinates of fauna species were recorded at or beneath the fauna location.)

See the Tables in “Results 2” below for details of the fauna encountered.

4. 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.
5. 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, 2014.¹

"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	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"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	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

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.

Results 1 (Summary – Nocturnal Spotlighting Survey Results)

Results 2 (Tables)

This section shows a Table that presents the summarised results from the spotlighting survey undertaken within the study location.

Results 3 (Maps)

Following the table detailed above are two maps (Figures 1-2.) displaying the Greater Glider detection records detailed in Results 2. Also shown is the location of the "High Density of Greater Glider" configurations formed by the relevant Greater Glider records detailed below.

In Figure 1. 28 Greater Glider records are shown as the uniquely labelled "large white outlined dark blue pentagons". These 28 Greater Glider records were present within a 13.8ha polygon area. In Figure 2. the 28 Greater Glider records are shown along a 2379.69m line connecting the locations where each of the 28 Greater Gliders were recorded.

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 2 (Tables)

Table 1. 17-18 April 2017_Nocturnal Fauna Spotlighting Records

Time	Waypoint	Recording Location	Species	Common Name	Type	Bearing	Distance	Projected Animal Location (approx.)	Unique Individuals (Cumulative Tally)^
8:24	MSF01	55H 666300 5880287	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666300 5880287	1
8:44	MSF02	55H 666198 5880284	<i>Petaurus breviceps</i>	Sugar Glider	Aural	220°	100m	55H 666134 5880207	N/A
8:51	MSF03	55H 666117 5880269	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666117 5880269	2
9:02	MSF04	55H 666055 5880239	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666055 5880239	3
9:03	MSF05	55H 666049 5880238	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666049 5880238	4
9:25	MSF06	55H 665928 5880166	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665928 5880166	5
9:48	MSF07	55H 665797 5880182	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665797 5880182	6
9:49	MSF08	55H 665794 5880183	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665794 5880183	7
10:12	MSF09	55H 665727 5880054	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665727 5880054	8
10:19	MSF10	55H 665686 5880018	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665686 5880018	9
10:29	MSF11	55H 665658 5879969	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665658 5879969	10
10:43	MSF12	55H 665615 5879955	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665615 5879955	11
10:44	MSF13	55H 665620 5879965	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665620 5879965	12
11:30	MSF14	55H 665334 5880464	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665334 5880464	13
11:39	MSF15	55H 665326 5880551	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665326 5880551	14
11:48	MSF16	55H 665351 5880623	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665351 5880623	15
11:51	MSF17	55H 665338 5880626	<i>Ninox strenua</i>	Powerful Owl	Aural	280°	200m	55H 665142 5880660	N/A
12:05	MSF18	55H 665320 5880781	<i>Petaurus australis</i>	Greater Glider	Visual	N/A	N/A	55H 665320 5880781	16
12:13	MSF19	55H 665358 5880762	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665358 5880762	17
12:15	MSF20	55H 665353 5880785	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665353 5880785	18
12:22	MSF21	55H 665365 5880808	<i>Trichosurus cunninghami</i>	Mountain Brushtail Possum	Visual	N/A	N/A	55H 665365 5880808	N/A
12:29	MSF22	55H 665430 5880871	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665430 5880871	19
12:31	MSF23	55H 665425 5880854	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665425 5880854	20
12:39	MSF24	55H 665484 5880821	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665484 5880821	21
12:42	MSF25	55H 665452 5880824	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665452 5880824	22
1:11	MSF26	55H 665636 5880910	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665636 5880910	23
1:26	MSF27	55H 665630 5880872	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665630 5880872	24
1:44	MSF28	55H 665787 5880585	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665787 5880585	25
1:47	MSF29	55H 665813 5880587	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 665813 5880587	26
2:03	MSF30	55H 666034 5880397	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666034 5880397	27
2:05	MSF31	55H 666034 5880397	<i>Petauroides volans</i>	Greater Glider	Visual	N/A	N/A	55H 666034 5880397	28

^ Green = Greater Glider



Results 3 - Maps

Figure 1. Dartmoor Track_>2 Greater Gliders p/ha

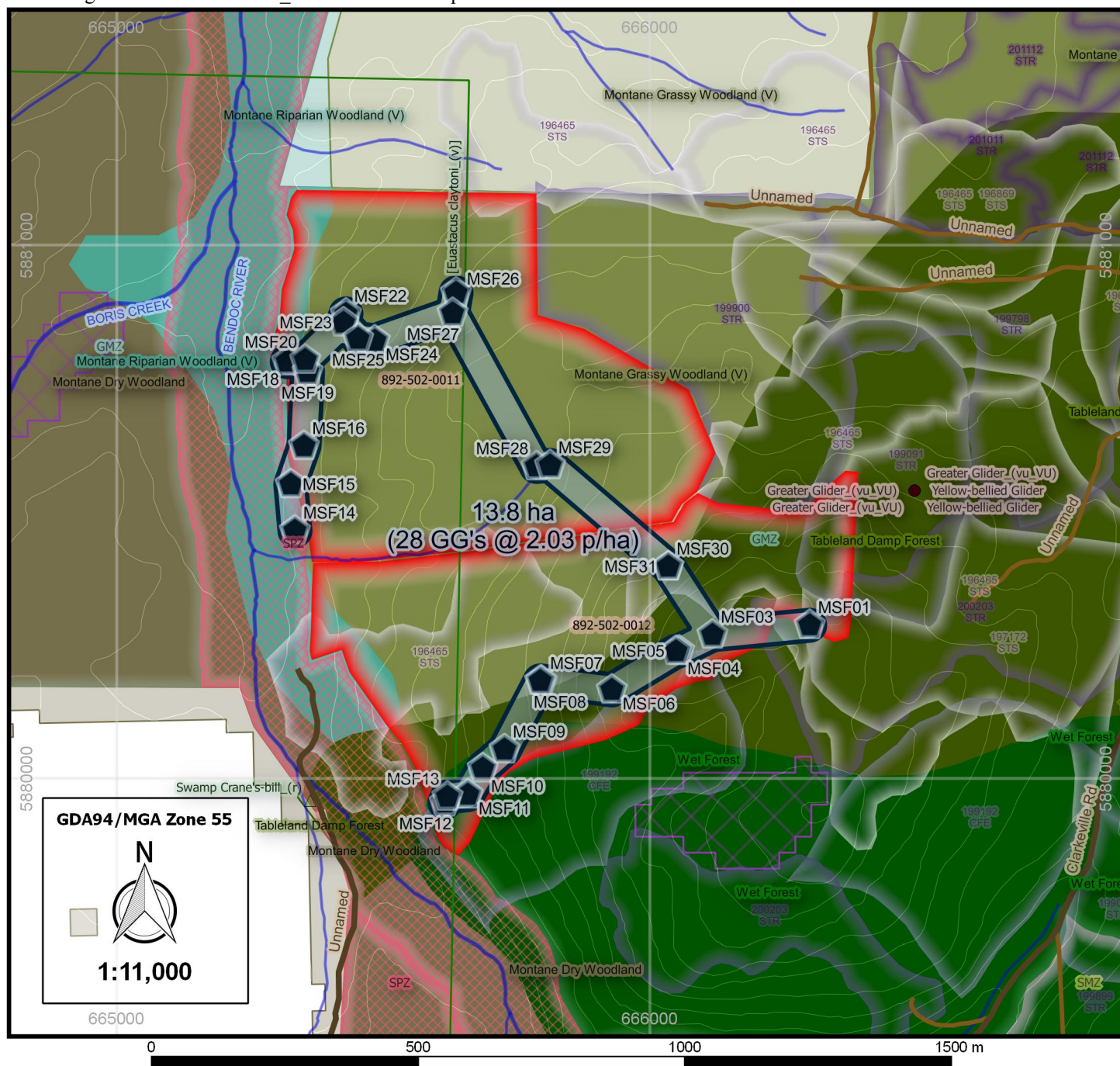
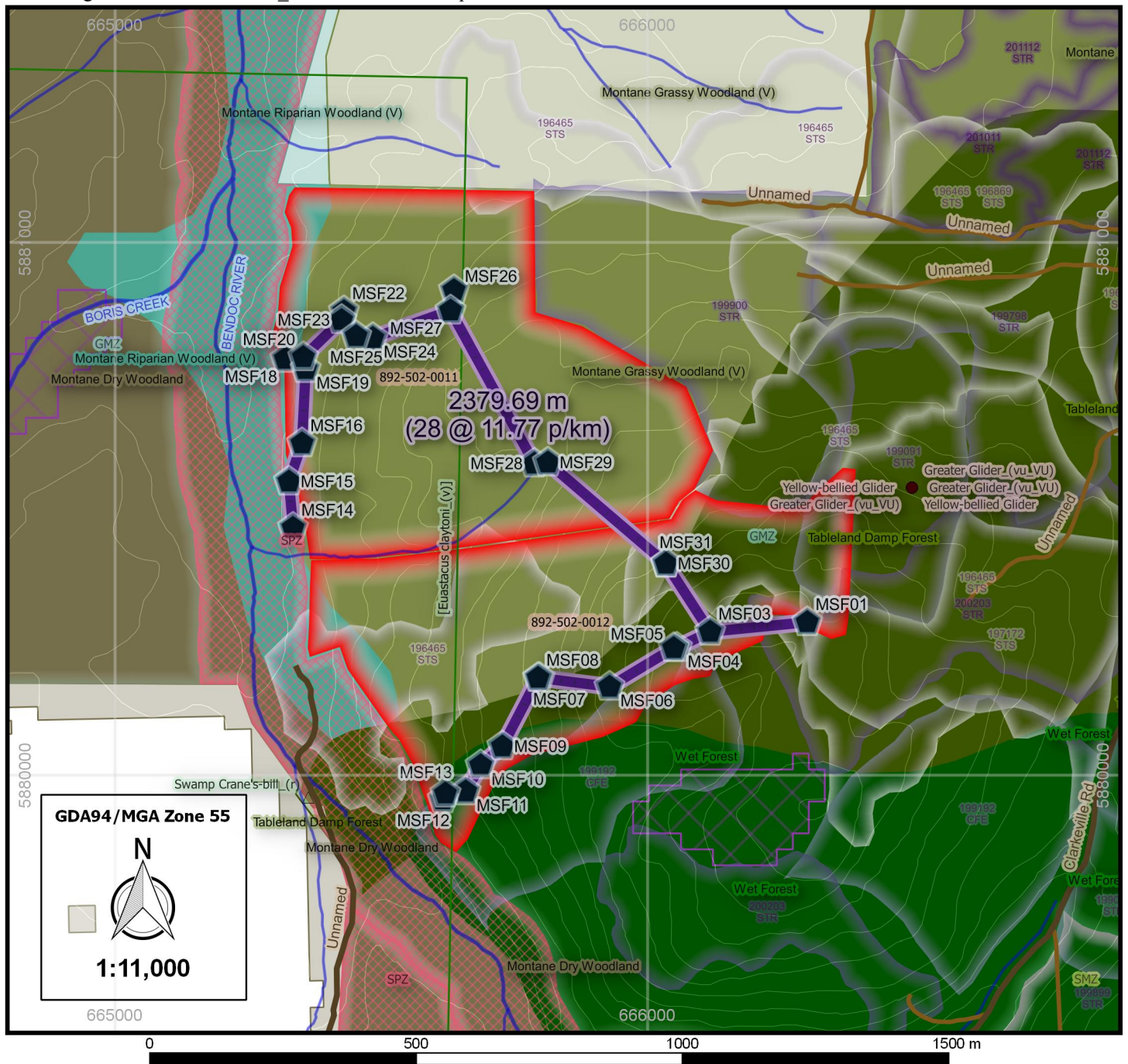


Figure 2. Dartmoor Track_>10 Greater Gliders p/km



Legend

Current Investigation

- Greater Glider Records
- High Density Greater Glider Line
[28 GG's in 2380m @ 11.77 p/km]

Victorian Biodiversity Atlas (rare/threatened/protected)

- VBA_FLORA25 Records
- VBA_FAUNA100 Records
- VBA_FAUNA_GRID_1M

Scheduled Logging

- VicForests Timber Release Plan [Approved TRP_Boundaries_October_2016]

Prior Logging History [LOG_SEASON]

- 196465
- 197172
- 199192
- 201112

Forest Management Zones [FMZ100; DELWP Oct 2016]

- Special Protection Zone
- Special Management Zone
- General Management Zone

Ecological Vegetation Classes [NV2005_EVCBCS (modelled)]

- Montane Dry Woodland
- Montane Grassy Woodland

- Montane Riparian Woodland
- Tableland Damp Forest
- Wet Forest

Other Layers

- Modelled Old Growth Forest [MOG2009]

Roads

-
-

Watercourses

-
-
- Contours

Summary/Conclusions/Discussion

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

1. Within and adjacent to VicForests scheduled logging coupes 892-502-0011 and 892-502-0012 high numbers of Greater Gliders (*Petauroides volans*) were observed and recorded within a nocturnal fauna spotlighting survey transects on the evenings of 17-18/04/2017. These record locations are displayed in the Tables and Maps of Results 3. as “pentagon” shaped points.
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 and > 10 individual Greater Gliders per kilometer.
3. The 28 uniquely labelled "large white outlined dark blue pentagon" Greater Glider records shown in the map of Results 3. Figure 1. and falling within the corresponding 13.8 hectare “dark blue solid outlined and light grey filled” polygon recorded these 28 Greater Glider individuals present at densities of 2.03 Greater Gliders per/ha.
4. The 28 uniquely labelled "large white outlined dark blue pentagon" Greater Glider records shown in the map of Results 3. Figure 2. along the 2379.69 metre "purple and white outlined" line shows the presence of 28 Greater Glider individuals at a density of 11.77 Greater Gliders per/km.
5. Each of the two configurations of 28 Greater Gliders described above constitute a "High-density of Greater Gliders" according to the density and frequency triggers contained within the relevant sections of the regulatory framework described above.
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, Special Protection Zones to protect these Greater Glider configurations must be established and fully implemented prior to any logging operations in this area.
7. Given the extensive logging that has occurred in the forest surrounding coupes 892-502-0011 and 892-502-0012 the "Special Protection Zone" of approximately 100ha that must be implemented, in order to incorporate the most suitable habitat available for transfer into the Special Protection Zone, the entire areas of coupes 892-502-0011 and 892-502-0012 must be included in the Special Protection Zone.
8. **VicForests must refrain from and the Department of Environment, Land, Water and Planning must restrain VicForests from logging within any of the forest areas scheduled for logging within coupes 892-502-0011 and 892-502-0012.**