ECOLOGY AUSTRALIA

Pre-Harvest Fauna Surveys: Upper Murray District

Project: 14-073

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VicForests

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1 Introduction

Ecology Australia was commissioned by VicForests in October 2014 to undertake pre-harvest targeted surveys for threatened fauna species across four coupes in north-east Victoria. The objective of the surveys was to investigate and document the potential presence of significant fauna species, particularly those species considered threatened or listed under the North East Forest Management Plan.

1.1 Study Area

This project was undertaken in the North East Forest Management Area; specifically, within the Upper Murray District.

Four coupes requiring survey were identified by VicForests, and comprised the following:

- Line 684-514-0004
- Hook 684-514-0003
- Rapala 684-514-0007
- Celta 684-514-0008.

2 Methodology

Ecology Australia undertook field surveys between 20 October 2014 and 26 November 2014, with four coupes surveyed (see Table 1). The timing of field surveys was based on the minimum period of deployment of remote cameras (21 days), as well as logistic and other considerations (e.g. weather and forecast fire conditions).

The pre-harvest fauna surveys were undertaken in accordance with VicForest's Pre-Harvest Fauna Survey Procedure document (Version 1.5), and are summarised below. Locations of each of these surveys are shown in Figure 1.

2.1 Remote Cameras

Remote infrared cameras are a widely-used and efficient technique for the survey of numerous mammal taxa. Although remote cameras can provide information on a range of native fauna species, they were deployed primarily as a survey technique for the following target terrestrial fauna:

- Spot-tailed Quoll *Dasyurus maculatus maculatus*;
- Long-footed Potoroo *Potorous longipes*; and
- Smoky Mouse *Pseudomys fumeus*.

Remote cameras used for this project consisted primarily of the Reconnyx HyperFire™ HC500 and HC600 cameras, with HC550 white-flash cameras also used in areas of potential Smoky Mouse habitat.

Camera sites were baited with a target species-specific bait. For quolls this comprised fresh chicken (i.e. drumstick/Maryland) and sardines, with tuna oil scattered at the base of the bait station. For the Long-footed Potoroo and Smoky Mouse baits comprised universal bait (rolled oats, peanut butter and honey), with pistachio essence added for potoroos.

Remote cameras were attached to a suitable tree, at a height specific to the target species. The bait station was between 1.5 and 3 m from the camera, depending upon the size of the target species. Cameras were located in areas of suitable habitat for the target species, separated by a minimum distance of approximately 100 m, and where possible were established to minimise false triggers (e.g. facing in a southerly direction, with relatively uniform light conditions in the focal area).

Cameras were activated and left *in-situ* for a minimum period of 21 days and nights prior to collection. The location of cameras was recorded by GPS (+/- 5 m accuracy).

2.2 Spotlight Surveys

Spotlight surveys are an effective method for surveying nocturnal fauna, including arboreal mammals and nocturnal birds such as large forest owls. For this project spotlight surveys targeted the following fauna species listed under the North East Forest Management Plan:

- Greater Glider *Petauroides volans*;

- Yellow-bellied Glider *Petaurus australis*;
- Squirrel Glider *Petaurus norfolkensis*;
- Barking Owl *Ninox connivens*;
- Powerful Owl *Ninox strenua*;
- Sooty Owl *Tyto tenebricosa*; and
- Masked Owl *Tyto novaehollandiae novaehollandiae*.

The transect spotlight survey commenced after dusk, using a 50W spotlight, along a transect of approximately 1 km, where possible (see below). Transects were located in areas of suitable habitat for the target species listed above; roads and tracks were used where they occurred within or adjacent to the coupe as this increased both the viewing distance (e.g. lack of mid and understorey) and accessibility. Spotlighting was undertaken at a slow walk (approximately 500 m – 1 km per hour) by two observers, during periods with little or no wind and rain.

Transects in some coupes occurred over less than 1 km; this occurred where terrain and/or the dimensions of the coupe necessitated a reduction in transect length due to safety considerations. In this case, the full survey period (30 – 60 minutes) was spent across the reduced transect distance.

The beginning and end (and any turning points) of each transect was marked by GPS, as was the location of fauna recorded (where species identity was confirmed).

2.3 Nocturnal Call-playback

Nocturnal call-playback surveys were undertaken at one location within each coupe. Call-playback was undertaken at relatively open, higher elevation areas, on relatively calm, dry nights (e.g. under wind conditions of < 5 on the Beaufort scale). The survey consisted of calls of the target species broadcast through a megaphone at approximately 110% of the natural volume of the call.

The following call sequence was used:

- Powerful Owl (2 minutes) followed by 2 minutes listening – repeated twice;
- Barking Owl (2 minutes) followed by 2 minutes listening;
- Sooty Owl (2 minutes territorial screams) followed by 2 minutes listening, then 1 minute of trilling calls followed by 2 minutes of listening;
- Yellow-bellied Glider (2 minutes) followed by 2 minutes listening – repeated twice; and
- Masked Owl (2 minutes territorial screams) followed by 2 minutes listening, then 1 minute of chattering calls.

Following completion of the call-playback surveys, a spotlight search was conducted for approximately 15 minutes in the immediate area to detect any owls which may have flown into the area without calling.

2.4 Riparian Active Searches

As no suitable hydric areas (i.e. standing water in stream beds, pools or moist depressions) were located within a safe nocturnal travel distance from access roads, riparian active searches were not undertaken within the project coupes.

2.5 Walking Transects

Walking transects consisted of fixed-width transects 400 m long, with a detection zone of approximately 50 m; giving a survey area of c.2 ha. Each transect was walked at an average speed of 0.75 km/hr, equating to approximately 30 minutes per transect. Transects were located in areas of likely suitable habitat for the target species, and were walked by two zoologists during the day under suitable weather conditions (e.g. little or no rain). Species detected were recorded and marked by GPS, as was the location of the transect.

Walking transects targeted diurnally-active species (e.g. Koalas and birds). It included observation of habitat features that may be obscured during nocturnal surveys, such as den or latrine sites of quolls, and owl roost trees.

Table 1 below shows the range of surveys undertaken at each coupe. Figure 1 displays the location of surveys and significant species recorded.

Table 1 Surveys undertaken at four coupes within the Upper Murray District

Y – survey undertaken
n/a – survey not able to be undertaken (e.g. suitable riparian/waterbody habitat not recorded).

Coupe	Remote Cameras	Owl Call-playback	Spotlight Surveys	Riparian Active Search	Walking Transect
Upper Murray District					
Line	Y*	Y*	Y*	n/a	Y
Hook	Y*	Y*	Y*	n/a	Y
Rapala	Y	Y	Y	n/a	Y
Celta	Y	Y	Y	n/a	Y

* Nocturnal and camera surveys shared between Hook and Line coupes

3 Results

This report presents the results of fauna surveys for significant species, being species listed as threatened under Commonwealth or State legislation and policy, or species listed under the North East Forest Management Plan. The dataset associated with this report provides the results for all non-threatened fauna recorded during the surveys.

Significant species recorded within the coupes during the surveys are outlined in Table 2, and displayed in Figure 1.

One significant fauna species was recorded, being a Yellow-bellied Glider. This species was recorded in Hook coupe, with a minimum of one individual calling on 20 October 2014.

Table 2 Significant species recorded during survey of twelve coupes within the Bendoc and Nowa Nowa Districts

Key
EPBC Act (1999): EN – Endangered
FFG Act (1988): L – listed under the Act
DSE Advisory List of Threatened Vertebrate Fauna (2013): en – Endangered; vu – Vulnerable; nt – Near Threatened; dd – Data Deficient.
FMP: listed under the North East Forest Management Plan.

Coupe	Survey Technique	Common Name	Scientific Name	Status	# of Sites Recorded	Site	Coordinates	
							Easting	Northing
Hook	Spotlighting	Yellow-bellied Glider	*Petaurus australis*	FMP	1	1	590991.4	5822892.6

4 Figures

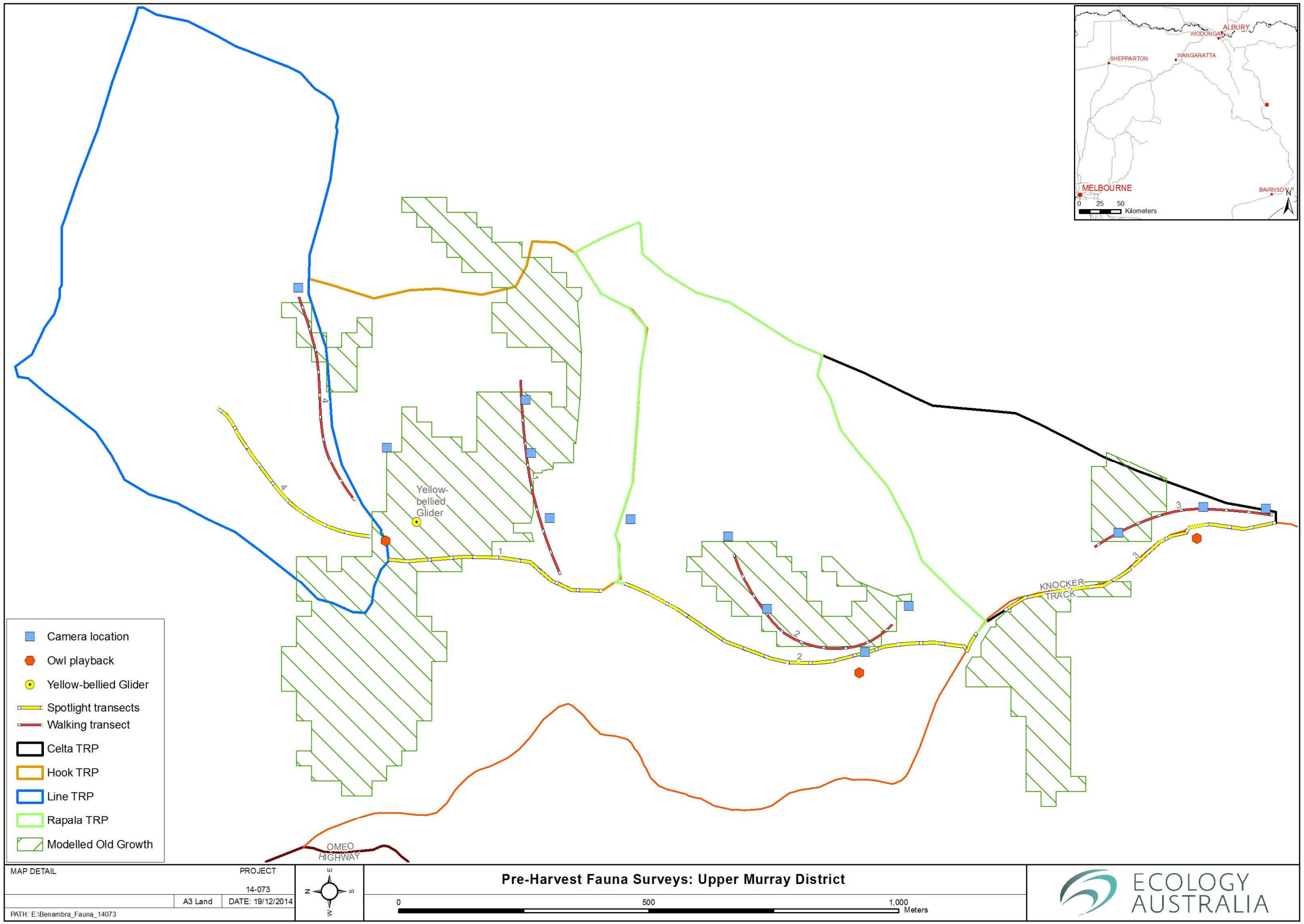

Figure 1 Location of surveys and significant species recorded in four coupes in the Upper Murray District