

Forest Protection Survey Program

Survey Guideline - Spotlighting and Call Playback
(V2)



Acknowledgements

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Contents

1. Spotlighting for Arboreal Mammals	2
1.1 Context	2
1.2 Objectives.....	2
1.3 Survey effort.....	2
1.4 Staff requirements	2
1.5 Equipment	2
1.6 Site selection.....	3
1.7 Conducting the survey.....	3
1.8 Data reporting requirements	4
2. Owl Call Playback	4
2.1 Context	4
2.2 Objectives.....	4
2.3 Survey effort.....	4
2.4 Staff requirements	5
2.5 Equipment for the technique	5
2.6 Navigation	5
2.7 Upon arrival at site	5
2.8 Conducting the survey.....	5
2.9 Data reporting requirements	6

1. Spotlighting for Arboreal Mammals

1.1 Context

This Spotlighting method has been designed to detect presence/absence of selected arboreal mammals, to the levels of abundance required to trigger a management action. The focus of spotlighting for arboreal mammals is the Greater Glider and the Yellow-bellied Glider.

Spotlighting for arboreal mammals will be conducted, in most instances, in conjunction with owl call playback at the same coupe. When conducting the two survey methods together, the owl call playback survey will be conducted before the arboreal mammal spotlighting survey.

1.2 Objectives

To detect presence and record abundance of arboreal mammals within, and immediately adjacent to, selected coupes.

To obtain estimates of relative abundance appropriate to an assessment of whether specific harvesting prescriptions may be triggered.

1.3 Survey effort

Spotlighting will be conducted along pre-identified transects within coupes. Total survey transect length is to be 1 km and may consist of multiple transects of varying lengths, straight or curved, totalling 1 km. When transects are curved it will be important to ensure animals are not double-counted (i.e. the same individual recorded twice from different points along the transect).

Transect locations are to be visited and flagged with reflective tape (or similar) during daylight hours.

A maximum of three repeat surveys are to be conducted for each coupe, seeking to meet the abundance trigger for application of a prescription. Further surveys may be conducted if prescription triggers are almost met – this must be discussed and agreed upon with the FPSP Contract Officer. If unsuitable survey conditions prevent reasonable observations (e.g. poor weather or visibility) the survey must be cancelled, and the site re-visited up to three more times.

Two observers, 10 minutes apart, will then spotlight the same transect(s) at a pace of 10 minutes per 100 m (not including recording time) for a total distance of 1 km. NB. Maintaining the pace of 10 minutes between observers can be difficult, however it is critical that observations are independent, and observers do not receive information from one another.

1.4 Staff requirements

A field survey team of minimum two people.

Ability to visually and audibly identify all arboreal mammals (and owl species) that may be found within the study area.

Experience with applying the standard spotlighting and call playback techniques to detect and identify arboreal mammals.

Ability to use a GPS and hand-held compass to navigate off-tracks through forest at night.

1.5 Equipment

- | | |
|--|---|
| <input type="checkbox"/> 2x spotlights – bright handheld units or high-power headlamps (e.g. LED Lenser) equivalent to 750-1050 Lumens (50-70 watt incandescent bulb equivalent) | <input type="checkbox"/> 2x time-keeping device |
| <input type="checkbox"/> Call playback equipment with speaker/megaphone | <input type="checkbox"/> 2x (e.g. 10x40) binoculars |
| <input type="checkbox"/> 2x GPS | <input type="checkbox"/> 2x hand-held compasses |
| <input type="checkbox"/> 2x range finders | <input type="checkbox"/> Kestrel weather meter or thermometer and anemometer (optional) |
| | <input type="checkbox"/> Appropriate spare batteries for all equipment |

2x FPSP Arboreal Mammal Spotlighting Data Sheets on 2x electronic-based pro-formas

Back-up hard copies of data sheets on waterproof paper on clipboards x2

1.6 Site selection

The location of the transect(s) are to be determined in the field during the day, based on presence of suitable habitat e.g. hollow-bearing trees. Possible survey locations may be pre-determined (e.g. via desktop assessment or using results of other surveys) based on likely presence of old growth, tracks and ridgelines (for access) and presence of suitable habitat. Spotlighting transects shall be located and positioned to maximise coverage of the best available habitat in the coupe and its immediate surrounds, access permitting. (Note that YBG calls can travel up to 300 m in good conditions).

If the coupe is too small to allow a single transect line, either straight or curved, then alternative arrangements can be made such as surveying the entire coupe boundary, or multiple transects within and outside the coupe. Care should be taken with the layout to prevent the same area from being sampled more than once e.g. no tight turns, multiple transects should be spaced as far apart as possible. It is recommended that transects be at least 150 m apart to minimise the risk of duplicate detections from adjacent transects.

All transects must be walked during daylight hours and assessed for safety, unless the transect is along a track and the survey team has reliable knowledge that the track is safe (e.g. no collapses on steep slopes, bridges out or roadside fire-damaged trees yet to be assessed by Regional staff, etc).

If the transect is not on a track, the transect(s) shall be flagged during daytime with enough reflective flagging tape (or similar) to facilitate easy passage at night. All flagging tape must be removed at the end of the survey.

1.7 Conducting the survey

General Methodology

Surveys may be conducted all-year round, but preferably outside of winter to maximise the number of nights with optimal conditions. Surveyors should avoid windy nights (e.g. average steady wind speed $> \sim 10$ km/hr on ground and/or $> \sim 20$ km/hr at canopy height (surveyors will need to make their own decision if wind is only occasionally gusty) or when it is raining. Wind significantly reduces detectability due to noise and visual distraction created by leaf, twig and branch movement.

All spotlight surveys are to commence at least one hour after local sunset and conclude no later than one hour prior to sunrise, as animals may return to their dens and not be available for detection.

The start and end points of the survey transect(s) shall be recorded in both GPSs. Enable tracking in each GPS to record the route taken during the entire time away from the vehicle.

Observations are required to be independent between observers for this survey method. Observers will commence the transect search 10 minutes apart i.e. the second observer will begin walking the transect and surveying 10 minutes after the first. Observers are to walk at an average pace of 10 minute / 100 m. (This is 0.6 km/hr. Note that normal walking pace on clear, flat ground (ie. on a track) is about 4 km/hr).

The second observer is not to receive any information about the first observer's observations during their survey. (For example, the second observer shall avoid watching the behaviour of the first observer ahead, especially when the lead observer has just started, and the latter is still waiting to start). This may also mean that the second observer might need to stop, turn off their torch and wait if they are getting too close to the first observer during the survey.

Record all animals seen or heard. When an animal is seen (identified with binoculars as appropriate), or heard, record the species, the GPS location of the observer on the transect, the magnetic bearing to the animal from the observer, the distance to the animal (using the range finder where appropriate), and the distance from the start of the transect. You do not need to spend as much time trying to get accurate measurements for species that are obviously non-target / non-threatened (in order to maintain the specified average walking pace).

Record the colour form of each Greater Glider seen i.e. grey/white, black/white, all white, all black, all grey.

Any animals detected beyond the ends of the transect (i.e. not between the perpendicular ends of the transect) shall be recorded as opportunistic observations.

Upon completion of the survey, the first observer shall wait quietly with the spotlight off, for the second observer. If more than one transect is surveyed, the first observer shall wait until both can move to the next transect together.

At the end of the survey the total number of individuals of each species detected shall be calculated by the observers, comparing observations of the individuals seen (and heard) to determine which had been detected by both observers and which were unique to one or other of the observers. This could be done by walking back along the transect(s)

together and comparing observations at each GPS point. When no more surveys are to be conducted at the site, remove all flagging tape as you travel back along the transect.

Where it is not clear if the same individual was observed by both observers the data can be examined in GIS to determine duplicate observations (e.g. using the distance, bearing and transect locations to plot animal locations).

After the first night of survey has been completed at the coupe the resulting abundance estimates for both species determines whether more surveys are required coupe and, if they are, informs the decision as to which species is targeted next. For example, if detections of nine Greater Gliders and nine Yellow-bellied Gliders are made on the first transect then the next transect would target Greater Gliders (the trigger for YBGs has already been met while the trigger for GGs has not).

Save the GPS track upon return to the vehicle at the end of the survey to assist navigation in future surveys and for data reporting.

Call playback can also be used to detect some arboreal species (e.g. Yellow-bellied Gliders, Koalas). In coupes where Yellow-bellied Gliders have not been seen or heard on a transect, call playback will be carried out after spotlighting surveys are finished. Koalas will also be included in call playback surveys during the breeding season (Spring – Summer).

The 10 minute call playback sequence (at approximately 110-120% of natural volume) for Yellow-bellied Gliders and Koalas is given below.

Yellow-bellied Glider call	– 3 mins
Silence	– 2 mins
Powerful Owl call	– 3 mins
Silence	– 2 mins
Koala call	– 3 mins
Silence	– 2 mins

The playback device should be raised as far off the ground as practicable to facilitate call broadcast.

1.8 Data reporting requirements

Data requirements are outlined in the Spotlight Call Playback data sheet.

2. Owl Call Playback

2.1 Context

This survey technique is designed to detect direct evidence of owls via a general call playback survey tool.

Owl call playback will be conducted, in most instances, in conjunction with Spotlighting for arboreal mammals at the same coupe. When conducting the two survey methods together, the Owl call playback survey will be conducted before the Arboreal mammal spotlighting survey.

Data obtained may lead to further survey effort e.g. dawn/dusk watch, diurnal tree searches to search for recent and frequently used nesting or roosting sites for these owl species. Decisions related to any requirement for further survey will be determined by DELWP.

2.2 Objectives

To detect threatened owl species (Powerful, Sooty, Masked and Barking Owls) within, and adjacent to selected coupes.

2.3 Survey effort

Owl call playback may be conducted from roads and tracks within or adjacent to selected coupes

Two observers are to spend about 40 mins conducting the owl call playback with spotlighting, not including walking time to and from the site.

Playback and listening will take about 30 mins.

After call playback, each observer will spend 10 mins spotlighting, covering 100m either side of the call playback location (20 mins and 200 m of survey in total).

Up to three repeat surveys may be conducted over separate nights. Records of owls (including estimated distance and bearing from the observer to the observed) will be used to inform whether further survey effort is required to search specifically for nesting and regular roost trees.

If owl call playback is conducted on the same night as a spotlighting transect(s) for arboreal mammals, then call playback must be conducted at least 200 metres away from the spotlight transect start and finish points.

2.4 Staff requirements

A field survey team of at least two people.

Observers must be able to visually and audibly identify all the owl species (and arboreal mammals) that could be found within the study area.

Observers must be experienced with applying the standard call playback and spotlighting technique to detect and identify owls (and arboreal mammals).

Observers must be able to use a GPS and hand-held compass to navigate off tracks through the bush at night.

2.5 Equipment for the technique

- | | |
|--|--|
| <input type="checkbox"/> Call playback equipment with speaker/megaphone | <input type="checkbox"/> 2x binoculars |
| <input type="checkbox"/> Audio recording of owl calls | <input type="checkbox"/> 2x hand-held compasses |
| <input type="checkbox"/> 2x spotlights – bright handheld units or high-power headlamps (eg LED Lenser) | <input type="checkbox"/> 2x FPSP Owl Call Playback Data Sheets on 2x electronic-based pro-formas |
| <input type="checkbox"/> 2x GPS | <input type="checkbox"/> Back-up hard copies of data sheets on waterproof paper on clipboards x2 |
| <input type="checkbox"/> 2x range finders | |
| <input type="checkbox"/> 2x time-keeping device | |

2.6 Site preparation

The Contractor is responsible for determining which parts of the coupe contain the most likely habitat for any prescribed species identified. These parts of the coupe will be the priority areas to search, and may include gullies, particular aspects, sharp breaks in slope, tops of embankments etc. DELWP will conduct desktop assessments to provide some supporting information to identify highest quality habitat, where this information is available

2.7 Navigation

The location of the playback site and ends of the spotlight transect will be pre-determined and shall be recorded in both GPSs.

2.8 Upon arrival at site

If conducting the Owl call playback independently of an arboreal mammal spotlight transect, the field team shall aim to arrive near the site no earlier than 30 mins after local sunset to commence the survey no earlier than one hr after local sunset.

If not surveying from a track, mark the transect in advance with enough reflective flagging tape (or similar) to facilitate easy passage along it at night.

2.9 Conducting the survey

Sites shall not be within 3 km of each other if being surveyed on the same night. Some owls can be heard up to two km away and care shall be taken not to repeat count the same animal from different sites.

Owl call playback is best done in the early hours of darkness, but only when dusk has definitely finished.

Raise the playback device as far off the ground as is practicable.

To commence the survey, record the start time and listen quietly for 2 minutes.

Then play the audio recordings at about 110% of natural volume.

Allow for the 2 min listening period between calls. Owl call playback sequence:

1. Powerful Owl – 2 mins
2. Silence – 2 mins
3. Barking Owl – 2 mins
4. Silence – 2 mins
5. Sooty Owl – 2 mins (6 territorial screams at 30 sec intervals)
6. Silence – 2 mins
7. Sooty Owl – 1 min (trilling)
8. Silence – 2 mins
9. Masked Owl – 2 mins (6 territorial screams at 30 sec intervals)
10. Silence – 2 mins
11. Masked Owl – 1 min (chattering)

Note that Masked Owl calls must be last in the sequence since they often only respond with a single shriek which may go unnoticed during the playback of the other species, especially if it is distant.

If a response call is heard, record the species, GPS location of the observer, approximate distance and magnetic bearing to the source.

Be alert for glimpses of animals flying in quietly, especially silhouetted against the night sky.

During call playback keep spotlights turned off unless an unidentified animal is seen or heard, and it is likely to be well within illumination and identification range of the spotlight.

At the end of the call playback listen quietly for another 2 minutes.

Then commence a spotlighting session with observers moving in opposite directions (reciprocal bearings) away from the playback point.

Spotlight for 10 mins out to 100 m each from the playback point (total transect length to be about 200 m).

Target owls for detection but record all species seen and heard.

When an animal is heard or seen (identified with binoculars as appropriate), record the species, the GPS location of the observer on the transect, the magnetic bearing from the observer, and the approximate distance to the animal (use the range finder as appropriate).

Record the end time of the survey.

Mark the end of each transect on the GPSs.

If no more surveys are to be conducted at the site then all flagging tape is to be removed.

2.10 Data reporting requirements

Data requirements are outlined in the Spotlight Call Playback data sheet

FPSP data is to be reported in accordance with the procedures outlined in the SOP.