

## Technical Bulletin # 5

# South-eastern Long-eared Bat survey at Murray-Sunset National park



Left: South-eastern Long-eared Bat.  
Photo: Lindy Lumsden

### At a glance

- The South-eastern Long-eared Bat is listed as vulnerable under the Environmental Protection and Biodiversity Conservation Act 1999.
- A research survey was conducted to investigate the occurrence of the South-eastern Long-eared Bat within part of the Murray Sunset National Park and to increase understanding of habitat requirements.
- No South-eastern Long-eared Bats were detected during this study indicating that further ecological research is required to fully understand their ecology before detailed habitat requirements can be determined.

**This technical bulletin summarises the findings of field research undertaken in March 2010 to locate new populations of the South-eastern Long-eared Bat (*Nyctophilus corbeni*) in areas of long unburnt mallee within the Murray Sunset National Park.**

The project aimed to investigate the occurrence of the South-eastern Long-eared Bat within part of the Murray Sunset National Park and to increase the understanding of habitat requirements by recording broad habitat features at each successful trapping site.

### **Background**

The South-eastern Long-eared Bat is listed as Vulnerable under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. It was previously known as the Greater (or Eastern) Long-eared Bat (south-eastern form) *N. timoriensis*, and while recognised as a distinct species for some time, has only recently been formally described. In Victoria, it is a very rare species and is listed as threatened under the Flora and Fauna Guarantee (FFG) Act and categorised as vulnerable.



Above: South-eastern Long-eared Bat. Photo: Lindy Lumsden.

In Victoria, prior to 2007, the South-eastern Long-eared Bat had only been recorded six times. In 2006/07 and 2007/08 there were an additional 15 individuals captured during an intensive study at Nowingi, west of Hattah-Kulkyne National Park. The conclusion from this study was that the long unburnt vegetation in the Nowingi area, and its situation within a large intact area of vegetation, were likely to be the key factors influencing the comparatively high numbers found in this area. Based on these habitat preferences, areas of old growth mallee were targeted for survey in this current survey.

### Method

#### Site Selection

Five sites located in the far west of the Murray Sunset National Park were selected for survey using data from the Mallee Fire and Biodiversity Project, which enabled the surveying to be more targeted. Sites were selected based on areas mapped as old growth mallee, including some that were considered very old.

#### Survey Techniques

This project employed the use of harp traps which are a large aluminium frame with two banks of tightly stretched fine fishing line, leading into a catching bag.

The traps were set in potential flight paths between trees or adjacent to trees with obvious hollows. Three harp traps were set at each site for four nights, resulting in a total of sixty harp trap-nights for the survey. Harp traps were generally moved to a new location within the site after two nights, as bats readily learn the location of traps and avoid them if they remain in the one place for too long.

Trapped bats were identified, aged, sexed, weighed, measured and their reproductive condition assessed based on external appearance. Females were classified as pre-parous, pregnant, lactating or post-lactating.



Above: SHarp trap used in this survey. Photo: Lindy Lumsden.

Habitat assessments were made at each site to investigate tree size and hollow availability. Two Anabat detectors were set at each site to collect data on all bats for future analysis.

### Results

A total of 176 bats were caught during the four nights of trapping, however no South-eastern Long-eared Bats were caught. Six species of bats were trapped:

- Gould's Wattled Bat (*Chalinolobus gouldii*)
- Lesser Long-eared Bat (*Nyctophilus geoffroyi*)
- Inland Forest Bat (*Vespadelus baverstocki*)
- Southern Forest Bat (*Vespadelus regulus*)
- Inland Freetail Bat (*Mormopterus* sp.)
- Southern Freetail Bat (*Mormopterus* sp.)

In addition, the White-striped Freetail Bat (*Tadarida australis*) was recorded by its audible echolocation call. None of these species are listed as threatened in Victoria and all are considered common species. The most commonly caught species was the Gould's Wattled Bat (41% of captures). The Lesser Long-eared Bat was recorded at every site and represented 13% of total captures. Over 15,000 detector files were recorded using the Anabat detectors.

The weather during this study was variable. Immediately prior to the trip a storm swept across Victoria with the area receiving some rain, resulting in some surface water for several days. The first few days were cooler than average but it warmed up later in the trip. The temperature on dusk ranged from 16°C (on 9 March) to 24°C (on 12 March), dropping to 10°C and 16°C, respectively, pre-dawn. The nights were relatively calm, with no rain and little moon.

Although no South-eastern Long-eared Bats were trapped during this survey, the area appears to have suitable habitat for the species. It is important to remember that in areas that the South-eastern Long-eared Bat occurs it appears to be in very low densities and moves around considerably. As a result extensive sampling effort is required to detect it. This species has a similar flight pattern and forages at a similar height to other species of long-eared bats which are commonly caught in harp traps, and hence it is believed that the generally low capture rates reflect their true abundance rather than being an artefact of low trappability.

Habitat in the study area was considered suitable for the South-eastern Long-eared Bat, although not enough is known of the habitat requirements of this species to be able to determine if all necessary resources are present, in the required densities and spatial configurations.

### Recommendations

Management recommendations include:

- Map areas of very old mallee within this region that have not been burnt for 150+ years and recognise their value in fire management plans;



Above: Old growth Mallee targeted for survey sites. Photo: Lindy Lumsden.

It is also recommended that further research is undertaken on the known population at Nowingi to:

- Determine the location, habitat use and requirements of the female component of the population;
- Collect more information on the types of roosts used throughout the year, especially maternity roosts which are likely to be the most critical habitat requirement;
- Determine roost area selection by comparing hollow availability in areas used for roosting with hollow availability elsewhere, to determine if they are using particular components of the landscape in which to roost;
- Determine foraging ranges and areas selected for foraging;
- Determine home range sizes;
- Determine diet and investigate if this species is being selective in their choice of prey, and compare its diet to that of the common Lesser Long-eared Bat;
- Assess reproductive patterns, reproductive success and population dynamics (e.g. when breeding occurs, the proportion of females that breed

each year, recruitment of young into the population; survival rates; sex ratios);

- Investigate the size of the South-eastern Long-eared Bat population.

### Acknowledgements

The Mallee CMA engaged the Arthur Rylah Institute for Environmental Research to undertake this study, with funding provided by the Victorian Government and Parks Victoria. Data collected through the Mallee Fire Ecology project undertaken by LaTrobe University was used to base the targeted surveys in areas of old growth Mallee in the Murray Sunset National Park.

### Further Information

The information for this bulletin has been taken from "Survey of South-eastern Long-eared Bat within parts of Murray Sunset National Park"; a report for the Mallee CMA by the Arthur Rylah Institute for Environmental Research.

For further information about the South-eastern Long-eared Bat survey please contact the Mallee CMA on 03 5051 4377.

## Project Partners



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