

Technical Bulletin # 11

# Survey for the threatened Millewa skink in Murray-Sunset National Park



Above and left: Millewa skink (*Hemiergis millewae*). Photo: Wildlife Profiles.

**This technical bulletin summarises the findings of field research undertaken in April and May 2011 on the distribution and habitat of the Millewa skink (*Hemiergis millewae*) within Murray-Sunset National Park.**

### Background

The Millewa skink is a small, thigmothermic skink that occurs in isolated populations from southern Western Australia to south-central and south-eastern South Australia and reaches the eastern limit of its distribution in north-western Victoria.

It inhabits very large, old triodia (*Triodia scariosa*) clumps with significant accumulations of litter or dead material, suggesting a preference for areas of long-unburnt mallee. Triodia provides a sheltered microclimate and a food supply of invertebrates that allows this species to survive in the harsh mallee environment.

In Victoria, the species was first recorded in the western Sunset Country in 1973, in the vicinity of Millewa South Bore.

### At a glance

- The Millewa skink is recognised as critically endangered in Victoria and is listed under the *Flora and Fauna Guarantee Act 1988*;
- To improve the knowledge of the distribution and habitat of the Millewa skink, a habitat survey was conducted in Murray-Sunset National Park;
- Twenty-seven individuals were recorded at 18 of the 52 sites examined.



Above: Habitat of the Millewa skink. Photo: Wildlife Profiles.

In March 2007, the species' known range was substantially expanded when a single individual was trapped in the east of Murray-Sunset National Park.

Given the existing poor knowledge of the ecology of Millewa skinks, the primary objectives of this project were to:

- Improve knowledge of the species' distribution within Murray-Sunset National Park; and
- Increase knowledge of the species' habitat preferences and how this may influence management, especially in terms of fire management.

### **Method**

Field surveys were undertaken from 21 April to 2 May 2011 within three broad areas: the south-eastern Sunset Country; in the vicinity of the historical records near Millewa South Bore in the south-western Sunset Country; and in long unburnt examples of Loamy Sands Mallee vegetation with large triodia in the southern Sunset Country.

Fifty-two sites were surveyed by raking triodia hummocks – this method has proven to be the most useful for locating this species.

Each hummock was methodically dismantled with hand rakes and searched for individual lizards. The ground and litter beneath the hummock was then raked to search for the presence of other sheltering lizards. Measurements of various habitat parameters were also recorded for all raked hummocks. This included recording hummocks' height, width, length, vigour and growth phase. This structural information was also collected for each of the mini-quadrats established at each of the 52 survey sites.

When a Millewa skink was located, it was captured and held temporarily to allow for measurement of snout-vent length, enabling identification of the animal's life phase. The localities of all capture sites were recorded, as were incidental observations of other fauna of note.

Subjective assessment of three potential threats (presence of weeds, feral predators and grazing by feral herbivores) was undertaken on a scale of 0 (none) to 3 (severe) at all sites.

### **Results**

Twenty-seven Millewa skinks were caught at 18 of the 52 sites examined. Animals were mainly found within Loamy Sands



Above: Millewa skink. Photo: Wildlife Profiles.

Mallee, although one occurrence was in Woorinen Mallee. The species was found predominantly in larger hummocks (>0.4m<sup>3</sup>) in the latter stages of hummock development. Future analyses will investigate microhabitat selection using the comprehensive dataset collected during the survey.

Other species of note that were detected included: Regent Parrot (*Polytelis anthopeplus monarchoides*), Mallee Emu-wren (*Stipiturus mallee*) and Bardick (*Echiopsis curta*). Additionally, the nationally vulnerable Yellow Swainson-pea (*Swainsonia pyrophila*) was located at one of the 12 vegetation quadrats.

### **Distribution**

The project succeeded in mapping the extent of the two known populations of the Millewa skink. From estimates of the possible bounds of these populations, it appears that the larger western population centred on Millewa South Bore may have contracted southwards since 1986; however, this requires further investigation. The Millewa South Bore population occurs in an area of approximately 100km<sup>2</sup> and the population in the Last Hope Track area appears restricted to less than 6km<sup>2</sup>. Fire history within the Sunset Country is likely to be a major factor affecting the current distribution of the species.

### **Habitat requirements**

Examination of the habitat data appears to confirm the perceived dependence of this species on large, old triodia within Loamy



Above: Recently burnt, young *Triodia scariosa* ssp. *scariosa*. Photo: Wildlife Profiles.

Sands Mallee. As such, habitat conditions suitable for this species may not develop for in excess of 30 years after fire. Furthermore, the Millewa skink probably has very low vagility, hence its rate of recolonisation of regrowing habitat is likely to be very slow. Small unburnt remnants within burnt areas may be important for facilitating such recolonisation.

Although fire may be the major threat to populations of this species, other potential threats observed at Millewa skink sites included the ubiquitous presence of feral predators and the widespread occurrence of introduced grazing animals. Appropriate fire management within Millewa skink habitat will be critical for the persistence of the species in Victoria.

**Implications and key recommendations**

Recommendations to assure long-term



Above: Large, long-unburnt *Triodia scariosa* ssp. *scariosa*. Photo: Wildlife Profiles.

persistence of this species include:

- Prevent widespread wildfires, which remove key habitat and reduce the distribution of this endangered species. Fire should be excluded from Millewa

skink habitat until more is known of the fire ecology of this species;

- The area of triodia-dominated Loamy Sands Mallee burnt by the recent fire in the south-western Sunset Country

should be measured, the proportion of the total area occupied by the species calculated and the consequent potential effects of the fire on this population established. Such figures will be instructive during future fire management planning;

- Any ecological burning planned in or near Millewa skink habitat needs to be implemented only after the likely effects on the population are understood;
- Further research into the species' detailed habitat requirements is required, with a focus on the processes which determine high-quality habitat. Analyses of the habitat data collected during this project is essential and will facilitate the formulation of guidelines for appropriate habitat management;
- Collection of additional floristic and structural habitat information at all known sites should be undertaken to add to the range of habitat analyses possible;
- Additional investigation of the extent of the western population is desirable and further survey within other areas identified as potential habitat is encouraged;
- Small unburnt remnants within fire areas should be monitored to investigate recolonisation after fire.

### Acknowledgements

The Mallee Catchment Management Authority (CMA) engaged Wildlife Profiles to undertake this study.

This project was supported by the Mallee CMA in partnership with Parks Victoria, through funding from the Victorian Government.



Above: Burnt spinifex hummocks after recent control burn. Photo: Wildlife Profiles.  
Below: Hand searching and raking of triodia hummocks. Photo: Wildlife Profiles.



### Further Information

The information for this technical bulletin has been taken from Robertson P, Coventry P and Sluiter I (2011). *Survey for the threatened Millewa skink (Hemiergis millewae) in Murray-Sunset National Park, April 2011*. Unpublished report to the

Mallee Catchment Management Authority - Wildlife Profiles Pty Ltd, Melbourne.

For further information about the Millewa skink, please contact the Mallee CMA on 03 5051 4377.

## Project Partners



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