

Technical Bulletin # 6

Mallee Emu-wren (*Stipiturus mallee*) Survey at Murray Sunset National Park and Annuello Flora and Fauna Reserve 2010



Above: Mallee Emu-wren. Photo: Simon Watson.

This technical bulletin summarises the findings of field research undertaken in October 2010 on the distribution of the Mallee Emu-wren (*Stipiturus mallee*) within Murray-Sunset National Park and Annuello Flora and Fauna Reserve.

The project aimed to;

- assess if Mallee Emu-wren populations existed at seven targeted locations in the Murray Sunset National Park and Annuello Flora and Fauna Reserve;
- assess the vegetation and potential threatening processes at sites occupied by Mallee Emu-wren; and
- provide advice on future management actions and key areas for research.

Background

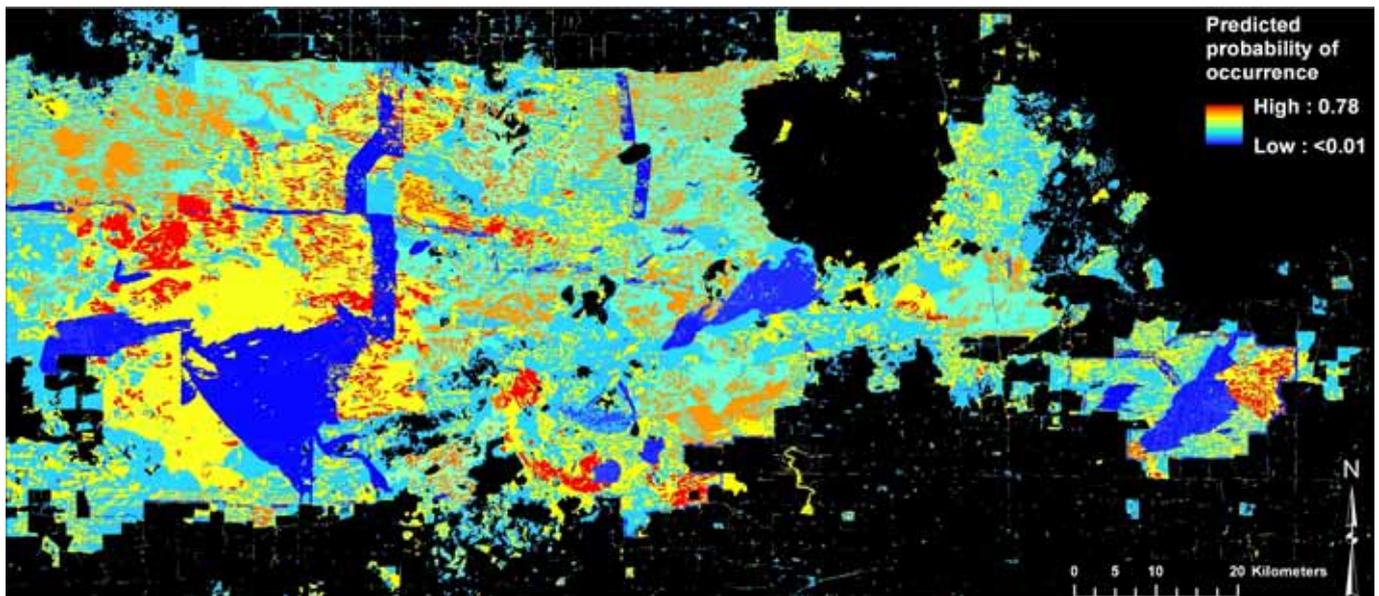
The Mallee Emu-wren is listed as vulnerable under the Environment Protection and Conservation (EPBC) Act 1999.

The Mallee Emu-wren is a small, elusive bird found only in the Murray Mallee region of Victoria and South Australia, south of the Murray River.

This species is known to live in large conservation reserves in the Mallee Catchment Management (CMA) region, such as the Murray-Sunset National Park and Hattah Kulkyne National Park.

At a glance

- The Mallee Emu-wren is listed as nationally vulnerable under the Environmental Protection and Biodiversity Conservation Act 1999.
- A research survey was conducted to investigate the current distribution of the Mallee Emu-wren within the Murray Sunset National Park and Annuello Flora and Fauna Reserve.
- Results from the survey confirmed the influence that EVC and time-since-fire have on the occurrence of Mallee Emu-wren. Results also showed that the probability of occurrence of Mallee Emu-wren increased with higher coverage of healthy *Triodia scariosa* hummock grass.



Above: Predicted probability of occurrence of Mallee Emu-wren throughout Murray-Sunset National Park and Annuello Flora and Fauna reserve. Image: Deakin University.

However, there remains little knowledge of the detailed distribution of this species throughout many areas of Murray-Sunset National Park.

Furthermore, there have been few surveys investigating whether this species occupies potentially suitable habitat in the adjoining Annuello Flora and Fauna Reserve. This project will assist with directing future management of this species by addressing this knowledge gap.

Method

Records of the Mallee Emu-wren

Transects 500 metres in length were traversed on foot at five geographic locations within the Murray Sunset National Park and Annuello Flora and Fauna Reserve from sunrise until mid afternoon. At the start of each 500metre transect, recordings of the alarm calls of the Mallee Emu-wren, Striated Grasswren, Red-lored Whistler and Black-eared Miner were played for 45 seconds through an amplified MP3 player.

Upon detection of a threatened Mallee bird species, observers recorded the location using a GPS and counted the number of individuals. For each observation of a Mallee Emu-wren, the AMG coordinates of the bird's position, the number of individuals present and their sex was recorded.

Species distribution across the region

The software program Maxent was used to develop species distribution models showing the probability of occurrence of Mallee Emu-wren throughout the Murray-Sunset National Park and Annuello Flora and Fauna reserve (see map above).

Using this software program data points from the current survey and previous surveys conducted within the past five years (2006 and 2009) were used to model the distribution of the species, on the basis of the post-fire age of vegetation and the type of ecological vegetation class.

Assessment of Mallee Emu-wren habitat

For each transect, observers recorded a number of different vegetation attributes.

Along, with many other attributes, the cover of Mallee vegetation that supported *Triodia scariosa*, the most common growth phase of *T. scariosa* and the amount of *T. scariosa* vegetation that was alive was recorded. The intensity of potential threatening processes, grazing and predation were also measured through visual detection of animals, detection of tracks and scats. Habitat and threat variables were compared between transects where Mallee Emu-wren were present, and transects where they were absent, to determine the influence of these factors on the species' presence.

Results and key findings

Records of the Mallee Emu-wren

A total of 169.5km of transects were traversed at five geographic locations within the Murray Sunset National Park and Annuello Flora and Fauna Reserve.

Thirty-seven groups of Mallee Emu-wrens were observed at four of the seven locations.

Several other threatened birds were also recorded during the survey including Red-lored Whistlers, Striated Grasswrens, Malleefowl and Black-eared Miners.

Distribution of Mallee Emu-wrens

Results indicate the post-fire age of vegetation and the vegetation composition (EVC) are major factors influencing the distribution of Mallee Emu-wren in the Murray Sunset National Park and Annuello Flora and Fauna Reserve.

Mallee Emu-wrens were most commonly found in vegetation that had not been burnt for 20-30 years and in Woorinen Sands Mallee. Large patches of this combination of EVC and time-since-fire are most common in the western section of the Murray-Sunset National Park, where locally dense populations of Mallee Emu-wren occur.



Above: Mallee Emu-wren habitat. Photo: Simon Watson.

Patches of habitat of the appropriate EVC and post-fire age to support Mallee Emu-wren were also prevalent in the south-eastern Murray Sunset National Park and Annuello Flora and Fauna Reserve, although no Mallee Emu-Wren were encountered in these areas.

Potential threatening processes

Tracks and scats of kangaroos were commonly detected as were tracks and scats of feral goat.

Evidence of the predators was rarely detected; sightings and tracks were generally of Red Fox. None of these variables were found to influence the occurrence of Mallee Emu-wren.

Local habitat requirement of Mallee Emu-Wrens

Mallee Emu-wren were strongly associated with the three key habitat attributes related to *T. scariosa*. The species was most likely to be present in

transects where there was a high cover of vegetation supporting *T. scariosa*, *T. scariosa* vegetation was >66% alive and the *T. scariosa* formed large rounded hummocks.

These habitat preferences provide an insight into the lack of detection of Mallee Emu-wrens in south eastern Murray-Sunset National Park and Annuello Flora and Fauna Reserve.

Despite containing a large extent of Woorinen Sands Mallee 20-30 years since fire, these areas do not display high quality habitat for Mallee Emu-wren, and are thus unlikely to be able to support dense populations at this point in time.

This highlights that factors other than fire and vegetation composition affect the development of habitat suitable for Mallee Emu-wren. Intensity of grazing and climatic conditions of the post-fire environment may be important processes.

Implications and recommendations

Recommendations to assure long-term persistence of this species include:

- Prevention of widespread wildfires removing key habitat and reducing the distribution of this endangered species. Wildfire management is especially important near locally dense areas of Mallee Emu-wrens, which represent a substantial portion of the total population;
- Ecological burning needs to be conducted in an adaptive management framework which monitors and details the ability of different burning scenarios to regenerate or restore high quality habitat for Mallee Emu-wren;
- Further research into the detailed habitat requirements of the species is required, with a focus on the processes that determine high quality habitat;
- An improved monitoring protocol that can detect changes in the distribution of the species and population density should be employed as part of an adaptive management framework that can evaluate current management impacts and direct future management.

Acknowledgements

The Mallee Catchment Management Authority (CMA) engaged Deakin University to undertake this study with funding from the Victorian Government.

Find out more

The information for this technical bulletin has been taken from the "Research survey of Mallee Emu-wren *Stipiturus mallee* at Murray Sunset National Park and Annuello Flora and Fauna Reserve."

For more information on this project, please contact the Mallee CMA on 5051 4377.

Project Partners



Published July 2011.

This publication may be of assistance to you but the Mallee Catchment Management Authority refers readers to our Terms and Conditions, available from our website.

Printed on 100% recycled Australian paper, made from pre- and post-consumer waste.