Wakool Wildlife

Murray Land & Water Management Plan Wildlife Survey 2005-2006

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INTRODUCTION

Why do a wildlife survey?
One of the great things about living in rural Australia is all the wildlife that we share the landscape with. Historically, humans have impacted on the survival of many native plants and animals. Fortunately, there is a growing commitment in the country to wildlife conservation on the farm. As we improve our knowledge and understanding of the local landscape and the animals and plants that live in it we will be in a much better position to conserve and enhance our natural heritage for future generations.

This wildlife survey was an initiative of the Wakool Land & Water Management Plan (LWMP) Working Group and is the largest and most extensive ever undertaken in the area. Wakool was one of four LWMP areas that took part in the project. This project had three aims:

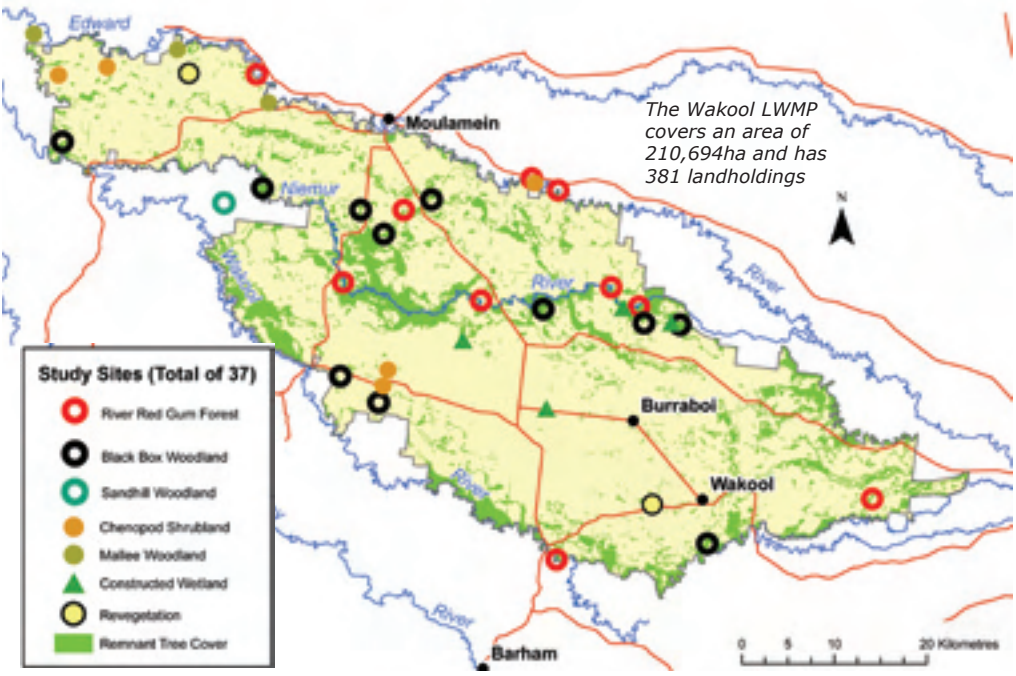
1. To determine the distribution, habitat and local status of birds, reptiles, mammals and frogs
2. To raise awareness about wildlife ecology
3. To promote conservation of remaining species

What methods did we use?
A total of 150 sites were established in the Murray LWMP area with 37 of these in Wakool. The sites were spread across 106 farms and were surveyed between June 2005 and March 2006. They incorporated a range of vegetation types (e.g. Black Box Woodland) as well as revegetation on previously cleared land and constructed wetlands. Methods used to survey wildlife included:

- Bird surveys
- Log rolling for reptiles and frogs
- Spotlighting for mammals, reptiles and nocturnal birds
- Elliot traps for small mammals and reptiles
- Pitfall trapping for reptiles and frogs
- Harp traps for bats
- Using the "Anabat" to record bat calls
- Call broadcasting to attract birds

Other targeted methods were used opportunistically and significant species seen incidentally (e.g. when traveling between sites) were also recorded. Surveying over the entire Murray LWMP area involved over 120 days of field work, usually with at least two people.

***Front cover**: Migratory shorebirds at Tullakool (D. Webb), High quality sandhill woodland near Moulamein (M. Herring), Locals on a wildlife walk during Wakool field day at "North Dale" (M. Herring).*
***Back Cover**: Carpet Python (D.Webb), Sunrise over Niemur River (M.Herring).*



P.Merritt

One of 87 **Freckled Duck** in a flock near Noorong, an excellent find!

CONTENTS

D.Webb

The **Western Grey Kangaroo** is one of three large local kangaroo species.

Summary of Results
There were 273 species (203 Birds, 33 Reptiles, 28 Mammals and 9 Frogs) found across the entire study area. Of these, 226 species were found in Wakool.

Reptiles
A total of 26 reptiles were found in the Wakool LWMP area, more than any other area, highlighted by the discovery of the first Beaked Gecko and Gibber Gecko populations south of the Murrumbidgee River. A Carpet Python found on the Niemur River was the only one for the entire study but based on observations from local landholders the Wakool LWMP area is one of the few remaining strongholds for the Murray-Darling form. Mallee and Sandhill Woodland patches west of Moulamein had the richest reptile diversity. The Regal Skink, Eastern Robust Slider, Sand Goanna and Prong-snouted Blind Snake were highlights. The most common reptiles recorded in Wakool were the Boulenger's Skink and Carnaby's Wall Skink, sometimes occurring in densities over 100 per hectare in good habitat. Sandhill and Mallee Woodland were the most important vegetation types for reptiles across the four Murray LWMP areas but all sites that were messy with old grass, fallen logs, branches, shrubs, sheets of corrugated iron, old fence posts or other habitat were rich in reptile diversity.

Frogs
By far the most common frogs recorded during the entire study were Plains Froglet, Common Froglet and Spotted Marsh Frog but the Wakool LWMP area also had Barking Marsh Frog and Peron's Tree Frog at a relatively large number of sites. They were frequently recorded in large numbers near water, along rivers, creeks and in flooded wetlands including rice. The adults and tadpoles of these common frogs provide a great food source for waterbirds like the Great Egret and reptiles like the Tiger Snake.


Peron's Tree Frog *P.Merritt*


Curl Snake *D.Webb*

REPTILES	
Eastern Long-necked Turtle R	*Chelodina longicollis*
Murray Turtle R	*Emydura macquarii*
• Olive Legless Lizard R	*Delma inornata*
• Southern Marbled Gecko C	*Christinus marmoratus*
• Gibber Gecko R	*Diplodactylus byrnei*
• Tessellated Gecko R	*Diplodactylus tessellatus*
• Wood Gecko R	*Diplodactylus vitattus*
• Beaked Gecko R	*Rynchoedura ornata*
• Carnaby's Wall Skink C	*Cryptoblepharus carnabyii*
• Regal Skink R	*Ctenotus regius*
• Robust Ctenotus U	*Ctenotus robustus*
Spotted-backed Ctenotus U	*Ctenotus orientalis*
• Tree-crevice Skink R	*Egernia striolata*
Garden Skink R	*Lampropholis guichenoti*
South-eastern Slider R	*Lerista bougainvillii*
• Wood Mulch Slider U	*Lerista muelleri*
• Eastern Robust Slider R	*Lerista punctatovittata*
• Dwarf Skink U	*Menetia greyii*
• Chenopod Morethia R	*Morethia adelaidiensis*
• Boulenger's Skink C	*Morethia boulengeri*
• Shingleback R	*Tiliqua rugosa*
• Common Blue-tongue Lizard U	*Tiliqua scincoides*
• Eastern Bearded Dragon U	*Pogona barbata*
• Sand Goanna R	*Varanus gouldii*
• Lace Monitor U	*Varanus varius*
Southern Blind Snake R	*Ramphotyphlops bicolor*
• Prong-snouted Blind Snake R	*Ramphotyphlops bituberculatus*
Woodland Blind Snake R	*Ramphotyphlops proximus*
• Carpet Python R	*Morelia spilota*
• Tiger Snake R	*Notechis scutatus*
• Red-bellied Black Snake R	*Psedechis porphyriacus*
• Eastern Brown Snake C	*Pseudonaja textilis*
• Curl Snake U	*Suta suta*

FROGS	
• Peron's Tree Frog U	*Litoria peroni*
• Southern Bell Frog R (t)	*Litoria raniformis*
• Plains Froglet C	*Crinia parinsignifera*
• Common Froglet C	*Crinia signifera*
• Pobblebonk U	*Limnodynastes dumerillii*
• Spotted Marsh Frog C	*Limnodynastes tasmaniensis*
• Barking Marsh Frog U	*Limnodynastes fletchori*
Common Spadefoot R	*Neobatrachus sudelli*
• Wrinkled Toadlet R	*Uperoleia rugosa*

The beautiful Southern Bell Frog was recorded in large numbers at some sites. The populations in the Wakool LWMP area are one of very few remaining strongholds for the species.

R - Rare (1 - 10% of sites)
U - Uncommon (11-25% of sites)
C - Common (26% sites or more)
• - Found in Wakool
- Introduced species
(t) - Listed as threatened in NSW

BIRDS & MAMMALS

Birds

A total of 167 bird species were found in Wakool. The Wakool area is fortunate in that it supports species typically found well inland like Chestnut-crowned Babbler and Black Honeyeater but also species only found in south-eastern Australia like Flame Robin and Superb Fairy-wren. Sites along major waterways like the Wakool, Edward and Niemur Rivers that contained high habitat diversity had the highest bird diversity. They exclusively supported species like the Azure Kingfisher and Sugar Glider. However, large patches of Mallee and Sandhill Woodland, as well as Chenopod Shrubland also supported a unique suite of birds, including many that are not found in floodplain vegetation types.

Sites dominated by common species had poor habitat diversity and were typically subject to continuous grazing, removal of fallen timber and a lack of flooding. The 14 most common birds for the entire Murray LWMP study (recorded at 75 or more sites) were the Australian Magpie, Galah, Striated Pardalote, Willie Wagtail, Crested Pigeon, Superb Fairy-wren, Red-rumped Parrot, Noisy Miner, Australian Raven, Eastern Rosella, Yellow Thornbill, White-plumed Honeyeater, Magpie-lark and White-winged Chough. Many of these bird species occur in open farmland and are 'winners', having benefited from changes to the landscape since European settlement.

Some of the rarest woodland birds found in the Wakool LWMP area were the Gilbert's Whistler, Varied Sittella and Crimson Chat, all only present at the best quality remnants. The Wakool-Tullakool Evaporation Ponds and other constructed wetlands like irrigation storage dams that had good habitat were rich in waterbirds with rarities like Black-tailed Godwit, White-winged Black Tern, Gull-billed Tern and Banded Stilt.

Mammals

A total of 25 mammal species were found in Wakool. The majority of these were bats and marsupials. The bats included a range of wattled, freetail, long-eared, forest and broad-nosed bats. The greatest number and diversity of bats were recorded in wetlands and along rivers. These fascinating creatures consume up to half their body weight in insects every night! During the day they roost in tree hollows and under bark.

The only common native mammals, apart from bats, were the Eastern Grey Kangaroo and Brush-tailed Possum. The most exciting species found was the Platypus, recorded in the Edward River east of Moulamein. Observations by local landholders indicate there at least several in that area. The Yellow-footed Antechinus, a small carnivorous marsupial, was found in densities up to 24 per hectare at sites that had numerous large, old logs. This species is well known for its bizarre breeding habits where all males die of exhaustion after a frantic two-week mating season. Good quality red gum also supported the Sugar Glider and Black Wallaby but no Echidnas or Feathertail Gliders were recorded for the entire study, reflecting their rarity and concerning local status. Historically, early settlers recorded the Eastern Quoll, Rufous Bettong, Bilby, Northern Hairy-nosed Wombat and White-footed Rabbit Rat, now all extinct in the Murray region.

There were six introduced mammals recorded in Wakool during the study. In a joint effort with the Rural Lands Protection Board, many landholders in Wakool have been extremely proactive in eradicating feral animals especially the fox and this will have enormous benefits to the local wildlife.

MAMMALS

- Platypus R
- Yellow-footed Antechinus U
- Common Brushtail Possum C
- Common Ringtail Possum U
- Sugar Glider R

Squirrel Glider R (t)

- Eastern Grey Kangaroo C
- Western Grey Kangaroo R
- Red Kangaroo R
- Black Wallaby R

Common Wombat R

- Gould's Wattled Bat C

Little Pied Bat R (t)

- Chocolate Wattled Bat U
- Lesser Long-eared Bat U
- Southern Forest Bat R
- Little Forest Bat C
- Inland Broad-nosed Bat U
- Inland Freetail Bat U
- Southern Freetail Bat C
- White-striped Freetail Bat U
- Water Rat U
- #House Mouse U
- #Fox C
- #Cat R
- #Rabbit C
- #Hare C
- #Pig R

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Common Ringtail Possum *P. Merritt*

BIRDS
• Emu R
Brown Quail R
• Stubble Quail R
• Plumed Whistling-duck R
• Australian Wood Duck U
• Freckled Duck R (t)
Blue-billed Duck R (t)
Musk Duck R
• Black Swan R
• Australian Shelduck R
• Hardhead R
• Pacific Black Duck U
• Australasian Shoveler R
• Pink-eared Duck R
• Grey Teal U
• Chestnut Teal R
Magpie Goose R (t)
Great Crested Grebe R
• Hoary-headed Grebe R
• Australasian Grebe R
• Darter R
• Great Cormorant R
• Little Pied Cormorant R
• Little Black Cormorant R
• Australian Pelican R
• White-necked Heron R
• White-faced Heron U
Cattle Egret R
Little Egret R
• Great Egret R
Intermediate Egret R
• Nankeen Night Heron U
Glossy Ibis R
• Straw-necked Ibis R
• Australian White Ibis R
• Royal Spoonbill R
• Yellow-billed Spoonbill R
• Black-shouldered Kite R
• Black Kite R
• Whistling Kite U
• Collared Sparrowhawk R
Brown Goshawk R
White-bellied Sea-eagle R
• Little Eagle R
• Wedge-tailed Eagle U
• Swamp Harrier R
• Spotted Harrier R
• Black Falcon R
• Brown Falcon U
• Nankeen Kestral U
• Peregrine Falcon R
• Australian Hobby R
Brolga R (t)
Buff-banded Rail R
Australian Spotted Crake R
Spotless Crake R
• Dusky Moorhen R
• Purple Swamphen R
• Eurasian Coot R
• Black-tailed Native-hen R
Bush Stone-curlew R (t)
• Painted Button-quail R
• Little Button-quail R
• Latham's Snipe R
• Black-tailed Godwit R (t)
• Common Greenshank R
• Marsh Sandpiper R
Wood Sandpiper R
• Red-necked Stint R
• Curlew Sandpiper R
• Sharp-tailed Sandpiper R
• Black-winged Stilt R
• Banded Stilt R
• Red-necked Avocet R
• Red-capped Plover R
• Red-kneed Dotterel R
• Black-fronted Dotterel R
• Masked Lapwing R
Banded Lapwing R
Inland Dotterel R
• Silver Gull R
• Whiskered Tern R
• White-winged Black Tern R
• Caspian Tern R
• Gull-billed Tern R
#Spotted Turtle-dove R
•#Feral Pigeon R
Diamond Dove R
• Peaceful Dove U
• Common Bronzewing C
• Crested Pigeon C
• Galah C
• Long-billed Corella U
• Little Corella R
• Sulphur-crested Cockatoo C
Rainbow Lorikeet R
Musk Lorikeet R
Superb Parrot R (t)
• Cockatiel U
• Eastern Rosella C
• Yellow Rosella C
• Australian Ringneck R
• Blue Bonnet U
• Red-rumped Parrot C
• Budgerigar R
• Horsfield's Bronze-Cuckoo R
Fan-tailed Cuckoo R
• Australian Owlet Nightjar R
• Tawny Frogmouth R
• Southern Boobook R
• Barn Owl R
• Azure Kingfisher R
• Laughing Kookaburra C
• Sacred Kingfisher C
Red-backed Kingfisher R
• Rainbow Bee-eater R
Dollarbird R
• White-throated Treecreeper U
• Brown Treecreeper C
• Superb Fairy-wren C
• Variegated Fairy-wren R
• White-winged Fairy-wren R
• Spotted Pardalote U
• Striated Pardalote C
White-browed Scrubwren R
• Western Gerygone C
• Chestnut-rumped Thornbill C
• Buff-rumped Thornbill U
• Yellow-rumped Thornbill C
• Yellow Thornbill C
• Striated Thornbill U
• Weebill C
• Southern Whiteface U
Red Wattlebird R
• Little Friarbird U
Noisy Friarbird R
• Noisy Miner C
• Yellow-throated Miner R
• Blue-faced Honeyeater R
• Spiny-cheeked Honeyeater R
• Striped Honeyeater R
Painted Honeyeater R (t)
• Singing Honeyeater R
• White-plumed Honeyeater C
• Black-chinned Honeyeater R (t)
• Brown-headed Honeyeater U
• Black Honeyeater R
• Crimson Chat R
• Orange Chat R
• White-fronted Chat R
• Jacky Winter U
• Flame Robin R
• Red-capped Robin U
• Hooded Robin R (t)
• Grey-crowned Babbler U (t)
• White-browed babbler R
• Chestnut-crowned Babbler R
• Varied Sittella R
• Eastern Shrike Tit R
• Gilbert's Whistler R (t)
• Golden Whistler R
• Rufous Whistler C
• Grey Shrike-thrush C
• Restless Flycatcher U
• Willie Wagtail C
• Grey Fantail C
• Black-faced Cuckoo-shrike C
Ground Cuckoo-shrike R
• White-winged Triller U
Olive-backed Oriole R
• White-breasted Woodswallow R
• White-browed Woodswallow R
• Masked Woodswallow R
• Black-faced Woodswallow R
• Dusky Woodswallow R
• Grey Butcherbird C
• Pied Butcherbird C
• Magpie-lark C
• Australian Magpie C
Pied Currawong R
• Australian Raven C
• Little Raven C
Apostlebird R
• White-winged Chough C
• Richards Pipit R
• Singing Bushlark R
• Zebra Finch U
• Red-browed Finch R
• Diamond Firetail R (t)
•# House Sparrow R
• Mistletoebird U
• Welcome Swallow C
• White-backed Swallow R
• Tree Martin U
• Fairy Matrin R
• Clamorous Reed Warbler R
• Little Grassbird R
Golden-headed Cisticola R
• Brown Songlark R
• Rufous Songlark C
• Silvereye R
•# Common Blackbird R
•# Common Starling U

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Spotted Harrier *D.Webb*

BLACK BOX WOODLAND

There are five main vegetation types in Wakool. These include River Red Gum Forest, Black Box Woodland, Mallee Woodland, Sandhill Woodland and Chenopod Shrubland. Together with Revegetation and Constructed Wetlands, these are covered in the following sections.

Black Box Woodland is dominated by Black Box (*Eucalyptus largiflorens*) and is often found on heavier floodplain soils, along creeks and in wetland depressions. Good quality Black Box woodland also has a range of understorey shrubs such as Lignum, Nitre Goosefoot, Miljee, Thorny Saltbush, Leafless Cherry, Native Willow and a variety of grasses. Black Box with an understorey is ideal for many woodland birds like the Red-capped Robin and Chestnut-crowned Babbler, and when flooded it teems with frogs, bats and a spectacular range of waterbirds.

High quality Black Box-Lignum habitat *M.Herring*

P.Merritt

D.Webb

The tiny **Weebill** is the smallest bird found in the region and is most common in healthy remnant bush like high quality Black Box Woodland. The **Chestnut-crowned Babbler** was closely associated with Black Box that had a dense understorey of shrubs like Lignum, Old Man Saltbush and Nitre Goosefoot.

More than 100 species of animals were found in Black Box across the 11 Wakool sites, including many regionally rare species like the Wrinkled Toadlet, Tessellated Gecko, Varied Sittella, Budgerigar and Black Wallaby. The number of species found at each site varied considerably, depending on how isolated the site was, the size of the site and the quality of habitat. Many Black Box remnants are missing an understorey of shrubs and provide habitat for only a handful of species like the Eastern Rosella, Noisy Miner, Grey Butcherbird, Eastern Grey Kangaroo and Eastern Brown Snake. Increasing the cover of native perennial grasses, retaining fallen timber and reinstating native shrubs will benefit the more sensitive species like Diamond Firetail and Yellow-footed Antechinus. Fencing off remnant stands and controlling grazing to allow young trees, shrubs and various ground covers to regenerate is usually the most practical first step.

Many of the remaining stands of Black Box are disconnected from the floodplain and show signs of thirst. The wetlands watering project that local landholders, the NSW Murray Wetlands Working Group and Murray Irrigation have implemented since 2001 has been a great success in bringing many of these systems back to life.

N. Lazurus

The stunning **Variegated Fairy-wren** was exclusively found in the Wakool LWMP area and was also closely associated with Black Box that had a dense understorey. The rare **Diamond Firetail** feeds on grass seeds and usually nests in shrubs or mistletoe clumps.

P.Merritt

D.Webb

Locally, **Carpet Pythons** are largely restricted to River Red Gum areas with good habitat along major waterways like the Edward, Niemur and Wakool Rivers.

P. Merritt

The elusive **Yellow-footed Antechinus** was found in densities up to 24 per hectare in red gum areas that had numerous large, old fallen logs.

D.Webb

The Wakool LWMP area is an important stronghold for the beautiful **Southern Bell Frog**, also known as the Growling Grass Frog.

River Red Gum *(Eucalyptus camaldulensis)* is one of the most intact vegetation types in the NSW Murray Catchment. The red gum forests of the Murray region are among Australia's greatest ecological assets. Good quality red gum habitat booms with wildlife, particularly birds and mammals. Large, old River Red Gums are the equivalent of 5-star hotels for wildlife because they are filled with a range of hollows and crevices. Bats, possums, gliders, parrots, pardalotes, owls, the Tree-crevice Skink and numerous others all shelter and nest in red gums. Shedding bark is important for treecreepers, the Southern Marbled Gecko and Peron's Tree Frog. Fallen logs and branches are home to an array of reptiles and are a favourite place for the Yellow-footed Antechinus and Bush Stone-curlew. Thickets of young red gums and shrubs like Silver Wattle and Dwarf Cherry also increase habitat diversity in red gum forests and support additional species like the Black Wallaby, Gilbert's Whistler and White-browed Babbler.

More than 110 species were found in red gum across the 11 Wakool sites. Across all four LWMP areas, some of the species most strongly associated with red gum were Azure Kingfisher and Black Wallaby. The Wakool, Edward and Niemur Rivers, together with other major waterways in the Wakool LWMP area act as wildlife 'highways' through the landscape, enabling wildlife populations to intermix. Intermittent flooding of red gum directly benefits waterbirds, frogs and bats but also maintains the overall health of the system.

The **Platypus** was a great find in the Edward River near Moulamein. Additional observations from local landholders indicate there are at least several of them in the area.

J.Harris

The rare **Gilbert's Whistler** depends on dense shrubs like this Dwarf Cherry in red gum on the Wakool River near Wakool.

M.Herring / D.Webb (inset)

Involving the community...
The six Wakool field days and seminars were well attended with an average of over 50 people attending each event. We received a great deal of support and positive feedback from the community, with particular appreciation of the family-focused barbecues, novelty prizes, involvement in the surveying and the opportunity to see some of the more unusual local critters like blind snakes, long-eared bats and antechinus. A total of 1293 people attended the 24 field days and seminars held across the four LWMP areas, testimony to the strong interest that irrigation farmers in the Murray region have in their local wildlife.

Photo Captions and Credits
Top Left: Jess Herring showing kids one of the bats found during a Wakool field day (*MIL*)
Top Right: Locals searching for reptiles in Black Box during field day at "Kuringle" (*MIL*)
Middle: Male Black Honeyeater (*P.Merritt*)
Bottom Right: Wakool field day at "Nyang" (*MIL*)
Next Page, Top Left: Black Wallaby (*D. Webb*)
Top Right: Platypus (*P. Ryan*)
Middle Left: Crimson Chat at nest (*P. Merritt*)
Middle Right: Michael Pisasale with Carpet Python (*MIL*)
Bottom Left: Locals gather to inspect reptiles found in a pitfall trap during field day in the Jimargle area (*MIL*)
Bottom Right: Shingleback Lizard (*M. Herring*)

MALLEE WOODLAND

Mallee Woodland once covered large areas west of Moulamein but today less than 5% of this remains. The region once supported species like Malleefowl that are now restricted to large mallee reserves to the west.

Both Mallee and Sandhill Woodland have a particularly unique suite of wildlife, very different to what we find in other vegetation types like River Red Gum. A third of the 33 reptiles found across the Murray LWMP area were either exclusively found on sandhills (including mallee) with good quality remnant vegetation or were only rarely found in other vegetation types.

A well-managed sandhill or mallee remnant with good habitat supports around 10 reptile species, even if the site is only a hectare or two in area. Two of the most interesting birds found in Wakool Sandhill and Mallee Woodland were the Black Honeyeater and Crimson Chat. The Yellow-footed Antechinus, usually only found in red gum, was recorded in Sandhill Woodland near Moulamein because the site was located near the floodplain.

M.Herring

D.Webb

The **Eastern Robust Slider** was exclusively found at three Mallee Woodland sites west of Moulamein. It relies on deep sandy soils for life as a slider, is almost limbless, and could easily be confused as a snake.

The **Hooded Robin** is one of the rarest woodland birds in the region and is usually only found in the best quality patches of bush that remain. This male is about to pounce on an unsuspecting insect.

This high quality Mallee Woodland site on "Chah Singh" illustrates the importance of resting remnant vegetation from grazing. This site has been rested from grazing for the past five years, allowing shrubs, grasses and ground covers to regenerate, benefiting a whole range of wildlife like the Red-capped Robin and Olive Legless Lizard. An increasing number of landholders in the Wakool LWMP area are using fencing incentives to manage grazing and encourage regrowth of native vegetation.

M.Herring

M. Herring

This Sandhill Woodland site has been rested from grazing and an understorey of shrubs is regenerating, greatly benefiting the local wildlife.

Sandhill woodland includes White and Murray Cypress-Pine, Buloke, Yellow Box and Needlewood and often merges with Grassy Box Woodland. Sandhills originally had the most diverse shrub layers with species such as Moonah, Rosewood, Butterbush, Native Willow, Emu Bush, Hopbush, Quandong and various species of saltbush.

Good quality sandhill woodland is a haven for reptiles and woodland birds. The sandy soils allow movement of underground animals like blind snakes and excavation of nesting burrows by Rainbow Bee-eaters and Sand Goannas.

D.Webb

This young **Sand Goanna** was found in mallee west of Moulamein. They build distinctive oval-shaped burrows into the sand where they shelter and breed.

The rare **Wood Gecko** is nocturnal like most geckos and is easily identified by the markings along the middle of its back. It was found under a log in high quality Sandhill Woodland.

D.Webb

The magnificent **Beaked Gecko** was found at the Buloke site above and had never been recorded south of the Murrumbidgee River before. It was a major highlight of the entire study. The **Inland Broad-nosed Bat**, like all insectivorous bats, uses echolocation (high frequency pulses of sound that humans usually can't hear) to navigate and catch flying prey like moths and mosquitoes.

D.Webb

D.Webb

P.Merritt

D.Webb

P.Merritt

The **Red-necked Avocet**, with its distinctive upturned bill, relies on open mudflats and shallow water, which are lacking in most constructed wetlands. This **Whiskered Tern** is about to feed its chick a leech and was one of over 200 pairs found nesting on a well managed constructed wetland near Jerilderie several years ago. The **Water Rat** is now the only native rodent found in the region. A **Great Egret**, only rarely seen feeding on the wing, snaps up a little redfin to feed chicks back at the nest.

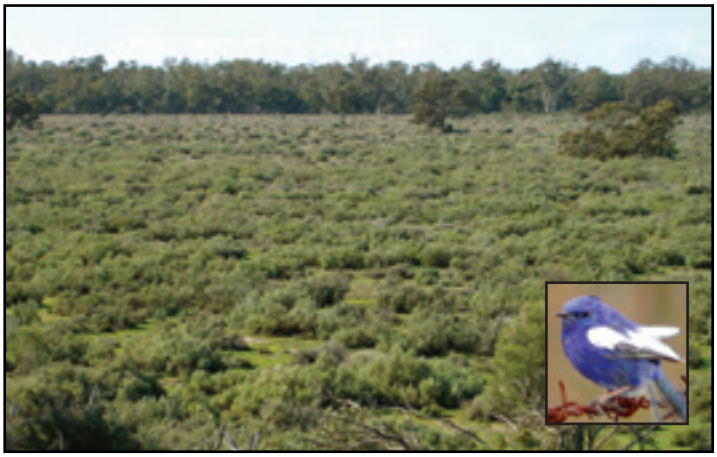
Pictured below are several thousand shorebirds at the Wakool-Tullakool Evaporation Ponds, where ground water is being extracted to reduce the impact of salinity. Amongst the 40-odd waterbird species recorded here during the study were 6 migratory shorebird species. They essentially live their lives in an endless summer, migrating between the northern and southern hemispheres. These species rely on mudflats and breed in Europe, Siberia, Japan, China and other parts of the northern hemisphere.

Most constructed wetlands, whether for irrigation storage or stock water, are steep-sided deep dams with insufficient habitat for most waterbirds, frogs and bats. However, simple changes to constructed wetlands can dramatically increase their wildlife carrying capacity.

Earthworks to create seasonally flooded shallows that support waterplants and mudflats will attract a wide range of new species like egrets, herons, crakes, sandpipers, spoonbills, stilts and the Southern Bell Frog. Avoiding constant grazing pressure from stock will also enable mudflats and waterplants to flourish resulting in a greater range of wildlife utilising your farm dam.

M.Herring

P.Merritt



M.Herring / D.Webb (inset)

The **Orange Chat** is often seen perched on top of shrubs. This stunning male is in breeding plumage. High quality Chenopod Shrubland like this site west of Moulamein supports numerous breeding groups of the **White-winged Fairy-wren** that avoids areas with trees but relies on shrubs for cover and nest sites.

For many people Chenopod Shrubland is simply a shrubby paddock. Cottonbush, Old Man Saltbush, Mat-rush, bluebushes, Dillonbush and other shrubby plants found in Chenopod Shrubland offer many wildlife species with habitat that isn't available in a normal paddock or a crop.

Some birds are closely associated with Chenopod Shrubland like the White-winged Fairy-wren, Orange Chat and White-fronted Chat. Many other birds can only take advantage of the shrubs when they are associated with trees. On the other hand, many reptiles do well in treeless habitats like Chenopod Shrubland, providing there is some cover from native shrubs, grass tussocks or cracking soils. Spotlighting on warm evenings is one of the best ways to find reptiles in Chenopod Shrubland.

Chestnut-crowned Babblers were closely associated with Black Box Woodland but made wide use of Chenopod Shrubland when it was adjacent to the floodplain. It enables them and other cover-dependant species to move between timbered areas without making themselves too vulnerable to predators like the powerful Black Falcon. The Narrow-nosed Planigale, a tiny marsupial, is a crack dwelling specialist that may be found in the future.

The **Chenopod Morethia**, as its name suggests, is closely associated with Chenopod Shrubland. This species was recorded at three sites west of Deniliquin including one in the Wakool LWMP area. It hadn't previously been found in the region.

The nocturnal **Curl Snake** is often confused with juvenile Eastern Brown Snakes but lacks the additional neck band. It hides in the soil cracks that form in Chenopod Shrubland. A **Boulenger's Skink** is paralysed before being devoured head first.

The **Gibber Gecko** was a major highlight of the study and was found in Chenopod Shrubland west of Moulamein. It hadn't previously been recorded south of the Murrumbidgee River before. No other local gecko has small prickles on its body.

D.Webb

D.O'Donnell

D.Webb

REVEGETATION

M.Herring

P. Merritt

This Revegetation site on "Ramley" near Wakool has helped to mitigate salinity, offers a valuable resource for stock and also provides habitat for many small woodland birds like the **Red-capped Robin**, various thornbills, honeyeaters and whistlers. It was previously a degraded, saline paddock with little value for agriculture or wildlife.

Over the last decade it has become clear that many wildlife species, particularly birds and bats, are readily able to return to suitable revegetation patches that landholders have planted. Other less mobile species, like many reptiles and small mammals will only benefit from revegetation that is situated adjacent to existing remnants. Large plantings greater than five hectares that have a mix of tree and shrub species and are located adjacent to good remnant vegetation are the best and provide habitat for much more wildlife than single-species plantings in thin strips in isolated paddocks.

Eucalypt plantations for timber or firewood and Old Man Saltbush plantings for grazing value and salinity mitigation are a much better 'crop' for most wildlife than conventional agriculture. Some large farm forestry sites in the Cadell LWMP area that incorporated an Old Man Saltbush understorey were outstanding for bird diversity with a range of thornbills, honeyeaters, whistlers, robins and other small birds.

Old sheets of corrugated iron, fence posts and roofing tiles can provide homes for a range of skinks, geckos and legless lizards that will otherwise have to wait many decades for fallen logs and branches to accumulate. Similarly, nest boxes designed for bats, possums, gliders, parrots, owls or other hollow-nesting wildlife can provide shelter and nest sites well before hollows form in trees, which takes place decades down the track.

For information on the range of incentives available for managing, restoring and establishing native vegetation, please contact your Wakool LWMP officer on 5887 0411.

D. Webb

The **Lesser Long-eared Bat** is one of the first wildlife species to respond to revegetation because it is highly mobile. The **Olive Legless Lizard** prefers areas with thick grass so revegetation sites are often ideal because they are ungrazed.

D.Webb

How can I attract more wildlife to my farm?

The most important thing that Wakool landholders can do for wildlife conservation is identify the most significant remnant vegetation sites on their properties and manage them in a way that will maintain or improve the quality of habitat. Keeping areas messy by avoiding continuous grazing pressure, not 'cleaning up' fallen timber and ensuring that there is at least some areas that have shrubs and young trees are three simple ways to improve your wildlife habitat.

For those lucky enough to still have good stands of Mallee, Buloke, Native Pine, Needlewood or other non-floodplain vegetation, these are some of the most valuable assets on your farm. For those with River Red Gum or Black Box along major waterways like the Niemur River, your sites contribute to important wildlife 'highways' through the landscape. Flooding Black Box, River Red Gum and other wetland sites from time to time will help maintain the health of the floodplain and greatly improve wildlife habitat.

Revegetated sites attract the most species when they are 5 or more hectares in area, incorporate a range of tree and shrub species and are situated adjacent to remnant vegetation. Simple changes to irrigation and stock water storage dams that create shallows with waterplants and mudflats can also dramatically increase wildlife diversity on your farm. On top of improving habitat on your farm, controlling introduced predators like feral cats and foxes will also benefit wildlife.

Recommended Reading

Michael, D., Crane, M., MacGregor, C. and Cunningham, R. (2003) Wildlife on Farms – how to conserve native animals. CSIRO Publishing, Melbourne.

Kent, K., Earl, G., Mullins,B., Lunt,I & Webster,R. Editors. (2002) Native Vegetation Guide for the Riverina; notes for land manag¬ers on its management and revegetation, Charles Sturt University, Albury.

Flooding of black box and red gum is vital for the health of the floodplain.

Reducing grazing pressure will encourage an understorey of shrubs.

Linking patches of bush within and between properties creates corridors.

M.Herring

Open mudlfats and shallow water are ideal for migratory shorebirds.

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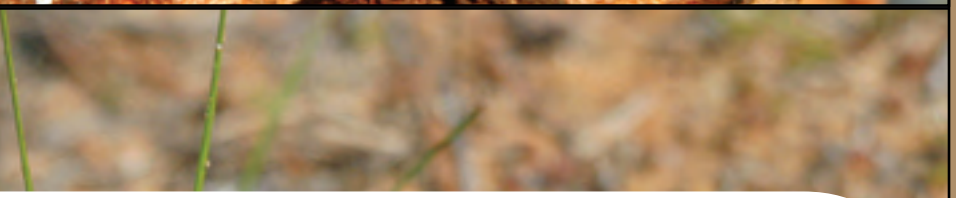

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Land and Water Management Plan

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