THE BLACK-EARED MINER

A DECADE OF RECOVERY

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Front cover: pictured clockwise from left: Flowering mallee; a colour-banded Black-eared Miner; and old-growth mallee. Photos by R Clarke.

Design by Geoffrey Williams + Associates

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Introduction

The purpose of this document is to provide a summary of the successes and setbacks for the Black-eared Miner *Manorina melanotis* recovery program. Efforts to conserve Black-eared Miners were under way before a Recovery Team was first formed in 1991. However, the formation of a Recovery Team was a vital step in the planning, co-ordination and execution of recovery efforts. The Recovery Team's work falls readily into three blocks:

- 1991–1996 when recovery efforts were concentrated in Victoria;
- 1997–2001 when the first five-year national recovery plan was funded directly by the Commonwealth's Natural Heritage Trust; and
- 2002–06 when the second national recovery plan's Commonwealth funds were administered through regional catchment-based authorities.

The Black-eared Miner's decline

The Black-eared Miner is a nationally endangered colonial honeyeater that formerly occurred in the Murray Mallee region of South Australia, Victoria and New South Wales, but is now absent from much of its former range.

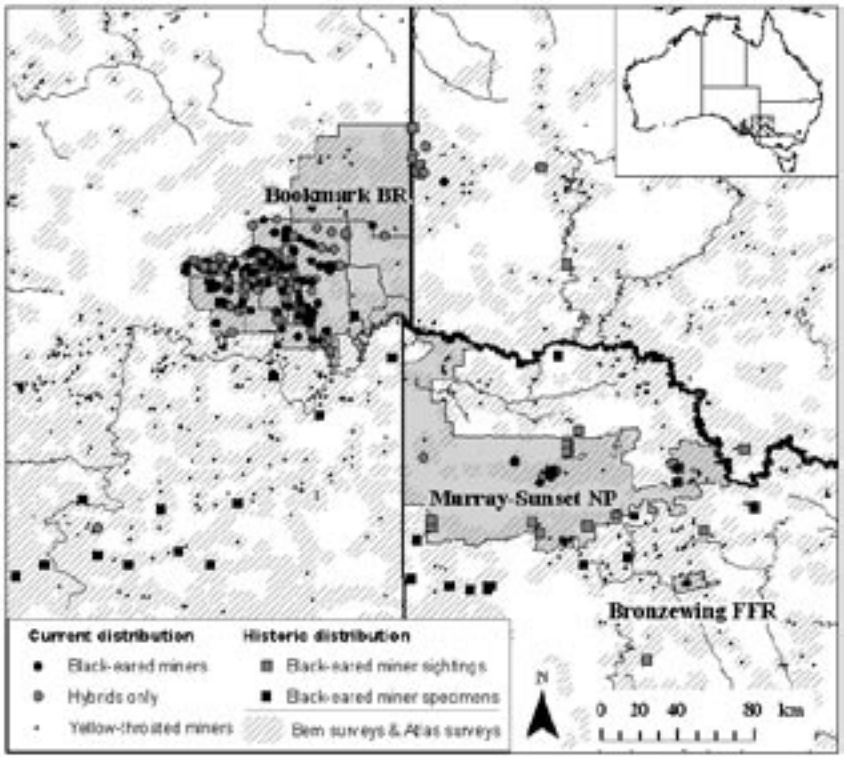

Figure 1 Map of current and historic distribution. Map supplied by R Clarke.

The Black-eared Miner requires:

- extensive (>13,000 ha) areas of mallee-spinfex or mallee with an open understorey;
- mallee that has remained unburnt for at least 45 years for breeding; and
- mallee that is at least two kilmetres from clearings that exceed 100 ha.

Figure 2 Black-eared Miner habitat. Photos by R Clarke.

The Black-eared Miner's marked decline has been attributed to habitat clearance and to genetic "swamping" since 1950 by the abundant Yellow-throated Miner *Manorina flavigula* that favours open woodlands. Habitat clearing has now largely ceased. Major current threats include:

- large wildfires;
- too frequent fires;
- genetic swamping by Yellow-throated Miners; and
- habitat degradation by grazing herbivores.

Taxonomy

Because of phenotypic similarities and widespread hybridisation between Black-eared and Yellow-throated Miners, the taxonomic status of the Black-eared Miner has been uncertain in the past. To address these issues the Recovery Team supported:

- molecular work which showed that the Black-eared Miner was a full species;
- a statistical analysis of much larger samples of the birds than had been examined previously which came to the same conclusion because the widespread hybridisation that occurs now is a recent development facilitated by human disturbance of the birds' habitat after 1950; and
- the development of a simple field assessment system that relies on just two conspicuous characters to identify Black-eared Miners, Yellow-throated Miners and hybrids *(Figure 3)*.

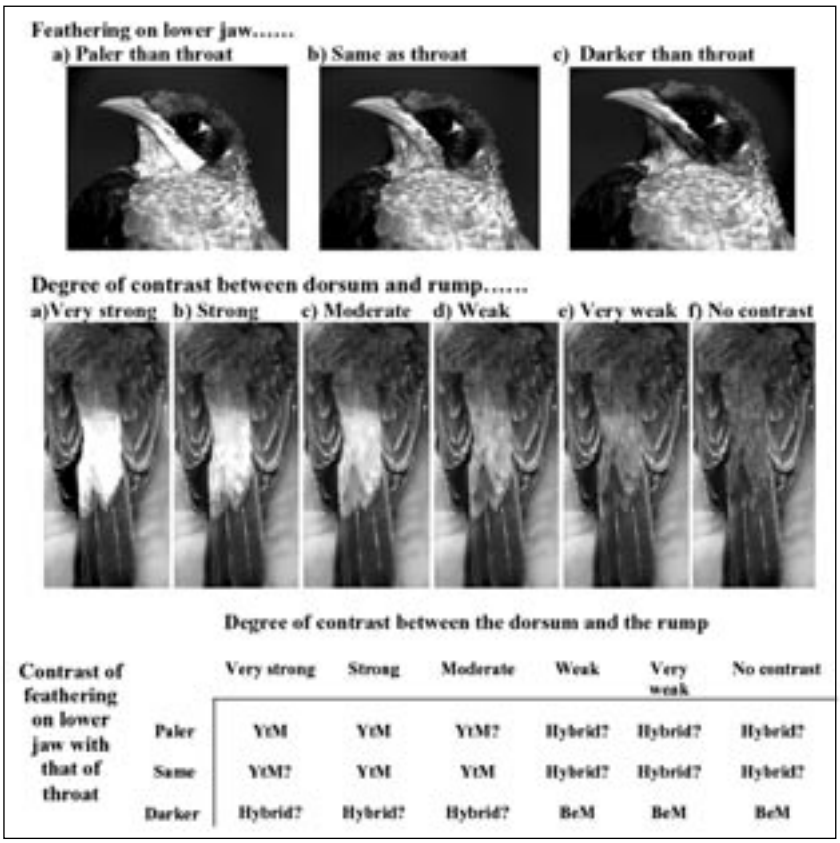

Figure 3 Yellow-throated Miners, hybrids and Black-eared Miners. Photos by R Clarke.

Population numbers and status

By the late 1980s, Black-eared Miner field workers thought that the species existed in only seven locations in north-western Victoria, with a population of fewer than 50 birds whose quality was declining rapidly due to hybridisation. Then everything changed in late 1995 when several previously unknown colonies of Black-eared Miners were located just north of the Murray River in the Riverland (formerly Bookmark) Biosphere Reserve (BR) in eastern South Australia.

By 2006, recovery program project officers had calculated that:

- the Riverland BR supported an estimated 501 (270 – 927) colonies containing 3,758 (2,026 – 6,954) Black-eared Miners, 2,255 (1,215 – 4,170) hybrids and small numbers of Yellow-throated Miners;
- Murray-Sunset National Park (NP) contained about 53 (32 – 85) Black-eared Miner/hybrid colonies;
- Scotia Sanctuary and Tarawi Nature Reserve (NR) in western New South Wales held about 14 colonies; and
- Bronzewing Flora and Fauna Reserve (FFR) in northwestern Victoria had about four colonies.

This stunning turnaround in the estimated numbers of birds remaining in the Murray Mallee is tempered by the information that the Black-eared Miner's effective population size is only about 10 percent of its total population size. In the Riverland BR for example, the effective population is about 390 Black-eared Miners (210 – 726) and 234 hybrids (126 – 433).

This much-reduced effective population size is due to a skewed adult sex ratio (1 female : 1.8 males) and the bird's complex social organisation whereby many of these colonial birds do not breed but help at nests instead. The Black-eared Miner's small effective population size means that its endangered status is still warranted.

Reserve acquisition

The discovery of substantial numbers of Black-eared Miners in South Australia precipitated several significant events. These were:

- within 18 months, Birds Australia raised sufficient funds from 2,400 private donors to purchase 54,390 ha Gluepot Station and add it to the Riverland BR;
- two years later the Commonwealth Government and the Australian Landscape Trust acquired neighbouring Taylorville Station (92,600 ha), and secured for conservation the last major area of Black-eared Miner habitat outside a reserve; and
- in 2005 all of the intact mallee in the Riverland BR was listed as critical habitat for the Black-eared Miner under the *Environment Protection and Biodiversity Conservation Act 1999*, the first area of mainland Australia to receive this level of protection.

The biodiversity benefits of these reserve acquisitions are high with substantial populations of three nationally threatened species of bird and 14 other species that are listed as declining in Australia. The nationally threatened birds include the Red-lored Whistler *Pachycephala rufogularis*, Regent Parrot *Poytelis anthopeplus*, and Malleefowl *Leipoa ocellata*, with around 400 pairs of Malleefowl on Gluepot Reserve alone.

Figure 4 Additional nationally threatened birds in the Riverland Biosphere Reserve. Clockwise from left: Red-lored Whistler, Regent Parrot and Malleefowl. Photos by R Clarke.

Population supplementation: translocations

The discovery of a large population of Black-eared Miners in the Riverland BR was quickly followed by the realisation that it faced a high risk of extinction or severe depletion from wildfires of the size and intensity that have been recorded every decade or so in the Murray Mallee. To spread this risk, the Recovery Team decided to translocate about five colonies (c.100 birds) to each of four distant regions to boost the dwindling populations there. A detailed translocation protocol was developed for Murray-Sunset NP, followed by another one for Scotia Sanctuary and Tarawi NR in western New South Wales.

Murray-Sunset NP in north-west Victoria was selected as the highest priority for translocations because it contained:

- a small number of dwindling Black-eared Miner colonies in a vast reserve;
- substantial areas of mallee that had not been burnt for over 45 years; and
- suitable release sites that were many kilometers from negative influences such as cleared land, water points and Yellow-throated Miner colonies.

During 2000–2001, five colonies (79 adults and 12 fledglings) were transported c.250 km from South Australia to Victoria without mishap. Two colonies were released immediately, and three were housed in large aviaries *(Figure 5)*. The translocations were an outstanding success with intensive monitoring showing that:

- all translocated colonies remained near their release sites, and within ten days several females were nesting, with at least two nests fledging young;
- radio-transmitters and colour bands enabled researchers to locate and identify more than 75 percent of the translocated birds two months after their release;
- three translocated birds moved to resident colonies, and four of the five translocated colonies recruited local birds;
- cohesion of translocated colonies remained strong with all colonies surviving and four of them showing a high degree of site fidelity two years after their release; and
- at least six breeding colonies were found to be already resident in Murray-Sunset NP during monitoring, and this ended the need for any further translocations there.

Figure 5 Clockwise from top: the completed field aviary for translocated birds; building field aviaries; and zoo staff feeding birds during translocations. Photos by R Clarke.

Key elements in the success of the 2000–01 translocations were:

- four years of intensive field research leading up to the translocations;
- good coordination and strong support and involvement from skilled volunteers, zoo staff and wildlife agencies;
- good breeding seasons at both donor and release sites during 1999–2000; and
- the inclusion of dependent young in the translocations which enabled entire colonies to be trapped. This enhanced group cohesion and site faithfulness at the release sites.

Attention was next focused on translocations to western New South Wales, but here the success rate has thus been lower for the following reasons:

- a severe drought in 2002 prevented the widespread breeding that is a necessary precursor to the successful trapping of entire colonies and their translocation;
- in 2003 the Recovery Team decided to focus its limited resources on the release of captive birds while the Riverland BR population recovered from the drought;
- in 2004 the breeding season became progressively dryer and all observed colonies failed, and this prevented any translocations;
- in 2005 one colony (six adults and five fledglings) was translocated from Riverland BR to Scotia Sanctuary in western New South Wales;
- in 2006 intensive surveys revealed several new colonies of Yellow-throated Miners at the proposed release site and this discovery caused the proposed translocation to be postponed until this threat could be removed; and
- after 2002 the total funds available to the Recovery Team was reduced. This forced the Recovery Team to switch from employing a near-permanent project officer to relying on short-term consultants to undertake translocations. Some of these consultants received inadequate support and so fleeting opportunities early in the breeding season were missed.

Captive populations

The role of captive populations changed over the eight years that birds were housed by zoos. Captive breeding was seen as a "last ditch" effort to save the species from extinction when 12 birds from the last colony of Black-eared Miners at Wyperfeld NP were taken to Healesville Sanctuary in 1995. At this time there were very few colonies known in the wild and all of them were dwindling fast. When the large population was discovered at the Riverland BR soon afterwards, the role of the captive breeding program then became to determine how to breed the species in captivity, to undertake a trial release of captive birds, and to support aspects of the recovery program such as translocations. The generosity of the zoological institutions in bearing all of the costs associated with the captive program allowed scarce recovery program funds to be expended largely on essential field work.

Zoological institutions made a major contribution to the recovery effort by:

- providing substantial husbandry support for the translocations and release of captive birds, including the design and erection of field aviaries;
- hand-raising seven nestlings that were too young to translocate, and five eggs. Six of these nestlings and two of the eggs were raised to adulthood;
- captive-breeding 38 birds, and maintaining seven wild-caught birds for seven to eight years before their trial release in 2003; and
- documenting the lessons learnt in a captive husbandry manual.

Figure 6 Clockwise from left: zoo staff hand-rearing nestlings; and fledglings. Photos by R Clarke.

The captive breeding program successfully demonstrated that Black-eared Miners can be produced that are suitable for reintroduction purposes because:

- thirty-one of the 45 birds released at Bronzewing FFR were known to be alive one month after their release and during this time they built six nests;
- seventeen captive-released birds were located one year later, and by then two new breeding colonies had been established with individuals exchanged between the captive-released birds and the one pre-existing wild colony; and
- eleven captive-released birds were detected during monitoring two years after their release, and four nesting attempts were recorded.

Controlling genetic swamping

Black-eared Miner populations are threatened by interbreeding with Yellow-throated Miners leading to genetic "swamping" of Black-eared Miners. There are two main ways to deal with genetic swamping or introgression: habitat restoration which involves dam closures and revegetation, and the removal of Yellow-throated Miners.

Dams with their associated clearings and degradation attract Yellow-throated Miners deep into the mallee. Decommissioning these artificial water points reduces total grazing pressure and habitat degradation which in turn has major benefits for biodiversity, including Black-eared Miners. By 2002, many of the artificial water points in or near the core of the Black-eared Miner's distribution had been decommissioned, or fenced to exclude herbivores. Dams are unreliable and little-used for fighting fires because wildfires in the mallee are generally attacked with strategic fire breaks and bulldozers, with water only being used for blacking out and fire-fighter safety. Ideally all dams in the mallee would be closed and a few strategic ones replaced with sealed water tanks to provide a more secure source of water for fire-fighters. A few of these tanks could be fitted with elevated troughs for birds such as Regent Parrots.

Figure 7 Artificial water point being bulldozed. Photo by D MacKenzie.

Figure 8 Hide and elevated water trough at Gluepot Reserve. Photo by D Mackenzie.

The priorities of the Yellow-throated Miner control program are to:

- find and remove Yellow-throated Miner colonies from within the core of the Black-eared Miner's distribution;
- remove individual Yellow-throated Miners from good quality Black-eared Miner colonies; and
- remove all birds with pale or very pale rumps from good quality colonies.

Culling has been highly effective in ensuring that targeted Black-eared Miner colonies remain free of introgression for five years or more. Where a colony of Yellow-throated Miners was removed from deep inside a block of intact mallee, and the dam decommissioned and revegetated, the site has not been recolonised by Yellow-throated Miners seven years later. Since 2000, c.80 Yellow-throated Miners have been removed from in and around Black-eared Miner colonies.

Fire

Large wildfires remain one of the most serious threats to the Black-eared Miner. Mallee habitats are highly flammable and may support large wildfires every 10–20 years. Black-eared Miners require mallee that has not been burnt for at least 45 years and this vital resource is now uncommon across the bird's historical range. Although some of the reserves that support Black-eared Miner populations are several hundred thousand hectares, single wildfires have burnt larger areas of Murray Mallee vegetation in most decades.

The Recovery Team has worked for over a decade with relevant land managers to encourage them to improve their fire management planning and fire-fighting capabilities. The Recovery Team has:

- endorsed the Fire Management Plan for Tarawi NR as a model for other reserves because of its focus on using burnt strips to break up large fire fronts and help retain old growth mallee;
- worked through the tri-state Murray Mallee Partnership to address the lack of fire management planning for Riverland BR's private reserves; and
- raised funds to pay for the production of a draft Fire Management Plan for all of the intact mallee on public and private land in the Biosphere Reserve which was completed in 2005.

Some work towards implementing the Riverland BR Fire Management Plan such as track widening and provision of water tanks took place in 2005–06, but no fire breaks had been burnt when lightening strikes started several fires that burnt c.118,000 ha of the Riverland BR's intact mallee in late 2006. The fire removed the breeding habitat of about one-third of the region's Black-eared Miner population. The fate of these birds is the subject

of current field research. The other two-thirds of the mallee that was burnt in the 2006 wildfire was last burnt 30 years ago, and was not yet prime Black-eared Miner habitat. The clock has also been re-set at zero for this mallee which was still about 15 years away from becoming suitable breeding habitat when it was burnt in 2006.

Figure 9 Mallee burnt in the Riverland in 2006. Photos by G Whiteman and J Gates.

Funding and administration

Several individual Recovery Team members including scientists, agency staff, land managers and volunteers have been involved in administering and implementing the recovery program for up to a decade. Their historical perspective and commitment adds great value to the recovery effort. The recovery program has also been served by some outstanding field researchers.

Following the period when the recovery program was funded directly from the Commonwealth government (1991–2001), the recovery program received most of its federal funding via regional catchment authorities and the total funds available were reduced, even though an official review recommended more funds were needed. The relatively streamlined Commonwealth funding and reporting requirements that existed before 2002 have been replaced with more numerous and complicated regional systems that detract from expending recovery effort where it is most needed – in the field.

Volunteers

Several community volunteers are long-term members of the Recovery Team. Each year a dozen or more volunteers have been trained to assist with surveys and translocations. For example, 21 volunteers helped with the release and monitoring of captive birds at Bronzewing FFR in 2003, ten volunteers assisted with surveys in the Riverland BR in 2005, and 20 volunteers helped with surveys on Scotia Sanctuary in 2006. The Threatened Bird Network has been a reliable source of volunteers throughout the recovery effort. Similarly, the volunteers who manage Birds Australia's Gluepot Reserve and its associated volunteer bird banders have greatly assisted those working in the field on Black-eared Miners.

Figure 10 Volunteers observing translocated birds in field aviaries. Photo by R Clarke.

Communications

The recovery program has been particularly well served by LaTrobe University and its post-graduate students who have published several scientific papers in the Australian and international literature, given radio interviews, and been the source of most newspaper articles, *Birding-aus* postings (an email list with c.500 Australian subscribers that is monitored by several media organisations), seminars to natural history clubs, and articles that have appeared in the *Threatened Bird Network* newsletter and Birds Australia's magazine *Wingspan*. Examples of the scientific journals published in include: *Biological Conservation*, *Emu*, *Wildlife Research*,

Conservation Biology and *Pacific Conservation Biology*. Articles on Black-eared Miners have appeared in: *The Age*, the *Bulletin, The Australian*, the *Herald Sun, The Advertiser* and the *Sunraysia Daily*. These communications have been important for documenting the scientific work of the recovery program and for securing volunteer input.

Project officers and consultants have also provided consistently high quality internal reports to the Recovery Team over many years. Each year since 2000 the Recovery Team has provided an update on progress to each of the organisations that support the recovery program. This document is part of this ongoing process of communication.

Figure 11 Black-eared Miner. Photo by R Clarke.

Australian Government

The Threatened Species Network is a community-based program of the Australian Government and WWF-Australia.