

Flora & Fauna Guarantee Action Statement

#26

This Action Statement was first published in 1992 and remains current. This version has been prepared for web publication. It retains the original text of the action statement, although contact information, the distribution map and the illustration may have been updated.

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Published by the
Department
of Sustainability and
Environment, Victoria.
8 Nicholson Street,
East Melbourne,
Victoria 3002 Australia

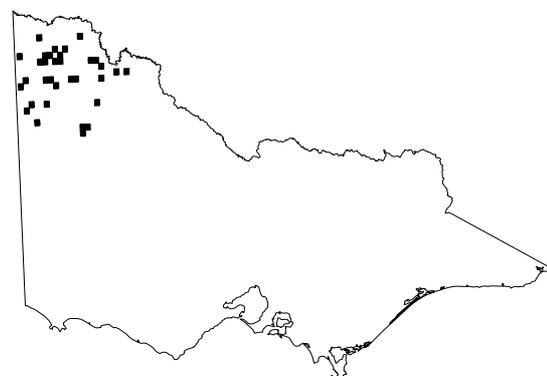
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ISSN 1448-9902

Black-eared Miner *Manorina melanotis*



Black-eared Miner (*Manorina melanotis*)
(Illustration by John Las Gourgues)



Distribution in Victoria (DSE 2002)

Description and Distribution

The Black-eared Miner (*Manorina melanotis* Wilson 1911) is one of four species in this genus of medium-sized (about 20 cm long) colonial honeyeaters. The main plumage characters that distinguish this species from other members of the genus include an extensive black face 'mask' and an overall dark colour, particularly a wholly dark rump and tail. The Black-eared Miner has significantly shorter wings, tail and legs than its close relative, the Yellow-throated Miner (*M. flavigula*). These morphological differences may be related to habitat preferences as the Black-eared Miner occupies much denser mallee (McLaughlin 1990). Several other fine morphological and plumage details which distinguish the Black-eared Miner from the Yellow-throated Miner and hybrids between the two species have been listed by McLaughlin (1990).

The historical distribution of the Black-eared Miner included the denser mallee eucalypt scrub of north-western Victoria,

south-western New South Wales and eastern South Australia (Blakers *et al.* 1984), an area collectively referred to as the Murray Mallee (LCC 1987).

The distribution of the Black-eared Miner is now centred on the Murray-Sunset and Wyperfield National Parks in north-western Victoria (Starks 1987, McLaughlin 1990, 1992). Although no confirmed sightings of the Black-eared Miner have been made in New South Wales in recent years, some large areas of apparently suitable habitat remain in which Black-eared Miner hybrids have been observed (McAllan & Bruce 1988). Joseph (1986) stated that the Black-eared Miner was probably extinct in South Australia, but also noted that areas of potential habitat remain unsearched. In late 1991, Black-eared Miner-like hybrids were recorded near Berri in the South Australian Murray Mallee (J. McLaughlin pers. obs.).

The Black-eared Miner inhabits long-unburnt (>60 years) 4.5-8 m tall 'chenopod/shallow-sand mallee' or 'red-swale/loamy-sand mallee', usually with an understorey of small bushes, shrubs or Porcupine Grass (*Triodia*

irritans) (Starks 1987, McLaughlin 1990).

These vegetation communities are found on some of the most fertile soils in the Murray Mallee and therefore have been selectively cleared for agriculture (Blakers & MacMillan 1988).

Like other species of miner, the Black-eared Miner eats mainly invertebrates (Dow 1986, McLaughlin 1990). It searches for insects on the ground, on foliage and under bark, with greatest emphasis on the trunks and limbs of mallees. Black-eared Miners also take nectar.

Species of miner which inhabit forests and woodlands are characteristically noisy, pugnaciously territorial and occur at high densities (Dow 1977, Clarke 1984). In contrast, the Black-eared Miner is shy, quiet, does not defend a feeding territory and, where present, is found at very low densities in mallee (Starks 1987, McLaughlin 1990). The Black-eared Miner breeds between September and December in nests 2-4 m above the ground in mallees. It breeds cooperatively in colonies of fewer than ten birds (Considine 1986, McLaughlin 1990).

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Conservation Status

Current Status

ANZECC (1991)	Endangered
DCE (1991)	Endangered

The Black-eared Miner has been listed as a threatened taxon on Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.

Reasons for Conservation Status

The Black-eared Miner is one of Australia's rarest endemic species of bird (Brouwer & Garnett 1990), and is in imminent danger of extinction (Schodde 1981, McLaughlin 1990). Early authors indicated that in Victoria the Black-eared Miner was always a comparatively rare mallee honeyeater, though it was locally common in some areas (Wilson 1912, Chandler 1913, Howe & Tregellas 1914, Jones 1952, Favaloro 1966).

No confirmed sightings of 'pure' Black-eared Miners have been made in South Australia or New South Wales for several years, though hybrids exist in both. Surveys in Victoria (Starks 1987, McLaughlin 1990) located eight and 11 pure-bred individuals at three and five sites respectively. In 1990 there were about ten times as many Black-eared Miner 3 Yellow-throated Miner hybrids as pure Black-eared Miners in Victoria (J. McLaughlin pers. obs.). The Black-eared Miner has continued to decline in Victoria to the point where only 4-6 pure-bred birds could be located in 1991 (McLaughlin 1992).

The primary factor implicated in the decline of the Black-eared Miner is the loss and modification of suitable habitat (Favaloro 1966, Schodde 1981, Joseph 1986, Starks 1987, McLaughlin 1990), mainly through clearing native vegetation from vast areas deemed appropriate for wheat production (LCC 1987).

In addition to reducing the available suitable habitat, the clearance of vegetation has promoted an expansion of the range of the Yellow-throated Miner because, in contrast to the Black-eared Miner, the Yellow-throated Miner favours open habitats (Blakers *et al.* 1984). Though normally isolated through their occupation of different habitats (Joseph 1986), clearing vastly increased the area and number of points of contact between the two species with the result that widespread introgressive hybridisation occurred between the Black-eared and Yellow-throated Miner (Schodde 1981). Consequently, the much more numerous Yellow-throated Miner is genetically 'swamping' the Black-eared Miner.

In its final recommendations, the Scientific Advisory Committee (1991) determined that the Black-eared Miner is:

- in a demonstrable state of decline that is likely to result in extinction;
- significantly prone to future threats which are likely to result in extinction; and
- extremely rare in terms of abundance and distribution.

Major Conservation Objective

The major conservation objective, starting in 1992, is to halt the decline of the species by ensuring that the Black-eared Miner's critical habitat is identified and that works are undertaken to ensure that this habitat is neither degraded nor lost to wildfire; and by implementing the research phase of the Australian National Parks and Wildlife Service Recovery Plan over the next five years.

Thereafter, the long-term aim will be to attain a total population of at least 1000 Black-eared Miners. A population of this size is likely to be secure in the long term (Franklin 1980, Shaffer 1981). These birds will need to be in colonies sufficiently dispersed so that they cannot all be eliminated in a single catastrophe such as a major wildfire, and yet not so isolated that colony members cannot interbreed.

Management Issues

Ecological Issues Specific to the Taxon

Prior to land clearing, a very low level of hybridization was present in at least one of the few restricted areas where Black-eared and Yellow-throated Miners occupied adjacent habitats. Clearing of mallee increased substantially after 1945 and subsequently the number of hybrids in Black-eared Miner colonies increased markedly (Joseph 1986). McLaughlin (1990) summarised previous hypotheses which proposed that as long as large areas of suitable Black-eared Miner habitat remained, gene-flow between Black-eared Miner colonies probably swamped any Yellow-throated Miner genes that entered the population. Land clearing selectively removed Black-eared Miner habitat (Blakers & McMillan 1988) and allowed the Yellow-throated Miner to expand its range substantially. In addition to a severe reduction in gene flow between colonies of Black-eared Miners (caused by habitat fragmentation), many new situations where the two species existed side by side were created (through an increase in the edge to area ratio of remaining Black-eared Miner habitat). As a result many more miners hybridized and, being behaviourally intermediate,

these hybrids were able to move further into other Black-eared Miner colonies (McLaughlin 1990).

The taxonomic history of the Black-eared Miner has been characterised by uncertainty. It has been recognised as a species (Condon 1951, Schodde 1975, Joseph 1986), but Schodde (in prep.) now considers the Black-eared Miner to be a subspecies of the Yellow-throated Miner. McLaughlin (1992) has provided compelling evidence for marked ecological separation between Black-eared, hybrid and Yellow-throated Miners which strongly supports the hypothesis that the two miners are separate species. Hybrids occupy a separate niche to Black-eared and Yellow-throated Miners (McLaughlin 1992).

The lack of variation in the Black-eared Miner pre-1940, and the sudden increase in the relative abundance of hybrids collected from Black-eared Miner colonies after major land clearing began in 1945, also supports the hypothesis that the Black-eared and Yellow-throated Miner are separate species, and that hybrids are intermediate between them (Joseph 1986). Current genetic work will help to resolve this taxonomic question (L. Christidis, Museum of Victoria pers. comm.). In the interim, the weight of scientific evidence compels this action statement to take the biologically conservative view that the Black-eared Miner and Yellow-throated Miner are sibling species similar in taxonomic status to other pairs of species in the mallee such as the nationally vulnerable Mallee Emu-wren (*Stipiturus mallee*) and the Rufous-crowned Emu-wren (*S. ruficeps*) (until recently classified as subspecies) and the nationally vulnerable Red-lored Whistler (*Pachycephala rufogularis*) and the Gilberts Whistler (*P. inornata*).

Although a small number of pure-bred Black-eared Miners still exist, they are all in colonies with hybrid birds, and there are no pure breeding pairs known. The fact that the Black-eared Miner is sometimes difficult to observe and is a cooperative breeder could complicate manipulation of breeding birds and their progeny in the wild. For this reason it would be very useful to take one colony (fewer than ten birds) composed entirely of hybrid birds into captivity and test their responses to a range of manipulations such as altering dominance hierarchies, multiple clutching, cross-fostering of young, and acceptance of radio-transmitter packages. Similar manipulations could be undertaken with hybrid colonies in the field. In this way managers could avoid making costly mistakes when trying to increase the number of Black-eared Miners in the field.

Much behavioural and ecological information on the species necessary for guiding management decisions has yet to be gathered. There appears to be unoccupied suitable habitat, but the number of Black-eared Miners has continued to decline (Starks 1987, McLaughlin 1990). While research needed to resolve these ecological issues will be addressed in the ANPWS Recovery Plan, the Black-eared Miner is so critically endangered that some short studies need to be undertaken now so that appropriate management can proceed quickly. Foremost among these should be monitoring of the success of nests discovered during searches in late 1992. This will tell managers

whether low breeding success and poor recruitment is hindering recolonisation of vacant habitat. Any necessary works can then be undertaken to improve breeding success. The chenopod/shallow-sand and red-swale/loamy-sand mallee that Black-eared Miners inhabit comprises 13 per cent of the uncleared land in the Victorian mallee (Blakers & MacMillan 1988). Although clearing has now stopped, a large proportion of the remaining uncleared habitat has until very recently been licensed for grazing by domestic stock (Blakers & MacMillan 1988), with unknown effects on its present and future suitability for the Black-eared Miner.

Black-eared Miners usually inhabit mallee that has not been burnt for more than 60 years. A large proportion of the chenopod and red-swale mallee in north-western Victoria has been burnt in the past 25 years, rendering it unsuitable for breeding and marginal for foraging for the Black-eared Miner (McLaughlin 1990).

While the Black-eared Miner is critically endangered, it has several advantages, which include: pure-bred birds located at widely separated colonies that are unlikely to be eliminated in a single catastrophe, the high likelihood of more areas of suitable habitat existing, and a large area of public land in conservation reserves that can be managed to facilitate its recovery.

Wider Conservation Implications

An important issue in the mallee is fire management. The conservation reserves of north-western Victoria contain a large number of threatened bird, reptile and plant species. In addition to the Black-eared Miner, species of birds listed as endangered or vulnerable in Victoria which inhabit mallee include the Malleefowl, *Leipoa ocellata*, Red-lored Whistler, *Pachycephala rufogularis*, Western Whipbird, *Psophodes nigrogularis*, Mallee Emu-wren, *Stipiturus mallee*, Striated Grasswren, *Amytornis striatus*, and Redthroat, *Sericornis brunneus*. Without exception, these highly threatened bird species all prefer mallee which has not been burnt for 15-60+ years (Emison *et al.* 1987, Brouwer & Garnett 1990). Suppression of wildfires and a reduction in the frequency of fires in the mallee will assist all of these species as well as the Black-eared Miner.

The reptile fauna of north-west Victoria is extremely diverse with a complex range of interactions with fire (Caughley 1985, Robertson *et al.* 1989). While the optimum strategy for mallee herpetofauna may be to produce small scale mosaic patterns of vegetation of different ages post-fire, it is also clear that highly threatened reptiles such as the Mallee Worm-lizard (*Aprasia aurita*) Heath Skink (*Egernia multiscutata*) and Millewa Skink (*Hemiergis millewae*) all require long-unburnt mallee. No threatened mallee reptiles are reported to require frequent fires (Robertson *et al.* 1989).

Social and Economic Issues

There are at present only minor social and economic issues associated with the protection of the Black-eared Miner. However, these must be addressed in order to achieve the long-term goal of at least 1000 birds in the wild. Clearing was previously a major factor in the decline of the Black-eared Miner. It is not an issue now because all known

colonies of the species are either wholly or mostly within conservation reserves or State forest. Expansion of the population may marginally increase the importance of habitat corridors on or near public land.

Grazing by sheep, even at low levels, is deleterious to all mallee vegetation types (LCC 1987). It results in an open, species-poor understorey and large areas of bare ground. Grazing still occurs on large areas of public land in the Murray Mallee but is concentrated in grassland, woodland and riverine plant communities (LCC 1987) where Black-eared Miners do not occur.

Fire management on public land has shifted away from widespread controlled burning to planning strategic fire breaks and a rapid response to suppressing wildfires. This strategy will benefit landholders in the region as well as flora and fauna. Effective communication of the benefits of this strategy to rural communities is essential in order to allay concern about safety of people and property, and to demonstrate that the approach benefits the community. Teachers at Murrayville Secondary College, in the heart of the Victorian Mallee, have expressed interest in the educational experience that an involvement in the conservation of this species could provide for their students. Members of the Royal Australasian Ornithologists Union have made a substantial contribution towards recent and current studies of the Black-eared Miner.

Park users may face access or camping restrictions in a few small areas. More stringent fire precautions may be necessary. Given the wide range of access points and camping sites on public land in the area, the effect of any restrictions is likely to be minor.

Management Action

Previous Management Action

Previous management has been limited in scope and intensity, both in Victoria and elsewhere. It has been derived from secondary information gleaned from short surveys. Previous funding for work on Black-eared Miners has been small, intermittent and inadequate for addressing all but the most basic of ecological questions.

- Bird watchers, particularly the RAOU, have published information about the plight of the Black-eared Miner (Favaloro 1966, Schodde 1981, Considine 1986, Starks 1988, Roberts 1991) and undertaken surveys of the bird (e.g. Peters 1985). The Black-eared Miner has been on the list of nationally endangered species for several years (Burbidge & Jenkins 1984, ANZECC 1991).
- Joseph (1986) undertook a survey of the Black-eared Miner in South Australian mallee and concluded that the species was nearly, if not already, extinct in that state. He reinforced Schodde's (1981) warnings concerning the problems of overclearing of some mallee vegetation communities, and subsequent hybridization resulting in genetic swamping of the Black-eared Miner.
- In 1986, DCE funded the RAOU to undertake a three-month survey in north-western Victoria. Eight pure-

bred birds in three colonies were located (Starks 1987). Starks (1987) repeated earlier warnings and noted the absence of Black-eared Miners from cleared and burnt mallee. He recommended that land around Black-eared Miner colonies be reserved via Land Conservation Council (LCC) processes, that strict fire controls be implemented near all colonies; that further research into specific aspects of the behaviour and ecology of the Yellow-throated Miner and Black-eared Miner be conducted and that this information be used to guide actions in a management plan for the Black-eared Miner.

- Monitoring of the colonies located by Starks (1987) and searches for other suspected colonies were undertaken by DCE staff in 1988 and 1989 (Johnson 1988, 1989).
- Following the LCC (1989) final recommendations for the mallee and their acceptance by Government, most Black-eared Miner colony sites were incorporated into conservation reserves.
- In 1989/90, DCE funded the RAOU to undertake a four-month follow-up survey in north-western Victoria, and to obtain information on the Black-eared Miner behaviour and ecology to assist in development of a management plan (McLaughlin 1990). Eleven pure-bred birds were located at five sites, all with hybrid birds. McLaughlin (1990) revised the criteria for distinguishing pure Black-eared Miners from hybrids and showed that hybrids existed before extensive land clearing took place. He also provided preliminary information on foraging methods, density of Black-eared Miner colonies, cooperative breeding and habitat requirements. He repeated earlier warnings and recommended that: a recovery team be established to develop, implement and monitor a recovery plan for the species; research be undertaken to define habitat requirements, diet, breeding biology and social organisation; monitoring and enhanced fire protection works take place; two colonies in State forest be given all necessary protection; and the South Australian and New South Wales authorities be petitioned to undertake searches for Black-eared Miners.
- In 1991, a Black-eared Miner Recovery Team was formed comprising staff from DCE, RAOU and a resident Mallee naturalist.
- In mid-1991, the federal National Estates Grant Program (NEGP), DCE and RAOU jointly funded nine months research to define the structure, floristics and fire history of habitat occupied by hybrid and pure-bred Black-eared Miners; commence gathering information on variations in food availability; continue gathering ecological and behavioural data; and make management recommendations (McLaughlin 1992).
- In early 1992 an educational brochure on the Black-eared Miner was produced.

Intended Management Actions

- Identify and map all potential Black-eared Miner habitat in Victoria (six months) and provide broad management prescriptions (three months), commencing in March 1992. Search potential Black-eared Miner habitat in September-

December. Project jointly funded by NEGP, DCE and RAOU.

- Monitor nesting success of Black-eared Miner colonies located during September-December 1992.
- Write a Recovery Plan research phase for the Black-eared Miner beginning late 1992. Three month project funded by ANPWS.
- Use data from remote sensing to identify other areas of critical habitat. Ground-truth and map all Black-eared Miner critical habitat (not all potential habitat will be suitable) in the first half of 1993.
- Analyse Black-eared Miner food availability data (three months in the second half of 1993).
- Place one colony (fewer than ten birds) of hybrid Black-eared Miners in captivity in the care of a naturalist in the Mildura Region and undertake experiments designed to test potential field techniques and so avoid costly mistakes.
- Incorporate into management prescriptions information from the research phase of the Recovery Plan on the fire ecology of threatened mallee birds. Funded by ANPWS and to be written in 1992/93.
- Support the pilot project on Black-eared Miner and Yellow-throated Miner genetics using mitochondrial-DNA. To be conducted by the Museum of Victoria and La Trobe University (L. Christidis). Project funded by ARG for 1992. Black-eared Miners have already been defined ecologically and phenotypically (McLaughlin 1990, 1992).
- Support La Trobe University (A. Poiani) post-doctoral research on the differences and similarities in the social organisation, breeding systems and genetics of the four species of miner. Three year project funded by ARG. Encourage the development of potentially useful field techniques such as alteration of dominance hierarchies and cross-fostering of young using Black-eared Miners from colonies comprised solely of hybrids.
- Commence enhanced fire control and other necessary works in 1993 in national parks in north-western Victoria based on critical habitat determinations and management recommendations provided in the above studies.
- Ensure that the Regional mallee fire plan is understood and accepted by the local community.
- Encourage Federal, New South Wales and South Australian participation in actions listed in this Action Statement wherever appropriate.

Other Desirable Management Actions

The intended management actions outlined above can secure and enhance the habitat of the species, but the Black-eared Miner is now so close to extinction that additional management of the population will be required to achieve the major conservation objective. This research will be determined in the ANPWS Recovery Plan research phase. The research and management are likely to cost about \$150,000 per year (one science and two technical staff) for five years. As such they will need to be funded by ANPWS,

DCE initiative, community sponsors or, most likely, a combination of these.

These research and management actions are likely to involve alteration of dominance hierarchies within colonies so that pure-bred birds become breeders rather than colony helpers; and cross-fostering so that young Black-eared Miners are raised by hybrids giving colonies of pure-bred birds the opportunity to breed several times per season. Field manipulations are preferred at this stage because they have been shown elsewhere to be more biologically effective and cheaper. Cooperatively breeding birds have seldom been held in captivity anywhere in the world. The colony comprised solely of hybrid birds to be housed in captivity near Mildura will allow options for captive breeding to be tested and, if necessary, to be used later with pure-bred birds. It is highly desirable that searches for additional Black-eared Miner colonies take place in New South Wales and South Australia. These have the potential to markedly expand the available gene pool and so increase the likelihood of success of any conservation program.

Legislative Powers Operating

Legislation

Wildlife Act 1975: controls research, management and taking of protected wildlife.

National Parks Act 1975: provides for the reservation, protection and management of natural areas.

Flora and Fauna Guarantee Act 1988: provides for the protection of flora and fauna in Victoria and the declaration of critical habitat.

Licence/Permit Conditions: Guidelines and Instructions

No permit will be granted unless a proposal conforms with the broad conservation and research strategy proposed in this action statement and the ANPWS Recovery Plan.

Consultation and Community Participation

Bird watchers and particularly members of the RAOU have played a major volunteer role in assisting surveys (Peters 1985, Starks 1987, McLaughlin 1990), and funding research on the Black-eared Miner. DCE will continue to encourage this participation. The RAOU and north-west Victorian naturalists are represented on the Black-eared Miner Recovery Team. Through the publication of a threatened species brochure which advises the public on the identification and conservation requirements of the Black-eared Miner, DCE will encourage members of the community to report all sightings of the species. Where practical, individuals and groups from the community will be encouraged to participate in Black-eared Miner recovery works.

Implementation, Evaluation and Review

The Regional manager, Mildura is responsible for coordinating the implementation of this action statement. This action statement will be reviewed by the Black-eared Miner recovery team one year after its publication, by which time:

- the critical habitat of the species will have been described and mapped with recommendations for its protection;

- ANPWS recovery plans for the Black-eared Miner and the fire ecology of threatened mallee birds will have been written;
- genetics work will be complete; and
- research into miner social organisation and breeding systems will be under way

Progress towards achieving the major conservation objective of the action statement will be reviewed annually by the Black-eared Miner Recovery Team.

Contacts

Management

Flora and Fauna Guarantee Officer Mildura Region, DCE, Flora and Fauna Branch, DCE and National Parks and Public Land Division, DCE.

Biology

John McLaughlin, and Phil Moors (RAOU), and Flora and Fauna Branch, DCE.

Community Participation

The Black-eared Miner Recovery Team (Flora and Fauna Branch, DCE), the Royal Australasian Ornithologists Union and resident Mallee field naturalists.

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Compilers

Kate Fitzherbert, John
McLaughlin and David
Baker-Gabb

Further information

Further information can be
obtained from Department
of Sustainability and
Environment Customer
Service Centre on 136 186.

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Statements are available
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