

Malleefowl (*Leipoa ocellata*) Conservation on Eyre Peninsula, South Australia

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Abstract

Malleefowl continue to survive on northern Eyre Peninsula (EP) in isolated patches of habitat both in the reserve scheme and on private land. However, information on the viability of these scattered populations remains limited.

Ideally, to ensure the long-term survival of Malleefowl on EP we need to monitor population parameters such as abundance, breeding success and degree of genetic isolation to inform management decisions. Unfortunately this task is made difficult by the life-history traits and cryptic nature of the Malleefowl. As a start, the Department for Environment and Heritage (DEH) and the local community are monitoring the breeding activity of Malleefowl by setting up grids at 5 sites across EP.

These grids are located in Munyaroo, Pinkawillinie and Hincks Conservation Parks and on private land near Cowell and Lock. DEH and a Greencorps Team set up three of the five grids in 1998. These grids were surveyed in 1998, 2003 (partly) & 2004. Local Malleefowl enthusiasts have surveyed the Cowell grid for nine years. The Lock grid was recently set up in Oct 2003 in conjunction with a Greencorps Team and community volunteers.

Information gained by these surveys will be used to inform on-ground works and increase community awareness. It is also hoped that this baseline information can be built upon and expanded in the future by additional monitoring and research. Other initiatives that are helping to conserve our Malleefowl populations on EP have also been outlined.

Introduction

The Eyre Peninsula Natural Resource Management (NRM) Region is located in the south-central part of South Australia (Fig. 1). There are still scattered populations of Malleefowl on northern Eyre Peninsula, both in the reserve scheme and on private land, but there are few recent records of the species from the southern agricultural regions (Fig. 2). This is probably due to the extensive vegetation clearance that has occurred on southern EP resulting in only small degraded remnants of habitat that are not large enough to support viable populations of Malleefowl. Although Malleefowl

still have a relatively wide distribution on EP, landholders are claiming that many populations are becoming locally extinct. Declines may be caused by factors including the degradation of Malleefowl habitat by the grazing, and the predation of juvenile Malleefowl by foxes.

The majority of landholders on Eyre Peninsula appear to have a great interest in Malleefowl. This may be because the lives of farmers and Malleefowl are both affected by variations in season from year to year. In a good year, farmers can reap a decent crop and Malleefowl can breed successfully, while in a bad year, neither farmers nor Malleefowl prosper. There are many landholders on EP that have Malleefowl on their private property which they manage themselves to protect the birds. Some of these landholders believe that if they do not tell anybody where their Malleefowl are, their birds will survive into the future. This may be an excellent philosophy to foster as these landholders are taking ownership for the well being of Malleefowl on their property. It is however important that landholders are aware of the threats to Malleefowl and the actions they can undertake to alleviate these threats. Although most landholders appear to have this knowledge they may need financial incentives and some encouragement to undertake actions. Several programs that have been initiated to counter threats to Malleefowl on Eyre Peninsula are discussed below, along with the monitoring methods used to measure the success of these programs.



Fig. 1. The Natural Resource Management (NRM) Regions of South Australia. Note the Eyre Peninsula Region in the south-central part of the state.

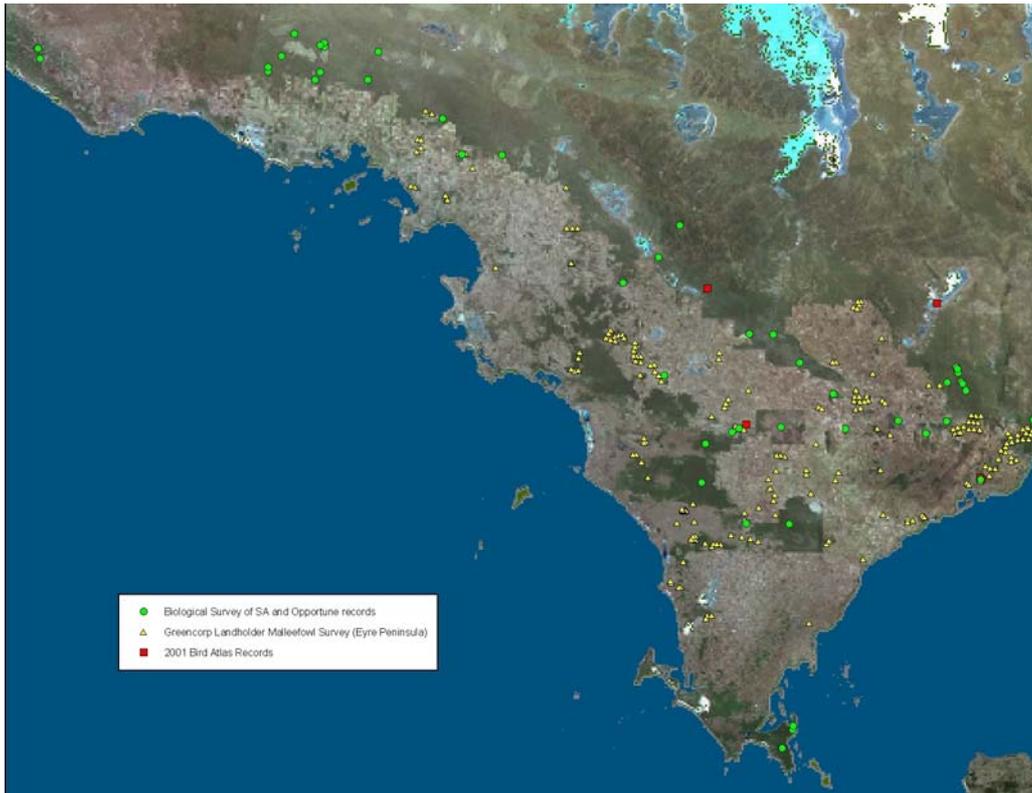


Fig. 2. The known distribution of Malleefowl projected onto an aerial view of Eyre Peninsula showing areas of remnant vegetation (dark areas) and cleared land (light areas). Distribution is based on a) the Department for Environment and Heritage (DEH) Biological Survey of South Australia and Opportune records (circles), b) a survey of Eyre Peninsula landholders conducted by DEH and Greencorps in 1998 (triangles) and c) 2001 Bird Atlas records (squares).

Initiatives contributing to Malleefowl conservation on Eyre Peninsula

Integrated Pest Management Programs

The West Coast Integrated Pest Management Program has encouraged integrated fox and rabbit control on public and private land in the Elliston, LeHunte and Streaky Bay Council areas since 1998 (Fig. 3). The timing of fox and rabbit control efforts has also been coordinated to increase its effectiveness at the landscape level.

Landholder participation in this program is high, with a total of over 370 landholders involved in early 2004, and 95 % of landholders being involved in integrated pest management in a coordinated approach in some areas. The program involves coordinated fox baiting twice a year in February - March and August - September to impact on the fox population when it is most vulnerable.



Fig. 3. Map of Eyre Peninsula showing the area originally targeted by the West Coast Integrated Pest Management Program bounded by the yellow circle. The total area covered by the program has now spread beyond this area with over 370 landholders across northern Eyre Peninsula participating in coordinated fox and rabbit control.

Groups of landholders are met by Animal & Plant Control Board Officers and a Bushcare Officer to supply 1080 baits. Each group is briefed on effective methods and safety involving the use of 1080, and the importance of fox control to the continued survival of native species including the Malleefowl. There is also discussion about the Malleefowl population in their local area and what else can be done to alleviate the threats to the Malleefowl, such as the protection of vegetation from stock grazing. A number of areas of remnant vegetation have been protected from stock as a direct result of this interaction. Even though fox baiting has not been proven to decrease predation of Malleefowl on EP, this program facilitates the transfer of information between people interested in conservation and groups of landholders. This transfer can then lead to the improved management of our remnant vegetation that provides habitat to many threatened species including the Malleefowl.

Similar programs are also being initiated in the eastern and southern areas of EP. This is especially important in the eastern area, as the band of habitat extending from Munyaroo Conservation Park to Lake Gilles Conservation Park is probably the stronghold for Malleefowl on EP.

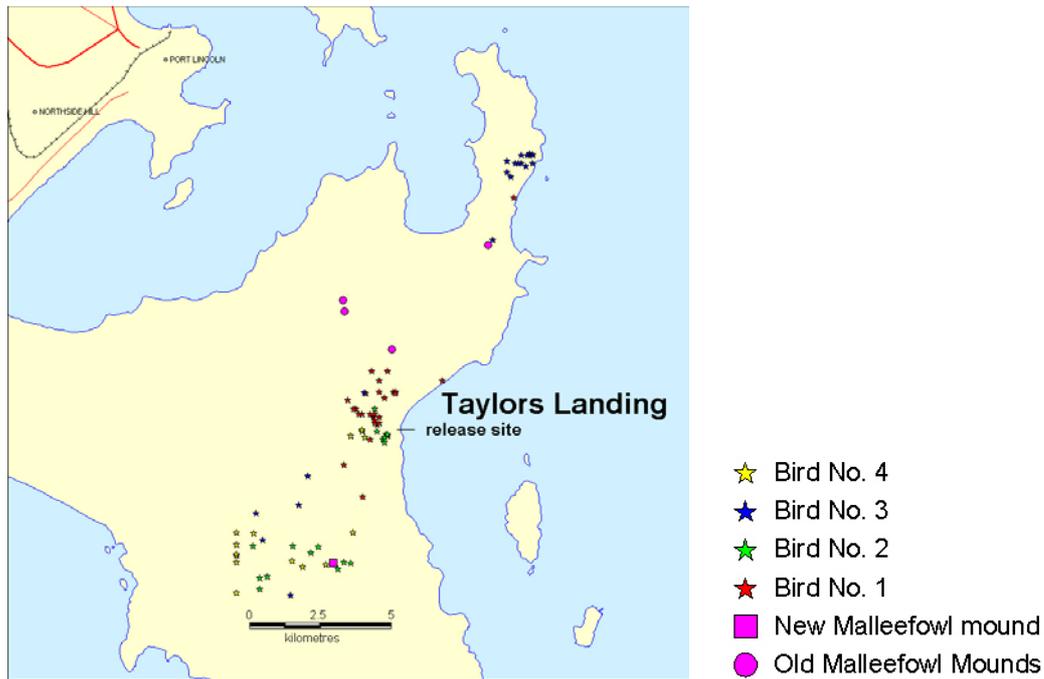


Figure 4. Locations of captive-reared Malleefowl in Lincoln National Park established by aerial radio-tracking on 20 occasions over nine months after release, and the location of old and new malleefowl mounds.



Fig. 5. The location of Malleefowl monitoring grids projected onto an aerial view of Eyre Peninsula showing areas of remnant vegetation (dark areas) and cleared land (light areas). Grids are located at a) Pinkawillinie Conservation Park, b) Lock (Heritage Agreement Area on private land), c) Hincks Conservation Park, d) Cowell (Heritage Agreement Area on private land), e) Munyaroo Conservation Park.

Table 1. Number of active Malleefowl mounds located in 2km x 2km grids on Eyre Peninsula. The total number of mounds located when each grid was first surveyed is shown in brackets. The total area of each grid was comprehensively searched by line transects unless otherwise indicated.

Grid name	Year surveyed								
	1995	1996	1997	1998	1999	2000	2001	2002	2003 - 2004
Munyaroo				1 (35)	ns	ns	ns	ns	4**
Pinkawillinie				1 (34)	ns	ns	ns	ns	0*
Hincks				2 (22)	ns	ns	ns	1*	1*
Cowell	10 (84)	7	5	na	7	13	9	6	7*
Lock									6 (54)

ns = not surveyed

na = data not available

* = Only known mounds surveyed

** = Only 80 % of grid searched

Fencing of native vegetation

The fencing of remnant vegetation has been made possible by allocating farmers incentives from Natural Heritage Trust (NHT) funding to undertake the fencing. The NHT project “Conserving Mallee Biodiversity on Eyre Peninsula” has resulted in the protection of approximately 9500 ha of mallee vegetation from stock grazing. All on-ground works have occurred in areas with Malleefowl present or in vegetation that is suitable Malleefowl habitat. The project has involved over 30 landholders, half of which have observed Malleefowl on or near their property.

Captive rearing and release

Another initiative undertaken on EP under the DEH banner of Ark on Eyre was a Malleefowl captive breeding and release program (Cotsell 2001) that resulted in the release of four birds into Lincoln National Park in December 2001 (Fig. 5). Prior to the release, Malleefowl had not been seen in Lincoln NP since 1972.

The released birds were aerially radio tracked for nine months until their transmitters failed. An active mound was found in the Park in September 2002 when one of the captive-reared birds – the only male bird released - had not moved for over two months. When the location was checked from the ground, the bird was observed near a previously unknown active mound.

The mound was excavated in January and March 2003 by Paul Burton (NSW NPWS) and Andrew Freeman to determine whether it contained eggs or was a practice mound only. Eighteen eggs were found in the nest, all of which hatched successfully. The nesting mound appeared to be recently constructed, an observation further supported by the coarse nature of the bulk of material, comprised mainly of large pieces of raked

up organic matter mixed with a small proportion of soil and large pieces of limestone. The eggs were not laid inside an egg chamber, unlike most other nests, especially established ones. Such a new construction could be explained by it being completed by a young male or that a new location was required for the pair.

As the eggs were numerous and of moderate size, it was likely that they were laid by a mature female, which may indicate that there was an existing population of Malleefowl in Lincoln National Park prior to the release of the captive-reared birds in 2001.

There were no signs of predators identified around the nest site, which may be an indication of the effectiveness of the quarterly 1080 baiting program that has been ongoing in Lincoln NP since 1997.

Monitoring of active mounds

Method

To assess the success of Malleefowl conservation programs on Eyre Peninsula, population trends need to be monitored. As Malleefowl density is difficult to measure directly, changes in the number of active mounds over time are being used as an indicator of changes in Malleefowl density, as recommended by Benshemesh (2000).

Five survey grids (2 km x 2 km) have been established in Munyaroo, Pinkawillinie and Hincks Conservation Parks as well as in two heritage agreements one just north of Cowell and one just north of Lock (Fig. 6).

The Cowell grid has been surveyed by local Malleefowl enthusiasts for nine years. In 1998, staff from DEH and a Greencorps Team established and surveyed the Pinkawillinie, Hincks and Munyaroo grids. In spring 2003 and summer 2003-2004, staff from DEH and the Eyre Peninsula Natural Resource Management Group (EPNRM), community volunteers and a Greencorps Team resurveyed 80 % of the Munyaroo grid, established and surveyed the Lock grid, and monitored active mounds in the Cowell, Hincks and Pinkawillinie grids.

Results and discussion

Results of the grid surveys are shown in Fig. 7. Only the Cowell grid has been searched comprehensively on more than one occasion and although the number of active mounds at this site has fluctuated over time, there is no evidence that numbers are either increasing or decreasing. It is interesting to note that the grids that are nearly totally surrounded by agricultural land (Cowell and Lock) have the highest number of mounds.

The low number of comprehensive repeat surveys for most grids limits the information that can be gained by the data. This is primarily because of the general difficulty in finding the number of people necessary to conduct the comprehensive surveys on Eyre Peninsula.

Future directions

Monitoring

Monitoring the success of conservation initiatives for Malleefowl on EP is still in its very preliminary stages. Although there is considerable community support for such initiatives, we are a long way from being able to determine whether current conservation initiatives are helping to conserve Malleefowl in the region. A long-term monitoring program that produces a meaningful indication of Malleefowl abundance is required. We intend to continue to monitor the five established Malleefowl grids on EP by conducting a complete survey of at least one grid each year, and alternating grids between years. This would enable each grid to be surveyed at least once every five years. Frequency of surveys will depend on the number of people available, including agency staff, Greencorps teams and volunteers. The effectiveness and cost of additional survey techniques such as aerial surveys (Brickhill 1985) and mound excavation may also be investigated in 2004.

Conservation initiatives

We have to be judicious about how we spend our limited resources for Malleefowl conservation programs in the region. The captive rearing and release program produced some valuable insights into the behaviour and breeding of the released birds, and also stimulated a large amount of community interest. However, a considerable amount of time and resources were used to get a final result of four Malleefowl released into the wild successfully. Despite the positive outcomes of this project, we need to consider the overall contribution of this initiative to Malleefowl conservation on a regional scale. The trick is to harness the enthusiasm generated by initiatives such as the reintroduction, and then encourage those involved to contribute to other initiatives that will assist the survival and monitoring of existing Malleefowl populations in other parts of the region.

Conserving Malleefowl on EP may also be largely about education as there are still many people in the community who do not understand the threats that face the Malleefowl. Face-to-face discussions with landholders can be very productive as many landowners who manage areas of Malleefowl habitat are quite prepared to put in some time and effort to help conserve the Malleefowl population in their own area, either by vegetation protection, fox baiting or a mixture of both. However, it is also important that incentives are made available to landholders to undertake these works, and that such incentives are targeted to high priority areas to generate the best conservation outcomes.

When making decisions regarding a large bird that lives over a vast area of Australia it will be important to use the landscape-level conservation principles (The Wilderness Society (undated) and DEH 2003). These principles include the connection of habitats via a comprehensive system of core protected areas buffered and linked by lands managed for conservation objectives. DEH and the EPNRM are working together to encourage stakeholders to manage large connecting areas of vegetation for conservation over northern EP. This includes the identification of high priority biodiversity areas (using Malleefowl as one of the flagship species) and offering support to landholders to manage priority areas for conservation.

It is hoped that a range of conservation initiatives, including the combination of landscape-level habitat protection and pest animal control, will help to ensure the survival of Malleefowl on Eyre Peninsula for a long time to come.

Acknowledgements

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