

6. MALLEEFOWL CONSERVATION IN SOUTH AUSTRALIA

Achievements from 2004 to 2007

Sharon Gillam

Department for Environment and Heritage, GPO Box 1047, Adelaide SA 5001.

Abstract

In South Australia, Malleefowl continue to persist in isolated areas of remnant mallee, in both public reserves and on private land; however, the long-term conservation requirements for Malleefowl have been unclear. In 1989, a Malleefowl survey and monitoring program commenced based on monitoring the activity of Malleefowl mounds located within permanently marked grids, to assess persistence and changes in breeding activity over time.

During the period 2004 – 2007, considerable progress has been made in Malleefowl conservation efforts in South Australia. Significant changes, beginning in 2004, were made to the monitoring system. This included the adoption of an electronic monitoring method developed by Benshemesh (1997), and collecting, validating and converting all historic Malleefowl data to electronic format. Other initiatives include the funding of contract project officer positions in the Murraylands, South East and Adelaide to support the Malleefowl recovery effort; fencing of priority Malleefowl habitat; monitoring workshops for volunteers; and a research project into Malleefowl genetics involving the South Australian Museum. In addition, community groups, individuals and agency staff have become actively involved and shown great enthusiasm in furthering conservation efforts for Malleefowl.

Introduction

Malleefowl are considered threatened across all remaining areas of their range in South Australia, and are listed as Vulnerable. Records collected through biological surveys, landowner questionnaires and opportune sightings show that Malleefowl occur in four relatively discrete areas in South Australia, which include: the Murraylands and Upper South East; the southern portion of Yorke Peninsula; Eyre Peninsula and the Far West; and the Aboriginal Lands in the northwest of South Australia, in both public reserves and on private land. Throughout much of this range, the species persists in isolated areas of remnant mallee or Acacia/mulga shrublands; however, the long-term conservation requirements for Malleefowl have been unclear.

Since 1989, studies were instigated in South Australia to determine accurately the distribution, status and apparent threats to Malleefowl. The aim of the studies was to ascertain how to best direct conservation efforts to benefit Malleefowl within the state. A Malleefowl survey and monitoring program commenced in 1989, using a system established in Victoria by Benshemesh (1989), where Malleefowl mounds were located and mapped within permanently marked grids. Monitoring the activity of mounds provides the most accurate indication of persistence and changes in breeding activity over time, and is now undertaken regularly throughout the current range of habitats occupied by Malleefowl. Apparent declines in breeding activity recorded over the past 15 years may indicate reduced viability of these populations over time, and may also provide a direct link between breeding activity and population trends. Mound monitoring may also provide a tool for measuring the effectiveness of current and future management actions. The establishment and monitoring of grids has been accomplished largely through the contributions and enthusiasm of community groups and individuals.

In South Australia, the process of mound monitoring has continued over many years; however, limited funds and coordination have led to sporadic monitoring in some grids; inconsistencies in data collection; lack of data transfer, analysis and subsequent reporting. Despite this, a strong body of data has been collected, and improvements have occurred along the way. GPS units were used to replace the compass, making relocating mounds a lot easier and quicker, and improvements were made in data collection sheets. Beginning in 2004, existing survey methods in South Australia were updated to reflect available GPS and hand-held computer (Palm Pilot) technology, as per the monitoring manual produced by Benshemesh (1997).

This paper outlines the considerable progress that has been made in Malleefowl conservation efforts in South Australia from 2004 to 2007.

Achievements over the past three years: 2004/05 to 2006/07

2004/05

In 2004 the National Malleefowl Recovery Team was reformed, and a National Malleefowl Forum was held in Mildura in Victoria – both of these events played an important role in reigniting community and agency enthusiasm to conserve the Malleefowl.

Thirty-five Malleefowl monitoring grids existed in some form in four regions in South Australia at the beginning of 2004: the Murraylands, South East, Yorke Peninsula and Eyre Peninsula. The majority of these grids had been set up in the Murraylands (Mallee District and Riverland District), once thought to be the stronghold of Malleefowl in South Australia.

The increase in the number of grids monitored (from 10 out of 35 grids in 2003) was motivated by a Monitoring Workshop, conducted by the Victorian Malleefowl Recovery Group in Victoria in October 2004. This workshop was designed to train new volunteers and refresh the skills of regular volunteers for monitoring Malleefowl nests during the approaching nesting season. In addition, the workshop introduced people to the electronic monitoring technique used by the Victorians, which provided for a very organised, sophisticated and efficient system of data collection and storage, whilst maintaining a high standard in data quality, that simplified analysis and reporting. This is the preferred method for monitoring breeding densities of Malleefowl across all states, so that (a). data collection methods are standardised at a national level, (b). records may be readily transferred and stored centrally, and (c). data can be easily combined to provide regional impressions of Malleefowl trends. Having a national standard also provides a more efficient basis for maintaining community support and analysing the resulting data.

In mid 2004, collating and sorting of historic Malleefowl records began in the Murraylands, with the appointment of contractors by the Department for Environment and Heritage, Berri Office, to coordinate this project. This signified a major turning point in renovating the Murraylands' monitoring 'system'. The 2004/05 season saw the start of the Victorian Malleefowl Recovery Group monitoring method being adopted in South Australia, with plans to extend this method to all grids next season, and establish a coordinated community based monitoring program. Six people from the Riverland (Department for Environment and Heritage staff and others) attended the Victorian Malleefowl Recovery Group training workshop, and equipment was purchased to begin the set up of monitoring 'kits'. Monitoring grids on Calperum and Taylorville Stations (located in the Bookmark Biosphere Reserve north of the Murray River) also picked up pace through Community Land Management Group volunteers.

In 2004, four new grids were established on Calperum Station by Community Land Management volunteers, giving a total of 39 grids in South Australia. Of these, 28 grids were monitored in the 2004/2005 breeding season – 26 of these in the Murraylands (Table 1). In this season, of the total 573 mounds monitored, 23 were active and 550 were inactive (Table 2).

Table 1. Number of grids monitored in the 2004/05 Malleefowl breeding season in each region in South Australia.

Region	Grids Monitored	Total Grids
Murraylands	26	31
Eyre Peninsula	2	5
Yorke Peninsula	0	1
South East	0	2
Total	28	39

Table 2. Number of active and inactive mounds per region in South Australia, in the 2004/05 Malleefowl breeding season.

Region	Inactive Mounds	Active Mounds	Total Mounds
Murraylands	455	15 (3%)	470
Eyre Peninsula	95	8 (7%)	103
Yorke Peninsula	0	0	0
South East	0	0	0
Total	550	23 (4%)	573

An aerial survey method was trialled over the Gawler Ranges region in March 2004, to assess the effectiveness of helicopter surveys for monitoring Malleefowl mounds in areas where mound densities are very low and vegetation relatively dense. The results of the trial indicated, as with similar trials in southwest New South Wales, that this method is useful in locating mounds in large areas of vegetation and could be effective in directing further ground-based search efforts. However, on calibrating the aerial survey technique against ground surveys on an established 2km² Malleefowl grid at Lock, it was found that 50% of mounds recorded from the ground were missed from the air, and double counting may also have occurred. Further investigation of this method may be warranted where there are large tracts of vegetation with low mound densities.

2005/06

Three significant events occurred in 2005 to further the recovery effort for Malleefowl: at a national level, funding was secured for a major project aimed at implementing key components of the National Malleefowl Recovery Plan, and at a state level, funding became available for a centrally-based position to aid in Malleefowl conservation initiatives. At a regional level, a part-time Malleefowl Project Coordinator was also appointed in the South East, to drive monitoring activities in that region.

Multi-Regional Project

A two-year, multi-regional project "*National Malleefowl Monitoring, Population Assessment & Conservation Action Project*" commenced, funded by the Natural Heritage Trust and managed by the Mallee Catchment Management Authority in Mildura. This project was allocated ~\$291,000 from 2005/06 to 2006/07, and involved South Australia, Western Australia and Victoria. Main aims of the project were to:

- Analyse existing monitoring data to interpret Malleefowl breeding density trends and impacts of land management and environmental variables on Malleefowl conservation
- Develop a consistent national monitoring system, database and volunteer manual for Malleefowl, with the view to fostering an ongoing and self sufficient national monitoring system for use by volunteer groups
- Integrate the monitoring system into outcomes for habitat conservation across the landscape in Victoria, South Australia and Western Australia, on both public and private land, involving targeted implementation of on-ground actions from the National Recovery Plan for Malleefowl

In the first year of this project (2006), funding was available to South Australia for fencing to protect significant Malleefowl habitat; for holding two training workshops; and for establishing and monitoring two new grids (or re-establish two old grids). Subsequently, two hundred and sixty hectares of Malleefowl habitat on northern Eyre Peninsula was fenced to exclude stock and hence conserve precious habitat, and expand and improve the connectivity of existing habitat. This was achieved

through the hard work of six landholders. Two volunteer training workshops were held, one in Lock on Eyre Peninsula, and the other in Berri, in the Riverland. These were the first workshops of this kind held in South Australia, and followed the model set up by the Victorian Malleefowl Recovery Group, back in 2001. One new grid was established in Gum Lagoon Conservation Park in the South East of the state – the Naen Naen grid - and two grids that had been partly established some years ago, were reinstated into properly functioning grids – the Innes (Yorke Peninsula) and Mt Scott (South East) grids.

Statewide

In October 2005 the position of Threatened Fauna Project Officer commenced with the Department for Environment and Heritage based in Adelaide, with a primary focus on Malleefowl.

The main aim of the position was to help facilitate the integrated and coordinated approach to Malleefowl conservation in South Australia, in line with the National Recovery Plan for Malleefowl. Initially, a state-based strategy for Malleefowl data collection, interpretation and dissemination was developed (in line with the Victorian monitoring method). Key players in each region were identified with regards to Malleefowl monitoring, and what each region had achieved in terms of managing and monitoring grids, methods of data collection and storage, and volunteer networks and training, was established. All data on Malleefowl monitoring across South Australia was gathered and made available for incorporation into a state and national database. The process of data collection for the 2005 monitoring season was facilitated, and a comprehensive report detailing the status of Malleefowl monitoring in South Australia was compiled. A statewide meeting was convened in April 2006, to review the previous season's (2005) Malleefowl monitoring and to set future directions.

A part-time position of Malleefowl Recovery Program Coordinator was created, also in October, in the South East of the state, with a focus on coordinating the monitoring efforts in that region. This included the task of reinstating one partially set-up grid and thoroughly re-searching another.

The Malleefowl Project Coordinators located in the Riverland continued to implement and expand the national monitoring system in the region, with many tasks successfully achieved. Many issues were resolved including reprojecting mound coordinates (from original surveys) into the correct datum (WGS84) and subsequent ground truthing, providing accurate mound locations and maps.

The results of the 2005 monitoring effort are summarised in Tables 3 and 4, showing that all 39 grids in South Australia were monitored, most of them via the new electronic monitoring method – a significant achievement. A total of 819 mounds was monitored across the regions, up from 573 the previous season – 51 of these were active.

Table 3. Number of grids monitored in the 2005/06 Malleefowl breeding season in each region in South Australia.

Region	Grids Monitored	Total Grids
Murraylands	31	31
Eyre Peninsula	5	5
Yorke Peninsula	1	1
South East	2	2
Total	39	39

Table 4. Number of active and inactive mounds per region in South Australia, in the 2005/06 Malleefowl breeding season.

Region	Inactive Mounds	Active Mounds	Total Mounds
Murraylands	521	18 (3%)	539
Eyre Peninsula	174	18 (9%)	192
Yorke Peninsula	20	6 (23%)	26
South East	53	9 (15%)	62
Total	768	51 (6%)	819

2006/07

Much has been achieved in implementing recovery actions for Malleefowl at a statewide level over the last 12 months. Considerable enthusiasm and effort was shown by all stakeholders, including staff from various agencies, landholders, and a large contingent of volunteers.

Multi-Regional Project

This year (2007), under the initiative of the multi-regional “*National Malleefowl Monitoring, Population Assessment & Conservation Action Project*”, more than 5000 ha is in the process of being fenced, this time including the Murraylands, South East and Yorke Peninsula, as well as Eyre Peninsula. Great support has once again been shown by various landholders across the regions.

The collection and collation of all monitoring data from around the state – a huge task completed with the help of many – resulted in a review and reports by Benshemesh, including a *Trend Analysis Report*, which found that the breeding activity of Malleefowl has been declining by 2-3% per annum, across southern Australia (Benshemesh 2006). Monitoring information from South Australia was collected from 23 monitoring sites over an average of 6.1 years of data (range: 1 – 15 years).

While on-ground training will continue through the regional coordinators and ideas for more training workshops are on the drawing board, all those interested are welcome to attend the training weekend held by the Victorian Malleefowl Recovery Group in Wyperfeld National Park (northwest Victoria) in September or October each year. Production of a training video is also on the agenda.

Two new grids (Bandon and Ettrick) were set up on Heritage Agreement properties in the Murraylands, while two grids were re-searched – the Karte grid (Riverland) and Innes grid (Yorke Peninsula). Protocols for establishing and re-searching grids have been drafted, so that these tasks are undertaken according to standards that apply at a national level. These will be included in a *National Malleefowl Monitoring Manual*, another large project currently underway and coordinated by the Victorian Malleefowl Recovery Group.

Statewide

There are now 43 operational grids in South Australia. This season (2006) all grids were monitored via the standard electronic methods, using a Palm Pilot and GPS. All data were subsequently validated by relevant coordinators in each region and made available for the national and state databases. Whilst all (national) data is presently held by Joe Benshemesh, procedures are underway to develop a national database. Table 5 provides an outline of the total amount of grids per region and those that were monitored in 2006, while Table 6 shows the total of active and inactive mounds per region, also for 2006.

Table 5. Number of grids monitored in the 2006/07 Malleefowl breeding season in each region in South Australia.

Region	Grids Monitored	Total Grids
Murraylands	26	34
Eyre Peninsula	5	5
Yorke Peninsula	1	1
South East	3	3
Total	35	43

Table 6. Number of active and inactive mounds per region in South Australia, in the 2006/07 Malleefowl breeding season.

Region	Inactive Mounds	Active Mounds	Total Mounds
Murraylands	662	27 (4%)	689
Eyre Peninsula	179	15 (8%)	194
Yorke Peninsula	35	9 (20%)	44
South East	75	9 (11%)	84
Total	951	60 (6%)	1011

Funding was approved to begin a major research project into Malleefowl genetics. This is a collaborative project involving the University of Melbourne, University of Wisconsin (USA) and South Australian Museum. The research will provide information on how habitat fragmentation and isolation is affecting Malleefowl, and will also provide the first comprehensive Australia-wide picture of the state of genetic variation in Malleefowl populations.

A statewide Malleefowl meeting was held in March, and attended by staff and volunteers from all regions except Eyre Peninsula. This meeting provided an opportunity to review and discuss last season's monitoring efforts, look at future directions, and share any ideas and concerns.

Two volunteer workshops (one in Melbourne, one in Adelaide) were organised by the Victorian Malleefowl Recovery Group earlier this year, and were well attended by representatives from South Australia. These workshops were convened to review and refine the monitoring methodologies, as the basis for the production of a *National Malleefowl Monitoring Manual*.

A *Nest Excavation Project* was coordinated by Sharon Gillam during February to April, and occurred across three regions. All (34 in total) of the active mounds in eight monitoring grids were excavated towards the end of the breeding season to determine the number of eggs laid and numbers hatched. Whilst the report for this project is in progress, initial findings showed 2006 to be a year of below-average rainfall across all regions, with particularly low winter rainfall, which in turn affected the breeding efforts of Malleefowl. Results showed an overall reduced clutch size compared to known average clutch sizes, with productivity in the South East region particularly low. The final report will be available soon.

Once again, most of the conservation initiatives underway for Malleefowl could not be realised without the much valued input and enthusiasm given by all volunteers. The hours put in this year were outstanding, and a total figure is given for each region in Table 7.

Table 7. Total volunteer hours per region for Malleefowl conservation in 2006/2007. (DEH = Department for Environment & Heritage, CLM = Community Land Management)

	Region					Total
	Yorke Pen.	Eyre Pen.	South East	Murraylands DEH	Murraylands CLM	
Hours	255	313	163	715	376	1822

Conclusion

Significant headway into Malleefowl conservation has been made in South Australia during the past three years, demonstrating strong will and determination to improve the long-term prospects for this species.

A major focus has been on the implementation of the electronic Malleefowl monitoring system; the collation of data; and putting in place measures to continue the nationally standardised monitoring process. Whilst the monitoring system provides a whole range of valuable information which has

been recognised in the results of Benshemesh's (2006) report, it has the potential to be explored further in conjunction with research and management, which is recommended under an Adaptive Management framework in the National Recovery Plan for Malleefowl (Benshemesh 2007).

Whilst the conservation initiatives described above all contribute to assisting in the long-term survival of Malleefowl in South Australia, it is imperative that agencies continue the commitment to develop and implement actions outlined in the National Recovery Plan for Malleefowl (Benshemesh 2007), and to harness the enthusiasm shown by all stakeholders so that the recovery process may continue to generate the best conservation outcomes.

Acknowledgements

The conservation initiatives over the past three years would not have been accomplished without the time, effort and keen interest of many people, including community volunteers and groups, landholders, Greencorp teams, Conservation Volunteer Australia teams, and agency staff. The continued support of Joe Benshemesh and the Victorian Malleefowl Recovery Group is also acknowledged.

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