

10. Saving Our Species – Malleefowl Iconic Species Project

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Abstract

The NSW Government's Saving our Species program is a new conservation initiative. Unlike previous programs, threatened species have been allocated to one of six management streams depending on their distribution, ecology, security, and what is known about them. The six management streams are: site managed species, data deficient species, landscape species, partnership species, keep watch species and iconic species. The Malleefowl has been identified as one of only five iconic species, along with the Koala, Brush-tailed Rock-wallaby, Southern Corroboree Frog and the Wollemi Pine.

\$1.2 million has been allocated for iconic species up to 2016 and, to date, the program has assisted Malleefowl conservation through the provision of canid pest ejectors or M44's (bait delivery device for fox control), funding the cost of baits for fox control, aerial survey and mound monitoring and some pilot monitoring work using motion-triggered camera traps. Over the coming year the program is planning to coordinate and support community engagement in monitoring Malleefowl in the Goonoo forest region and expand camera monitoring on mounds in suitable habitat in the central mallee of NSW. We are also investigating the potential for using LiDAR (Light Detection and Ranging) technology to locate mounds in areas where other methods are impractical.

Saving Our Species Program

In NSW threatened species are listed under the *Threatened Species Conservation Act* (TSC Act) 1995. The Act contains schedules for species, populations, communities and key threatening processes, and also has provisions for various threat categories - vulnerable, endangered, critically endangered and presumed extinct. Up until 2007, recovery and management of listed entities was implemented via recovery plans. However, the rate of recovery plan preparation was not keeping pace with the rate at which new species were being listed. The amount of government investment in preparing plans was disproportionately high compared to investment in recovery actions.

The NSW Threatened Species Priorities Action Statement (PAS) was introduced in 2007 to streamline the recovery process from recovery plans to detailed and targeted actions. The PAS aimed to identify strategies to help recover threatened plants and animals, establish priorities to implement these strategies, identify actions for all listed species, populations and ecological communities, and identify actions to manage key threatening processes.

A review of the PAS in 2011 found that while significant worthwhile conservation work was being undertaken, it was unclear to what extent this work benefited threatened species, and so recommended improvements.

Through the PAS review, eight recommendations were made:

1. Establish six new management streams to better target the management of each threatened species.
2. Enhance uptake of the PAS and raise community awareness.
3. Make PAS actions, and their timing, more specific.
4. Provide a framework for local actions to contribute to state-wide outcomes for species.
5. Target investment at the minimum set of actions that are crucial for securing a species.
6. Develop a sound, repeatable and transparent process for prioritising effort between species state wide.
7. Develop a process for monitoring and reporting on the outcomes of projects and actions for threatened species.
8. Develop a simple, user-friendly database to support program delivery.

Saving Our Species

Saving Our Species (SOS) is a new conservation program in NSW developed to deliver on the recommendations of the PAS review.

The SOS program aims to maximise the number of threatened species that can be secured in the wild in NSW for 100 years. Unlike previous programs, Saving Our Species:

- aligns everyone's efforts under a single banner, so investment in threatened species conservation can be accounted for;
- assigns threatened species to different management streams; and
- invites the NSW community and businesses to participate in threatened species recovery.

Through the SOS program, threatened species listed under the TSC Act are allocated to one of six management streams depending on their distribution, ecology, security, and what is known about them.

The six management streams are:

Site-managed species (406 species)

- Require site-based management.
- Projects that identify management sites and costed management and monitoring actions at sites.

Landscape-managed species (132 species)

- Distributed over large areas and subject to landscape level threats – habitat loss and degradation.
- Managed through existing broad scale habitat programs and management of NPWS reserves.

Data Deficient species (103 species)

- Insufficient knowledge to develop management response.
- Prioritised based on feasibility of filling gaps and conservation status (TSC and *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*).

Partnership species (151 species)

- Less than 10% of their populations in NSW.
- Projects will be developed for EPBC Act listed species that have key populations in NSW and prioritised.

Keep watch species (97 species)

- Rare but not threatened or more recent data indicates that more abundant/less threatened than when listed.

Iconic species (5 species)

- Highly valued by the community.
- Currently 5 species – Koala, Brush-tailed Rock-wallaby, Southern Corroboree Frog, Wollemi Pine and Malleefowl.
- Projects based on recovery plans.

Priorities for action under the SOS program are species in the site-managed, iconic, data-deficient and landscape-managed streams. Direct action will be considered for nationally listed partnership species but is not expected for keep watch species unless threats substantially increase. Revised strategies for landscape-managed species, endangered populations, threatened ecological communities and key threatening processes will be developed next.

Malleefowl Iconic Species Project – to 2014

Malleefowl in NSW are listed as Endangered under the TSC Act 1995 and have been allocated to the Iconic Species management stream of the SOS. The Malleefowl Iconic Species Project was first funded two years ago to assist and enhance existing Malleefowl projects. Over the past two years this assistance has been provided to several projects across NSW.

In NSW predation by the European Red Fox has been listed as a key threatening process under the TSC Act (1995) and a Fox Threat Abatement Plan (TAP) has been approved under the legislation to reduce this threat. The Fox TAP prioritised threat reduction at 53 sites to benefit a range of threatened species, including four sites which target fox control towards Malleefowl recovery. The SOS has assisted at all of these Fox TAP sites.

Goonoo National Park & State Conservation Area

The SOS has funded the purchase of 1080 baits for landholders surrounding the Goonoo National Park (NP) and State Conservation Area (SCA). The landholders undertake coordinated fox baiting assisted by the Central West Local Land Services. The program has been recognised nationally and has been running for more than 20 years. The SOS is pleased to have been able to assist with crucial funding to assist this program to continue.

Also, working with the National Parks and Wildlife Service in Dubbo the SOS contributed to Goonoo NP and SCA through:

- *Mound excavation* - During the 2012/13 breeding season only one mound was active. This mound was excavated several times and found that six eggs in total were laid. Of the six eggs, four appeared to have hatched while two remained intact without hatching more than 100 days after being laid.
- *Monitoring* - Mound monitoring using the National Malleefowl Monitoring System was undertaken in the 2009/10 breeding season, with opportunistic monitoring of active mounds since then. Despite visits to mounds known to be active in recent years, there have been no active mounds identified in either the 2013/14 or 2014/15 seasons. Two records, including one set of tracks and one observation of an adult Malleefowl, from August 2014 are the most recent Malleefowl sightings in the Goonoo.
- *Camera traps* - camera monitoring of the only active mound known in 2009/10 identified fox, deer, echidna, emu, goat, kangaroo, wallaby and Malleefowl visited. Apart from Malleefowl, goanna, swamp wallaby and goat were the most common visitors.
- *Image processing* - assistance was provided to help tag images from camera traps used to monitor foxes in the 2014 Fox TAP program in the Goonoo NP and SCA.

Western NSW – Nymagee

The Western Local Land Services (LLS) initiate a high conservation value program to provide incentives for landholders to undertake conservation management on their properties. Two properties in the Nymagee region of central NSW were assisted to install fencing to prevent goat access and to implement a fox baiting program. The SOS program assisted during the development of the project and continued to be involved in monitoring for the first three years. Since the beginning of the project:

- Aerial survey of approximately 6,000 hectares of mallee habitat in the Nymagee region has located 20 new mound locations (observer provided by SOS).
- Goat and fox control across 3,000 hectares of known Malleefowl habitat.
- Landholder management agreements of 15 years duration.
- Greater than two years of camera trap data from two active mounds (SOS - to be reported in the coming year).

Yathong, Round Hill (Central Mallee), Tarawi and Nombinnie Nature Reserves and Nombinnie State Conservation Area

At several locations in NSW, canid pest ejectors or CPEs (also called M44 ejectors) have been supplied to supplement fox control efforts for the benefit of Malleefowl. CPEs are a bait delivery device targeted at foxes and wild dogs. This spring loaded device only triggers when enough force is applied in a specific direction, which only foxes and dogs can do.

Camera traps have also been deployed as part of a pilot program to assess their potential as a monitoring tool to assess threats to Malleefowl at the mound, and quantify chick emergence:

- 150 CPE devices have been provided to NPWS for deployment throughout the Central Mallee, and 210 have been provided to Tarawi NR and Mallee Cliffs National Park (NP).
- Three camera traps have been operating across Tarawi NR and Mallee Cliffs NP, and two have also been deployed in the Central Mallee.

Each CPE activation is almost a certain fox kill. Therefore data in the example from Tarawi NR (Figure 1 below) potentially represents a significant further reduction in foxes that are not being taken out by other ground baiting techniques. There are 90 CPE devices deployed on Tarawi NR, they are all checked once a month. There is also ongoing baiting via buried ground baits at this site.

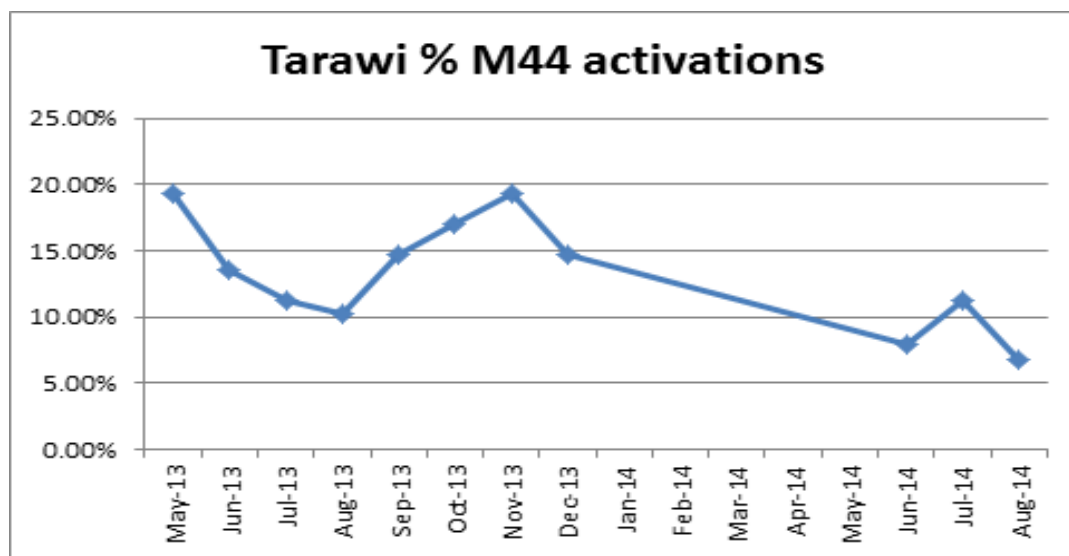


Figure 1. Percentage of CPE activations at Tarawi NR (Source: NPWS Lower Darling Area). NOTE: The devices were not set from December 2013 to May 2014 due to high ambient temperatures melting the seal of capsules containing the 1080 poison (no longer an issue).

Malleefowl Iconic Species Project – beyond 2014

Goonoo Malleefowl Group

Malleefowl data available for Goonoo region has been built up over many years of Forestry, National Parks, field naturalists, researchers, local residents and other individuals visiting the region reporting their observations. Since a wildfire in the forest in 2007, that burned approximately 33% of the park including 35% of known mound locations, spatial knowledge of Malleefowl in Goonoo is lacking and needs to be rebuilt. Only three mounds are known to have been actively worked by Malleefowl since the fire. The last active mound was from the 2012/13 breeding season and, no mounds are known to have been prepared for the 2014/15 season. No coordinated ongoing monitoring of the population has been undertaken to date. Figures 2 and 3 below show the distribution of Malleefowl records in the Goonoo region.

The SOS is assisting the formation of a stakeholder group representing community interest, management and specialist expertise to contribute to Malleefowl recovery in the Goonoo NP and SCA to rebuild the knowledge base and use that to focus recovery efforts. The Goonoo Malleefowl Group (GMG) will represent a range of relevant knowledge and aims to:

1. meet to identify and engage in local Malleefowl activities;
2. contribute to identifying and development of management options;
3. engage the community in on-ground activities that benefit Malleefowl.

The establishment of the Goonoo Malleefowl Group (GMG) is about engaging the community and other stakeholders in the development of management options aimed at long-term sustainability of Malleefowl

in the Goonoo NP and SCA. The stakeholder group will work closely with land managers to develop practical actions that prevent Australia's eastern most population of Malleefowl from declining. Potential projects to which the group can contribute are a knowledge audit, Malleefowl mound searches, establishing an easy process for park visitors to report Malleefowl sightings, exploring the potential of remote sensing methods to locate mounds, determining habitat requirements, and assessing needs for population supplementation. This project will raise the profile of the species in the local community and aims to foster collaboration and ownership between the Office of Environment Heritage and those interested in Malleefowl in the region.

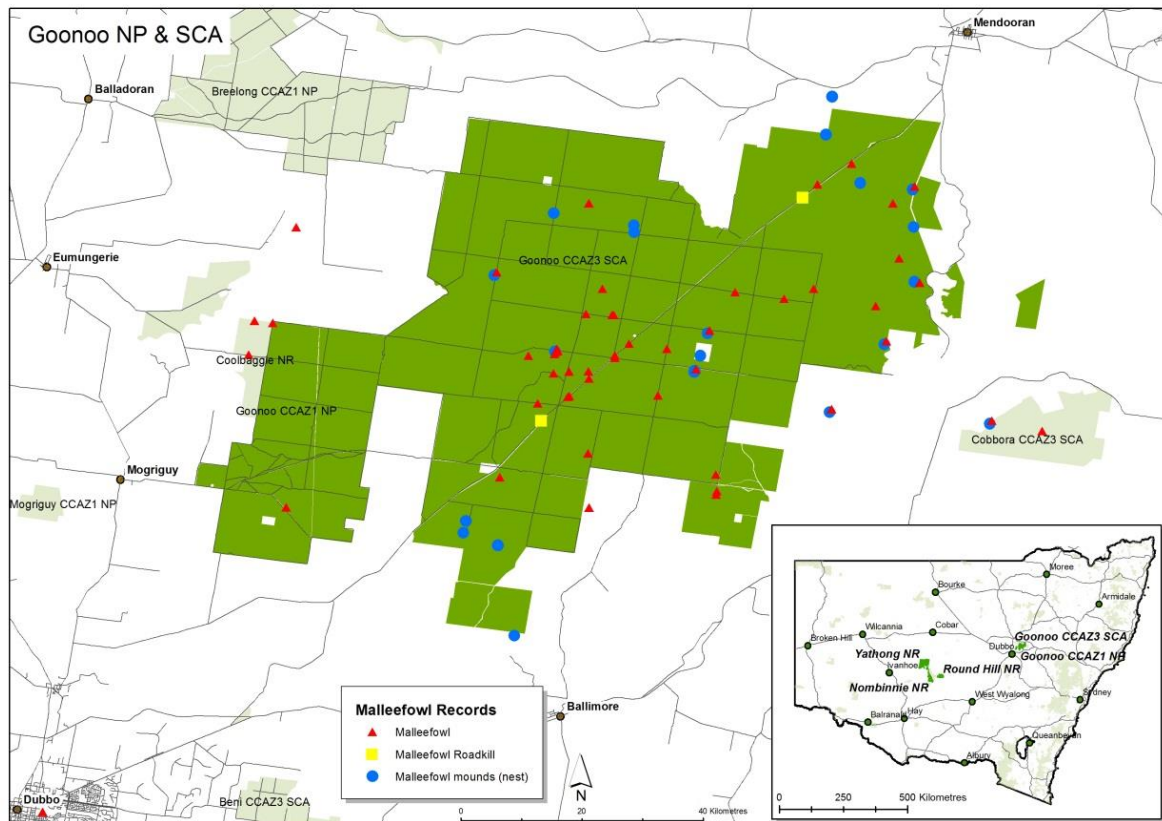


Figure 2. All Malleefowl records from the Goonoo NP and SCA (Source: Atlas of NSW Wildlife).

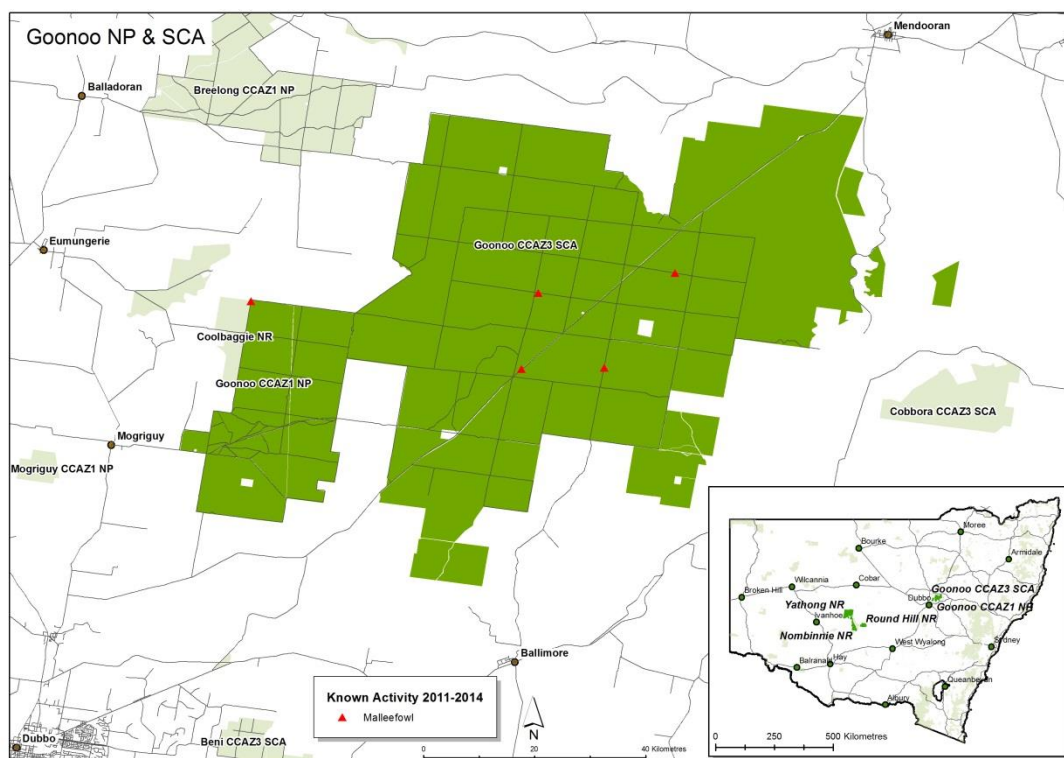


Figure 3. Mallee fowl records from the Goonoo NP and SCA from 2011 to 2014 (Source: Atlas of NSW Wildlife).

Aerial Survey in the Central Mallee

In the Central Mallee (Yathong NR, Nombinnie NR & SCA and Round Hill NR) there has been long-term investment in research and threat control to benefit the Mallee fowl as well as other species. Additional investment by the Western Local Land Services (LLS) and the Invasive Animals Cooperative Research Centre (IA CRC) in the areas surrounding the NPWS estate, have provided collaborative work opportunities. The new Fox Threat Abatement Plan (FoxTAP2) Site Plan also formalises management actions to control fox predation. The SOS project builds on the FoxTAP2 Site Plan by providing resources to conduct aerial survey in areas of Mallee fowl habitat and capture information on the current spatial distribution and breeding population size, which is vital for management for the species.

Figure 4 shows Mallee fowl sightings in the Central Mallee region and known mounds from previous aerial surveys. The last survey on park (a mound to mound survey) was in 2012 which was focused on a portion of Yathong NR. The objective of aerial survey this year is to search habitat to locate new mounds which has not been done since around 2003.

The opportunity for SOS to partner with the FoxTAP2 Site Plan to fill knowledge gaps in the spatial distribution of active Mallee fowl mounds and breeding population size is a timely one as the new site plan contains revised and new fox control techniques. Gaining this knowledge now provides baseline data from the point of change in management and can be used to measure success of the new FoxTAP2.

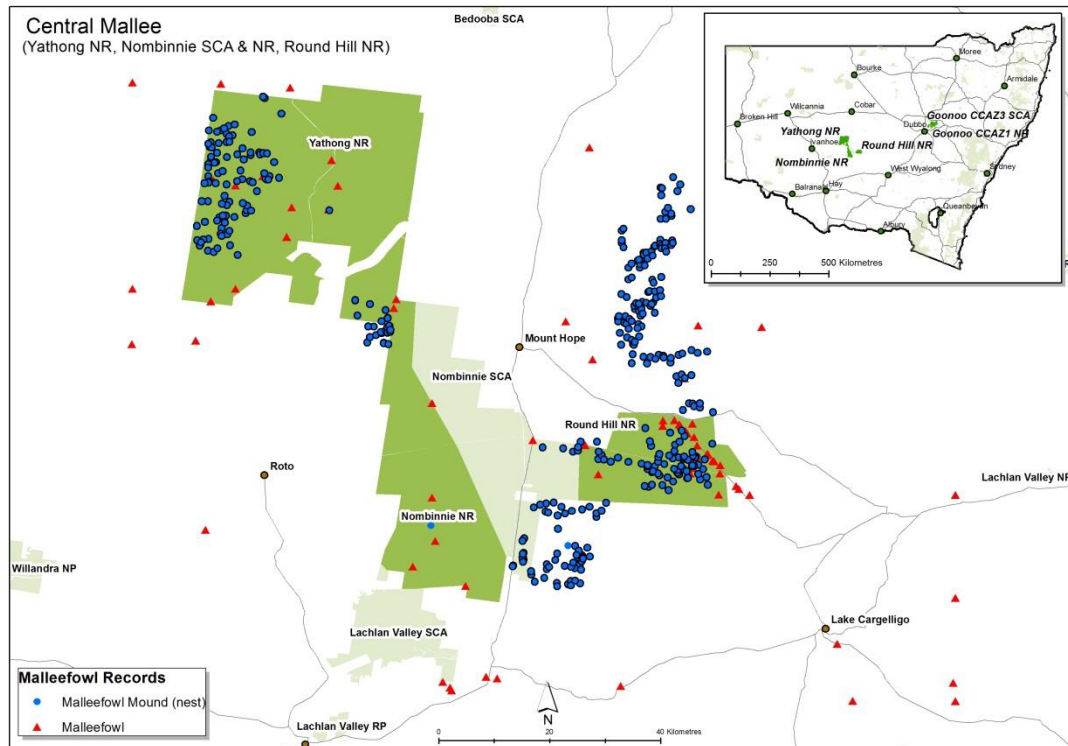


Figure 4. All known Malleefowl records from the Central Mallee (Source: Atlas of NSW Wildlife; NPWS Mid West Area; IA CRC).

Malleefowl mound monitoring – Camera traps

Motion triggered camera traps will help to monitor active Malleefowl mounds to measure threats to Malleefowl, mounds, eggs and mound maintenance by visiting fauna.

Yathong NR, Nombinnie NR and SCA and Round Hill NR

In the Central Mallee, the SOS Malleefowl Iconic Species Project is aiming to contribute to Malleefowl monitoring through the use of motion triggered camera traps. The camera trap monitoring on active Malleefowl mounds aims to measure threats posed by fauna species visiting the mounds. Quantifying threats through 24/7 monitoring has previously been constrained by logistical and resource constraints. A volunteer base to assist in the field and in image analysis will be established, thus providing an opportunity for interested community members to be directly involved in Malleefowl recovery. Data will be correlated with results from broader monitoring associated with the FoxTAP2 program. There is potential for camera trapping to be a valuable part of a monitoring strategy and provide quantified evidence of threats directly from the Malleefowl breeding population. The project also aims to develop tools and recommendations that can be used to guide Malleefowl recovery elsewhere in NSW, both on and off-park.

The current opportunity coincides with the start of the new FoxTAP2 Site Plan which incorporates a fox control strategy with changed baiting frequency as well as deployment of CPE devices. Also, pilot data from cameras deployed elsewhere indicate foxes may be a threat at mounds despite baiting. Other fauna species potentially posing a threat at the mound can also be measured through camera trap techniques. The camera trap program aims to identify predation or disturbance threats posed by other species at the mound from which appropriate management responses can be developed and refined.

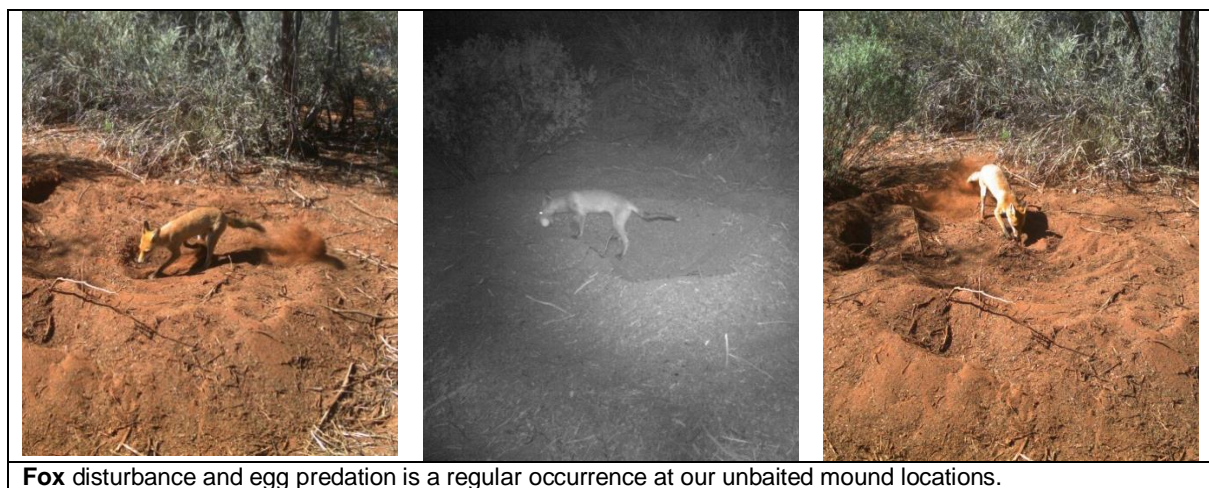
Observations from data so far

The camera trap project aims to capture image data from a representative sample of the Malleefowl population on Yathong NR; from past knowledge there may be up to 12 or 15 mounds active during a good breeding season. The SOS Iconic Species Project has the potential to monitor up to 15 mounds (i.e. up to 100% of the active population). Currently the project aims to capture data from an entire breeding season, with data analysis expected to provide guidance on the longer term value of continuing monitoring beyond the first year period (including recommendations for cost efficiency measures). Within current resources the project will focus on sampling mounds within Yathong NR, although Malleefowl also occur in Nombinnie and Round Hill NRs and surrounding areas. The Invasive Animals CRC is undertaking Malleefowl recovery work on nearby properties including camera trap monitoring and the potential to combine information and data for analysis and reporting purposes is being discussed.

Guided by the National Recovery Plan the SOS program hopes to gradually build knowledge and incorporate all Malleefowl recovery projects and action into the SOS system. This will allow more coordinated and strategic approach to Malleefowl recovery in the future.

Interesting Camera Trap Observations

Below are some interesting observations from our Malleefowl mound camera traps. Over the coming year we will be working to provide quantitative image analysis that can inform threat management at our sites.





Lace monitors appear to be occasional visitors to Malleefowl mounds, however at Goonoo we have one mound that was regularly visited by at least 10 different lace monitors during one season. This included several large monitors digging deep into the mound. The images above show the Malleefowl defending the nest from a lace monitor attack.

Acknowledgements and Stakeholders

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Further information

<http://www.environment.nsw.gov.au/SavingOurSpecies/iconic.htm>

<http://www.invasiveanimals.com/research/phase2/commercialisation/mallee-recovery/>

<http://dubbofieldnats.org.au/>