around THE MOUNDS

NEWSLETTER OF THE NATIONAL MALLEEFOWL RECOVERY TEAM SPRING 2017 EDITION TWELVE

NATIONAL MALLEEFOWL RECOVERY TEAM

BY SHARON GILLAM, CHAIRPERSON

This is the time of year when once again we head out to monitor our feathered friend, the Malleefowl, to measure and gain knowledge of how they are responding to the myriad of environmental challenges present in today's landscape. The monitoring tells us whether they are breeding and how their breeding is trending over time – if it is increasing, decreasing, fluctuating, and where this is occurring. This, together with a range of other information collected during the monitoring process, plus data gathered from individual sites including rainfall, fire history, predator control and landscape fragmentation, all goes towards understanding what drives the trends in Malleefowl breeding, and how we can best inform management actions that assist in reversing Malleefowl declines.

In this edition Tim talks about the Recovery Team's priorities, reinforcing the importance of the monitoring program, the Adaptive Management (AM) Project, and habitat protection (**p 2**). Craig Gillespie explains how SA is involved in the AM Project on **p 8**. Stephanie Mitchell, Chair of the Iluka Malleefowl Management Committee, wraps up the Iluka Fund with a summary of how offset funds were spent over the last seven years, **p 2**. While another patch of ever-diminishing Mallee habitat was cleared and traded for resources, the Committee did their utmost to support a range of projects with the aim of providing the best possible conservation benefits to Malleefowl. The two new wildlife corridors in the Berrook and Baring State Forests in Victoria are a testament to how the Iluka fund was able to provide the kick-start to what has evolved into a very exciting and hopefully valuable landscape restoration project, initially instigated by the Victorian Malleefowl Recovery Group. Scott McLean explains how the collaboration between a number of key groups have made this project happen (**p 3**). And while we're on habitat restoration, learn on **p 7** how the hard work and determination of WA farmer Mal Sutherland, together with support from the local landcare agency, can make a positive difference. As land clearance is unfortunately still occurring, every patch of restored and protected habitat counts.

It's great to hear that we are continuing to gain a better understanding of Malleefowl distribution through the use of LiDAR, this time in and around the Little Desert National Park in NW Victoria. Belinda Cant on **p 4** provides an overview of how this information is captured and then used to inform fire management practices – another fantastic example of collaboration amongst agencies and volunteers to aid Malleefowl conservation. Read about an exciting new development in WA (**p 6**), and how the journey of one volunteer played an integral part in that development. The ever-modest Sally Cail takes us on her trip through the Malleefowl jungle (**p 5**). And one of our 'newer' members of the recovery team, Joy McGilvray, also from WA, shares a piece of her fascinating story on **p 12**.

In the SE of SA, Samantha Rothe has made an exciting find in Desert Camp Conservation Reserve, after following up on a phone call, **p 9**. David Kellett brings us up to date with the latest in the NSW Riverina **p 10**. While Graeme Tonkin is out and about busily training Malleefowl volunteers, monitoring sites (**p 6**) and spreading the word about Malleefowl conservation, he has also found an interesting article in our *Mallee Post* historical section, **p 11**.

On the recovery team front, Laurence Berry, Wildlife Ecologist with the Australian Wildlife Conservancy, has joined the recovery team, along with Kate McWinney from the Mallee CMA in Vic, who is replacing Rian Caccianiga. Many thanks and farewell to Rian, and welcome to Laurence and Kate. And at a state level, Dave Setchell is moving on from coordinating the SA Murraylands grid monitoring program over the last 13-14 years – an amazing feat in itself! Dave has always shown total commitment to the task: training volunteers; attending to all of the equipment; nutting out technical and database queries; writing up articles and reports; attending forums, plus everything else that goes with organising at least 20 sites each season – his services to Malleefowl monitoring are acknowledged and greatly appreciated. While Dave will continue to assist with the data and database side of things for a while, we welcome Rowena Danks to the MDB Malleefowl Coordinator role, and wish Dave and Rowena all the best.

NATIONAL MALLEEFOWL RECOVERY TEAM COORDINATOR UPDATE

BY TIM BURNARD

It's a bit over 4.5 years since I started in this job and in that time I have occasionally heard people question our priority on monitoring. I consider it a really valid question. Priority actions were at the front of our minds, while Joe and I were preparing the first draft of the revised Recovery Plan. While it can be said that monitoring doesn't directly help Malleefowl, it still underpins everything we know about the species. There are attempts to monitor all threatened species and it is usually a difficult and time consuming project. Nonetheless it is essential to monitor Malleefowl.

Luckily for Malleefowl, there have been many devoted people who, over a decade or two, have developed an excellent monitoring method mixing high tech wizardry with the least tech activity of bush walking. Maintaining the monitoring effort remains one of the National Recovery Team core activities because it needs to be the same across all states and stored in an independent, national archive; the National Malleefowl Monitoring Database.

Another of our priorities is the Adaptive Management (AM) project. Predator control is perhaps the most common action taken by land managers to help protect Malleefowl. However, recent studies have shown that predator control as it is currently done, is not helping Malleefowl. With so much money spent on predator control across Australia, understanding the effect on Malleefowl survival is clearly another priority and that has led us to one of the largest experiments of its type; the Adaptive Management Project.

But that leaves out one of the best things we can do to help Malleefowl; habitat protection, improvement and expansion. While the Recovery Team doesn't take a direct role in habitat projects, there are a lot of projects going on to improve and increase Malleefowl habitat. I can think of about five big habitat projects off the top of my head but we don't really know how much is going on in the name of Malleefowl unless the project is led by one of the Recovery Team agencies. That certainly doesn't mean that we are not interested! If you do hear of any projects that are aimed at Malleefowl please forward on the information. If you know of anyone looking to do habitat work, let me know if we can lend a hand to make it happen. Oh, and, as Prof Stephen Davies stated at the last Recovery Team meeting, we should ensure that our replanting includes lots of seed-producing species like the acacias for the baby birds.

With Graeme Tonkin spearheading the monitoring side of things (along with several champions in each state) and Liz Kington (WA) and Liz Fenwick (east states) settling in to look after the AM project, my role is changing a little. I will now be focusing more on managing the business side of things; applying for funds, finances, reporting etc. All the really fun stuff! It coincides with less hours Malleefowl work, more hours catching up with a myriad of jobs on the farm (fencing for starters!). With such a large, skilled team (paid and voluntary) working toward Malleefowl I am confident we will soon understand the role of predators and how to manage habitat across the range of our beautiful Malleefowl.

Just before I sign off for this edition, a big thank you to Dave Setchell who is moving on from the position of SAMDB Malleefowl coordinator. Dave has run the monitoring in the SA Murray region for many years!

THE MALLEEFOWL MANAGEMENT ACCOUNT COMES TO AN END

BY STEPHANIE MITCHELL

Over the last seven years Iluka Resources has provided $100,000 per year in offset funding to projects which contribute towards meeting the National Malleefowl Recovery Plan objectives. The financial offsets have been part of the EPBC approval conditions for the Murray Basin Stage 2 mineral sands mining project near Ouyen, NW Victoria, which partly impacted upon Malleefowl habitat. The Malleefowl Management Committee (pictured) was formed to oversee the allocation of the grants, and over the seven years 25 different projects were supported, many with multiple years or phases funded.

The experience and expertise of the committee members in the field of Malleefowl conservation has been one of the major strengths of the funding program, consisting of representatives from the Victorian Malleefowl Recovery Group (VMRG), the National Malleefowl Recovery Team (NMRT), the Department of Environment and Energy (DoEE), the Department of Environment, Land, Water and Planning (DELWP), Parks Victoria and Iluka. The committee members were jointly responsible for determining the funding criteria, and projects were only approved for funding if the committee agreed unanimously, meaning funding decisions were not led by any one party.

LEFT TO RIGHT: JO CLUTTERBUCK (ADMIN SUPPORT, ILUKA), RALPH PATFORD (GUEST, TREASURER VMRG), STEPHANIE MITCHELL (CHAIR), ROGER WILSON (ILUKA), PETER STOKIE (VMRG), SHARON GILLAM (NAT RECOVERY TEAM), JOHN OLSEN (PRESIDENT VMRG), DAVID CHRISTIAN (PARKS VICTORIA).
ABSENT MEMBERS: SIMON NALLY (DoEE), GEMMA PHELAN (DELWP).

Over the years some familiar projects have been supported either in full or in part by the offset funds: partnership funding with Melbourne University in 2011 for the Adaptive Management research project; five phases of upgrades to the National Malleefowl Monitoring Database; the 2011 and 2014 National Malleefowl Forums; and the Around the Mounds Newsletter. The fund has also helped to provide leverage for additional funding, such as with the National Malleefowl Coordinator role, which was funded in full by the offset funding when the role was first set up, and has since received part funding every year to assist in attracting additional funds.

CONTINUED

FUNDING ENDED (CONTINUED) BY STEPHANIE MITCHELL

Projects which may not have received funding from elsewhere have also been supported, such as the analysis of 5 years' worth of fox scats meticulously collected from Malleefowl mounds by volunteers over the years, and the Landscape Linkages Project, which investigated 14 potential areas where advances could be made in enhancing landscape links through improved vegetation connectivity, primarily aimed at enhancing Malleefowl conservation in NW Victoria. The latter has since had a further spin off with the recent Berrook and Baring State Forest Malleefowl Wildlife Corridors landscape restoration project – one of the options covered in the investigation, thus ensuring additional long-term benefits for Malleefowl.

Other more localised projects have also been supported, such as the installation of Malleefowl information signs in Parks Victoria reserves and small towns in Victoria with a high Malleefowl presence, and providing support to the VMRG for their breeding density monitoring program and their organisation's promotional materials.

In the final year of the fund the committee made the decision to award grants to projects which ran beyond the end date of the offset funding program, so that key projects could continue to be funded and future projects in the pipeline could be supported. As a result, despite the fund having now come to an end, the following projects will continue to receive funding beyond 2017:-

VMRG–Malleefowl Breeding Density monitoring - funded until June 2018
NMRT–Malleefowl Recovery Plan Coordinator – partfunding till mid-2019
NMRT–Around the Mounds Newsletter – funded in full until end of 2019
NMRT–2018 National Malleefowl Forum
NMRT–2018 Volunteer Coordinators Training Weekend

The funding program has been successful largely due to the consistent commitment from all the committee members, in particular Peter Stokie and Ralph Patford from the VMRG, who provided ongoing voluntary support for the entire seven years by managing and distributing the funds to successful projects, and providing a detailed quarterly update report to the committee and to Iluka on the progress of the projects. With the VMRG distributing the funds on our behalf it meant individuals could also benefit from the funding program – thus increasing the pool from which we could receive applications. Success has, however, also been due to the high calibre of projects and funding applications we received over the years.

The final committee meeting was held on May 11, 2017. Iluka wishes to thank everyone involved in the committee over the years for their tireless efforts in making this financial offset the success it has been. We also wish all the projects we have supported over the years every success into the future.

BERROOK AND BARING STATE FOREST MALLEEFOWL WILDLIFE CORRIDORS, VIC BY SCOTT MCLEAN, DELWP, FOREST FIRE MANAGEMENT VICTORIA

Exciting times in the Mallee with two new Malleefowl wildlife corridor projects recently completed!

These corridors in the Victorian Mallee link fragmented habitat and facilitate the movement of Malleefowl. The projects were developed through a successful partnership between the Department of Environment, Land, Water and Planning (DELWP), the Mallee Catchment Management Authority (Mallee CMA), Greening Australia, adjoining landholders and the ecological research company Ogyris.

The projects were identified by DELWP in a report from Ogyris, who undertook survey work on behalf of the Victorian Malleefowl Recovery Group, to address Objective 5 of the National Recovery Plan for Malleefowl (Benshemesh, 2007), "An Investigation of Potential Landscape Links to Enhance Malleefowl Conservation in Northwest Victoria – June 2014". This report has been successfully used to support funding bids through the Mallee CMA.

The first project completed was at Berrook, approximately 36km northwest of Murrayville, and the second was at Baring, 11km southwest of Patchewollock. Ian Sluiter from Ogyris provided technical advice on the projects and was thrilled to see the Ogyris report used to identify on-ground works and then linked to successful funding applications by the Mallee CMA.

The project at Berrook was finished in May 2016. Murray Sunset National Park is now linked with a large block of state forest at Berrook by a corridor created across previous grazed and cleared cropping land. Approximately 12km of new stock-proof fencing was erected by the Mallee CMA to protect 498ha of remnant vegetation. Within this fenced area, Greening Australia–SA, revegetated 88ha by planting 8,730 locally-sourced tube stock seedlings as well as direct seeding using 52kg of locally-sourced seed.

The project at Baring finished in July 2017 and was delivered by DELWP. Wyperfeld National Park is now linked with the Baring/Bronzewing State Forest. This also involved creating a corridor across previously cropped and grazed land, requiring 3.72km of new stock-proof fencing to protect 80ha of land (40ha remnant and 40ha cleared), with a total of 7,800 trees planted over the cleared areas.

Sites will be continually monitored and tree guards removed once trees are established. Rainfall has been average on the sites so far and it is hoped that more rain falls before the summer sets in. The project at Baring has been signposted as the "Baring Gypsum Wildlife Corridor".

These projects are a significant success story for the Mallee and thanks go to the partner organisations and people who made it happen. Hopefully future funding applications will be successful and enable more corridors, reducing fragmentation and increasing habitat and connectivity.

MALLEEFOWL CONSERVATION PROJECT, VIC

BY BELINDA CANT, DELWP

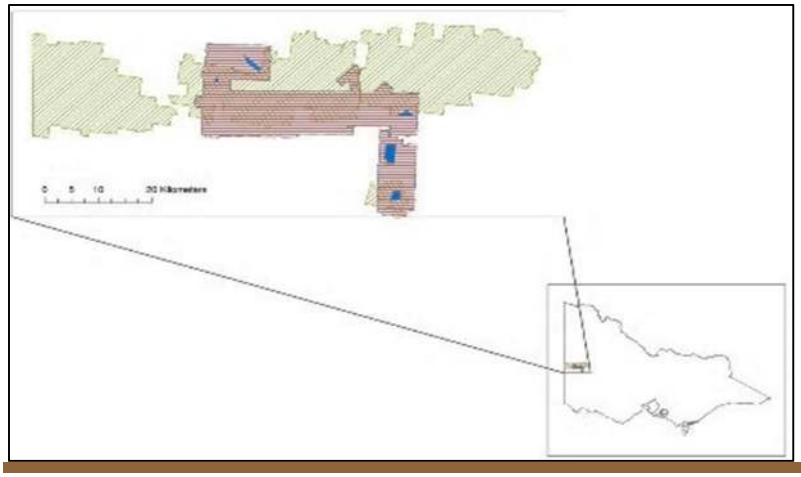
This project was funded by the National Landcare Program and the Wimmera Catchment Management Authority.

It aimed to 1. Identify and protect nesting mounds within the Little Desert National Park and adjoining private land from prescribed burning activities by DELWP; and
2. Understand the influence of fire on Malleefowl critical habitat requirements and incorporate these into management prescriptions by DELWP.

To do this we needed to maximize the number of new active mounds likely to be identified and also ensure that the range of fire histories were represented in the data. We used expert knowledge and spatial analysis to select a survey area that met these criteria in Little Desert NP, the Nurcoung Flora Reserve and Mount Arapiles-Tooan State Park, including private land adjacent and in between these reserves. (See map below).

VOLUNTEERS AT A NEW MOUND IDENTIFIED BY LIDAR ANALYSIS

A LiDAR survey was conducted for 5 hours on the 9 January 2016 from a fixed wing aircraft flying at 1400m equipped with a Reigl sensor capturing LiDAR returns with an average point density of ≥ 4pts/m^2. The data was then processed to identify mound-like 'features' using feature extraction software. A process to cross-check with imagery (using spectral information, spatial context, and physical characteristics of objects or areas to extract them from the image) and adjusting the parameters of the feature extraction algorithms to optimize feature recognition created a subset of ~10% of the original set of features categorized qualitatively as 'highly likely' to be mounds. Verification of the LiDAR features by on-ground searches occurred in the following breeding season between November 2016 and April 2017 to assess which were mounds and which were features misidentified as mounds. A desk-top analysis was conducted to assess the number of known mounds provided by the National Malleefowl Monitoring Database (NMMD) that were detected by LiDAR. Further analysis was conducted using both LiDAR and NMMD data. To report on the density and distribution of 'occupied mounds' I defined 'occupied mounds' as those that had been occupied by a nesting pair during at least one season over the monitoring period 1994-2016. The LiDAR survey extracted 3213 'features' and further analysis produced a subset of 313 features assessed as highly likely to be mounds. 228 of these mounds were verified on-ground and 152 were found to be features other than mounds. There were 30 known mounds in the LiDAR footprint that had been occupied sometime between 1994 and the present. Twelve of these were extracted from the LiDAR data. The LiDAR extraction had a detection rate of 66% for active working mounds, 16% for inactive mounds, and a false negative (fail to find) rate of 40% assuming a 20m precision of the GPS readings of the known mounds. Additional mounds that had never been recorded were located by the LiDAR data analysis.



Spatial pattern analysis revealed a greater density of occupied Malleefowl mounds in the Nurcoung Flora Reserve (up to 5 active mounds per km^2), in the Mount Arapiles-Tooan State Park and also on the southern border of the Little Desert. There were also a relatively high number of active mounds. There were very few active mounds in the Little Desert National Park. The majority of mounds (54) were found in Heathland Sands Vegetation, followed by Lowan Mallee (51) and Broombush Whipstick (50). Occupied mounds were more often found in Heathland Sands (22 mounds) compared to 6 mounds in Lowan Mallee and 5 mounds in Broombush Whipstick.

Thanks go to those who have been invaluable sources of advice and those that have put in hours of field work: VRMG and associated volunteers (Joe Benshemesh, Peter Stokie, Mirinda Thorpe, Iestyn Hosking, Anna-lise Ahfat, Clive Crouch, Wimpy Reichelt), DELWP (Steffen Shultz, Natasha Shedvin, Josh Green), NMRT (Tim Burnard), Parks Victoria (Stuart Harradine) and Greening Australia (Jess Gardner).

THE JOURNEY OF A MALLEEFOWL VOLUNTEER, WA BY SALLY CAIL

SALLY CAIL
PHOTO: SHARON GILLAM

My journey began about 25 years ago when the North Central Malleefowl Preservation Group (NCMPG) was formed. It initially became a labour of love, as our group, though small in number, became involved with Project Eden* and we started a huge fox baiting programme, with results slowly coming in. Cajoling the locals became our thing with our fox baiting exercise. I am sure they looked forward to their annual phone call!

Setting up our first grids was an exciting time; walking through the bush, admiring the trees and flowers, and yes - it is a Malleefowl mound! All the hard slog was worth it. We had lots of help from Birds Australia, Green Corp and Curtin Uni Students helping us to search and record the mounds as well as our dedicated bunch of members. Occasionally we had to remind Birds Australia that it is eyes down, not up, and Green Corp unfortunately did not seem to know right from left! My husband Wally and I also spent many hours walking through the bush looking for suitable Malleefowl mounds for Project Eden to collect eggs from, to take back to Denham for hatching and later release.

My first experience of the National Malleefowl Recovery Team was when Wally and I went to Mildura for the National Malleefowl forum in 2004. This was a great experience; the speakers were wonderful and our sightseeing at the end of the forum was delightful.

At the forum in Katanning in 2007, I was thrown in at the deep end when the lass who was organising things suddenly left her job. It was certainly an interesting situation - looking back now, I can say that I enjoyed it thoroughly. It was at this forum that Peter Sandell talked me into becoming a member of the National Recovery Team. There was some hesitation at first, but yes, I could do this - or so I thought! Come the first teleconference for me and the questions arose - what on earth do all the abbreviations mean? DECC, DEHWA, TSSC, VMRG (this one I knew!) but what language is spoken by professionals? Does one make a fool of oneself and ask, or just wear it and do some research after the meeting? Yes, much safer that way.

I eventually understood about 95% of all that was discussed and although I felt I was not contributing to the meeting, I did enjoy them.

The forum in Renmark (2011) was a delight, such a pretty place and a very well-run event, even though I did manage to embarrass myself terribly. (Maybe this is what volunteers do, foot-in-mouth syndrome.)

Some walking problems started entering our life and unfortunately Wally and I were not as able to help with the monitoring as much as we would wish. By the time the forum was held in Dubbo (2014) I was no longer secretary of NCMPG and was getting vibes about how long I had been on the National Team, so it was time to resign from this as well.

The NCMPG was beginning to see the end of our group and last year it was decided to hand over to a WA group if one could be formed. How hard it has been to say goodbye to the NCMPG - a group I was heavily involved in from beginning to end.

It is official now - we have a WA Malleefowl Group. The inaugural AGM is not too far off and it looks like journeys' end. The chapter closes on this aging volunteer.

What a privilege to have been part of this wonderful organisation. Long may it last!

**Project Eden was a significant conservation project that aimed to reverse extinction and ecological destruction in the Shark Bay World Heritage Area in WA. Five native species were reintroduced into the Francois Peron National Park, including the Malleefowl, where it is now successfully established.*

A date has been set for the Sixth National Malleefowl Forum, so you can put this in your calendars:
August 17-20, 2018,
in Mildura, Victoria.
More information in Autumn 2018 Newsletter, and check NMRT website for updates.

NCMPG AT DUBBO. FRONT; GLENDA MCNEIL (SECRETARY), SUE WATERHOUSE, JUDITH REUDAVEY. BACK: GORDON MCNEIL (PRESIDENT), PETER WATERHOUSE, SALLY CAIL, WALLY CAIL, BERT CAIL, ROD REUDAVEY PHOTO -ANDY MCQUIE

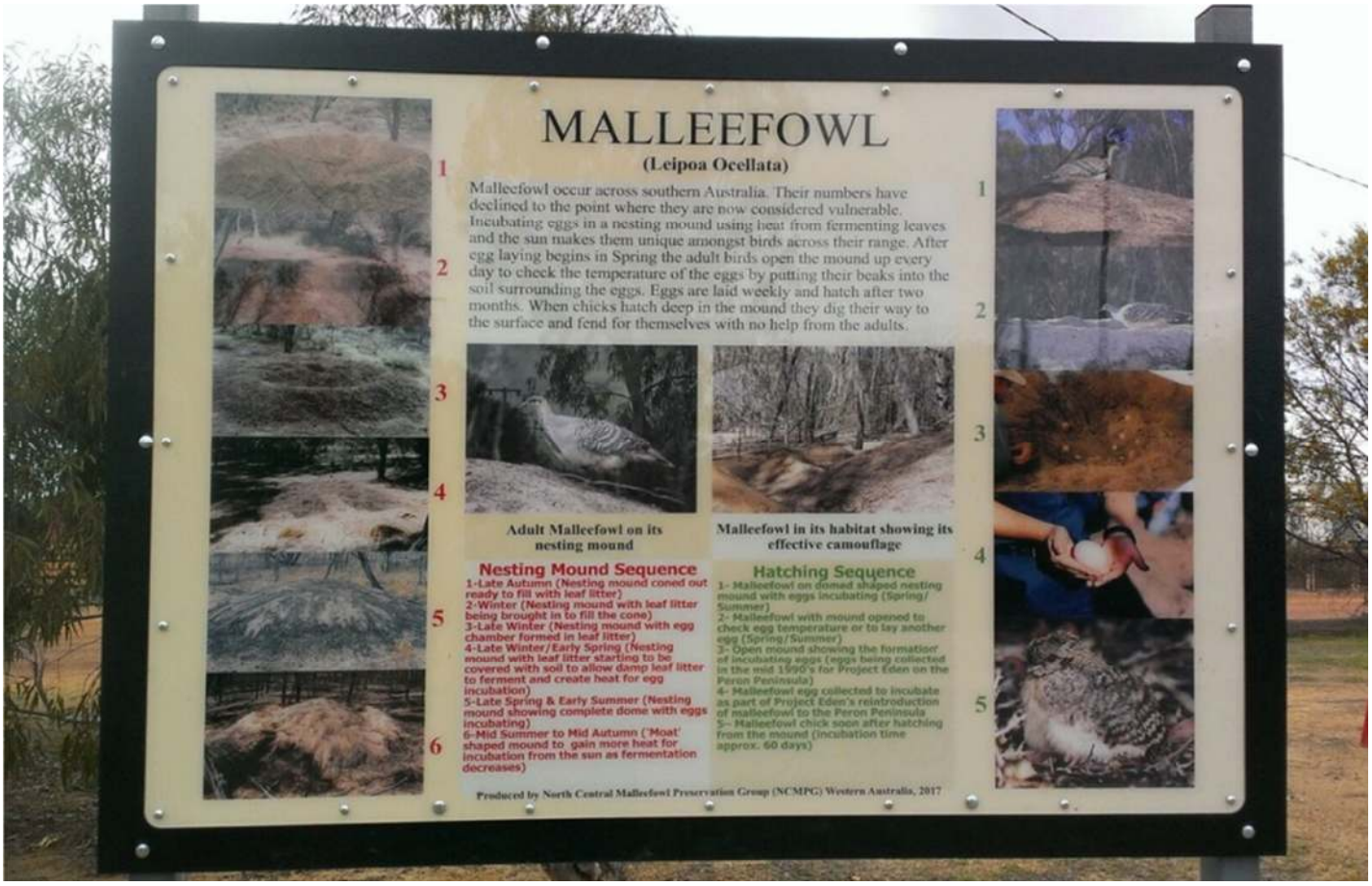
CHANGING TIMES IN WA BY GORDON MCNEILL

A new state group is being born in WA to help drive Malleefowl research and recovery. WA has not had a state organisation of this kind in recent years to help the National Malleefowl Recovery Team in its efforts even though there have been several attempts to kick start the formation of a group. With this in mind and after discussion at its 2016 AGM the North Central Malleefowl Preservation Group decided to offer its incorporated structure and assets (physical and financial) towards the formation of a state group.

In April this year an open meeting was held in Perth chaired by NMRT Coordinator Tim Burnard and with newly appointed NMRT Project Officer (WA) Liz Kington acting as secretary. There were fifteen people in attendance and over twenty apologies which indicated considerable interest. The discussion at the meeting was wide ranging and it was decided to form an eight person steering committee to proceed with investigating the process to use the NCMPG structure for a new state group. It was decided to call the group the WA Malleefowl Recovery Group (WAMRG) similar to the way the Victorian (VMRG) group is named.

Liz Kington has to be thanked for the effort she has put into the administrative side of forming the new WAMRG which became official on 24th August. Now it is hoped that the inaugural AGM of WAMRG will be held in early November and WA Malleefowl will have some very enthusiastic representatives on the national stage.

NCMPG had been in existence since 1994 and as its last project Gordon and Glenda McNeill (President and Secretary) erected a Malleefowl information sign (which has been waiting to be erected for some time- things moved slowly) in Wubin on 30th August. We think a good final gesture to the bird we all love!! See the photo below.



THE NEW RECYCLED-PLASTIC WUBIN MALLEEFOWL INFORMATION SIGN

ASTRON HELPS OUT AGAIN IN WA

BY GRAEME TONKIN

The National Malleefowl Recovery Team has again been awarded the contract to undertake annual Malleefowl monitoring at Mt Gibson mine. And once again, Astron Environmental Services have donated a mine spec vehicle (see photo) to the Team. The loan of the mine spec vehicle will assist the Recovery Team to complete this annual monitoring and enable savings to be used for other Malleefowl programs that the National Recovery Team is funding in WA. The National Malleefowl Recovery Team are very grateful to Astron for their generosity.

WA MALLEEFOWL REAL-ESTATE EXPANDS ONE FENCE AT A TIME

BY JESSICA STINGEMORE, NACC BIODIVERSITY COORDINATOR

In a multi-staged project Burakin farmer Mal Sutherland (shown right) has protected more than 110 hectares of remnant vegetation on his property, 'Rocky View'.

Two of these important pieces of bush adjoin directly to reserves which are home to the threatened and iconic Malleefowl (*Leipoa ocellata*). The other follows the culturally significant, historic rabbit-proof-fence, and is a corridor for wildlife to move between islands of remnant vegetation.

While most of the newly protected area is still covered with high quality vegetation, parts have been impacted by fire and have been slow to recover while being grazed by sheep. Fencing to keep out sheep will be the first important step to the recovery of these areas.

Mr Sutherland plans to continue the conservation works in the degraded area within the project site by planting a mix of native trees and shrubs. "Hopefully putting a few 'jams' (*Acacia acuminata* – Jam Wattle) and other species in will kick start the regeneration process in that more degraded shallow soil."

Mal places a strong value on natural areas on his property saying, 'There are less and less of these left to be enjoyed and explored. I can't believe that clearing is still needlessly going on. My goal is to protect all the areas of remnant vegetation on my property.'

"We've already rehabilitated almost all the areas on the property which need it, by planting many trees and shrubs. Now we just have a few areas of bush that still need fencing."

Mal looks forward to working with NACC in the future to keep up his conservation work.

NACC's Biodiversity Coordinator Jessica Stingemore says 'At NACC we recognise that farmers are important partners in protecting our threatened species. And we believe that community conservation of Australia's native flora and fauna cannot be underestimated.'

For more information about this project, please visit NACC's Habitat Fencing Incentive project webpage, or contact your local NACC NRM Officer. The project was proudly supported by Northern Agricultural Catchments Council through funding from the Australian Government's National Landcare Programme.

← ← PROTECTION AND REVEGETATION AT BURAKIN., 240KM NNE OF PERTH

NATIONAL Malleefowl RECOVERY TEAM

CONTACT US

National Malleefowl Recovery Team

Chairperson - Sharon Gillam
sharon.gillam@sa.gov.au
08 8463 6927

Coordinator – Tim Burnard
tim@nationalmalleefowl.com.au
0448 477 919

Database/Training – Graeme Tonkin
graeme@nationalmalleefowl.com.au

Newsletter Editor - Gil Hopkins
giliz@activ8.net.au 03 5383 8207

Submissions for Edition thirteen of Around the Mounds Newsletter close on **Friday 9/03/18**.
For editing, articles are best sent by **email** to Sharon or Gil as **attached** documents with photos also as **attachments**.

This Newsletter is available in colour at www.nationalmalleefowl.com.au alongside the National Malleefowl Database.

Other important websites for news, information and photos include
www.malleefowlvictoria.org.au
www.malleefowl.net.au

MALLEEFOWL ADAPTIVE MANAGEMENT EXPERIMENT IN SOUTH AUSTRALIA

BY CRAIG GILLESPIE, NATURAL RESOURCES SA MURRAY-DARLING BASIN

ECOLOGIST MATTHEW HUMPHREY CHECKS A CAMERA IN BAKARA CONSERVATION PARK. PHOTO MATTHEW TURNER

South Australia has begun a considerable contribution to the Malleefowl Adaptive Management Experiment. DEWNR Ecologists from the SAMDB NRM Region recognised the value of the experiment, not only for its stated objectives but also the value of the camera trapping survey design associated with Malleefowl mound monitoring grids to provide information on the local activity of a range of native and exotic fauna. Our staff work with landholders across the region to manage public and private land for biodiversity and primary productivity outcomes which often involves decisions made without much locally collected quantitative data on fauna abundance or activity trends.

Therefore it was seen as an attractive proposition to be able to contribute to a national scale experiment while gaining valuable insight into what is happening locally across our region. To that end, we have established an array of camera traps in four separate reserves across the SAMDB NRM Region and have enough cameras to set up a further two arrays.

Some of our cameras have been deployed for over a year now and data will soon start flowing into the experiment but we have also spent this time refining the processes of deployment, maintenance, data gathering and processing and some of our learnings may be useful to others intending to participate in the experiment.

Tim Burnard provided us with a very useful fact sheet for set up of the camera placement as well as the design of the power supply which includes a solar panel and rechargeable battery all mounted on a metal chassis. We used this as the template for our units which were manufactured by a local engineer. This design works very well but we soon found that any exposed wiring was an attractive target for tampering by kangaroos. Several cameras were put out of action when kangaroos pulled at and chewed even the shortest length of exposed wiring including fuse-holders. We've now revised our design with all wiring now internalised except for the fuse-holder which needs to be accessible for maintenance. For these we switched to a flush-mounted automotive design screwed to the main pole of the mounting chassis in a position that's hard to access by animals.

Another electrical problem arose from the occasional failed battery. We shopped around for a reliable supplier and also had an external charging point wired into the circuit so that we could use an AC powered charger to ensure batteries had charge before deploying them into the field where they are fully reliant on the solar panel.

Positioning in the field and "blank" images

Cameras triggered by moving vegetation and shadows is a perennial problem with camera trapping projects and can result in a significant increase in image processing time. Although we tried hard to follow the advice of Joe Benshemesh and Tim Burnard in selecting sites that would minimise this problem, we've still had to revisit many of our cameras to adjust their position and aspect to cut down on "blanks". We found that in most cases, double checking with a compass to ensure our cameras faced south minimised troublesome shadows and adjusting position to minimise the contrast between vegetation canopy and sky cut down on waving branches. However, we had persistent problems with a few cameras. These seemed to be the sites in which spinifex grass (*Triodia sp.*) was prominent in the scope of the camera. The problem may be related to the movement of spinifex flower stems but problems persisted even when these were all removed. The other hypothesis suggested was the high degree of colour contrast produced by shadows moving across the spinifex as compared to bare ground. Our next move is to slightly reposition all cameras deployed in *Triodia*-Mallee communities so that the grass is less prominent in the scope of the cameras' sensors.

Our program operates with support from the SAMDB NRM Board and funding from the Australian Government's National Landcare Program. We also work together with the Murray Mallee Local Action Planning Association, BirdLife Australia Gluepot Reserve and Australian Landscape Trust.

MALLEEFOWL IN DESERT CAMP CONSERVATION RESERVE, SA

BY SAMANTHA ROTHE, NATURE GLENELG TRUST

MALLEEFOWL WORKING A MOUND MT SCOTT CP, 2016 PHOTO BRIAN HAYWOOD.

After some discussion on the lack of mound activity/observations of Malleefowl in Desert Camp Conservation Reserve, SA, in recent years, it was considered necessary to seek some one-on-one discussions with landholders to establish the extent of this bird's decline, so in late November 2016 the task of contacting landholders surrounding Desert Camp began.

From these local sources, it appears that the last known sighting of Malleefowl was in early 2016, on the eastern boundary of the conservation reserve in open pasture mixed with pockets of scrub. Malleefowl have been seen over the last 12 or so years in this area according to landholders, and seen as far east as Rewa Hill (10km E of Desert Camp). Also of some interest is a pair of Malleefowl which were observed in 1983, in scrub adjacent to Desert Camp's northern boundary where there are no known mounds. So, although it was encouraging to hear there had been a sighting within the last 12 months, things were looking a bit 'doom & gloom', considering old accounts from those who used to ride horses through this scrub and who often observed Malleefowl in the area.

So, you could imagine my surprise and excitement when I got a call, in early June to inform me of a sighting of Malleefowl in Desert Camp Conservation Reserve! After some initial phone calls/messaging it was established that this bird had been seen a couple of times in the same general area over the last few weeks, so out I ventured.

On arriving at this 'newly shared' location, I wondered what I might or might not see. For several hours, I wandered up and down the track and into the unburnt scrub. I stumbled across an old known mound which I'd visited before and then not long after decided to head back to the car. I was spooked by some large beasts running through the burnt scrub, and got a flash of several deer heading to higher ground. It was not long after this that I heard this unusual noise, like a clucking, that stopped me in my tracks. I was very close to the edge of the track about to walk out into the open and then, about 10 metres in front of me coming out of the same scrub was a handsome/beautiful, healthy-looking Malleefowl about to walk out onto the track as well!

I attempted to lift my camera slowly from around my neck but I was seen by this elusive bird which then proceeded to turn discreetly back into the scrub. It continued clucking and at one stage I thought there might have been two birds, the sound seemed to travel, but I am sure it was only one bird. I had to squat down to watch this Malleefowl wander around amongst the scrub for as long as it was visible, which may have been 30-45 seconds, and then the calling stopped and the bird disappeared completely. I didn't attempt to follow it because it had been calling, I didn't want to interrupt it any further!

The call I would describe as almost like a Wood Duck call; sort of like a short, quiet but distinctive/noticeable honk, not really a cluck. It called maybe 5-7 times. The bird had beautiful, typical colouring and patterning, the breast rufous.

It was 1040hrs on June 18, 2017 when I had the privilege of observing this bird on a clear, warm morning with a very gentle breeze, wandering out of unburnt reasonably-open low scrub (i.e. Mallee with sparse hill gum over top, with occasional *Acacia paradoxa*), onto the centre track in Desert Camp Conservation Reserve.

Made my day – thank-you to those who gave up their time to share their local knowledge and sightings of this amazing bird!

The red dot shows where I saw the Malleefowl on the edge of the scrub.

CAUGHT ON CAMERA

PLEASE SEND IN ANY 'INTERESTING' PHOTOS

RIVERINA MALLEEFOWL PROJECT, NSW

BY DAVID KELLETT, RIVERINA LLS

As I sit and prepare this update I can't help reflecting back to this time last year when we were experiencing record rains and flooding here in West Wyalong that made it virtually impossible to access our local Malleefowl sites. We just had to wait till things dried out so we could get started on our planned projects for the region. Now twelve months has passed and we are experiencing the total opposite, with a very dry winter and no rain forecast in the near future.

On May 4 this year we held a Riverina Malleefowl Project Meeting at the Lake Cowal Conservation Centre to discuss what we have achieved so far and where we are headed with our Malleefowl Project. In attendance at the meeting we had Joe Benshemesh and Liz Fenwick (NMRT), Marc Irvin (OEH), Mal Carnegie (LCF), Mark Leary and me (RLLS) and Shae Brennan (WLLS) as well as several staff from Evolution Mining. The topics we covered included items from LiDAR, captive breeding programs, trapping/releasing chicks into new and existing areas, the progress of our current projects and where to focus possible future funding. It really was a great meeting and I can't thank Joe enough for attending and help steer us in the right direction. I think we all walked away with a clear vision of where we are heading in the future.

Now for an update of our current projects- we unfortunately have had to cancel our fox trapping/collaring and tracking project due to an unforeseen problem with the fox GPS collars. Local Land Services has seen great success with trapping, collaring and tracking wild dogs, and we were really excited to run the same project with foxes; however it was not to be. The good news is that the funds from that project will now be used for LiDAR. We have four Malleefowl sites here in the Riverina and we are eager to have at least three of these sites covered by LiDAR in the very near future.

The Live Camera Project managed by Marc Irvin (OEH) and funded by Local Land Services is up and running at one of our active mounds here in the Bland Shire and will be on the RLLS and OEH NSW webpages in the coming weeks.

I have been fortunate enough to be able to log on to the live camera from the comfort of my warm office whilst drinking my café latte and watch the Malleefowl hard at work preparing their mounds with leaf litter and debris. It is certainly a great distraction from reporting and daily work duties, just don't tell my boss! I know I will be doing a lot of viewing from my office come summer, it's not very pleasant out there in the 'Gog' (Yalgogrin scrub) in 40+ degree days!!

Feral Pigs have again become a problem at two of our sites with landholders utilising pig traps that have been supplied by Local Land Services with approximately 50 pigs trapped and destroyed. A planned 5000+ hectares will be covered in a fox baiting program with Local Land Services to cover the cost of 1080 baits for landholders that have Malleefowl on their properties and also neighbouring landholders.

The Lake Cowal Foundation will be taking over our annual monitoring of our three sites this breeding season and also including a new site to our project at Rankins Springs. This project consists of placing 12 motion sensor cameras in the field at active/inactive mounds as well as points of interest. This will be the fourth consecutive year we have monitored these sites through the breeding season and have captured some amazing pictures. Rod Rumbachs at Local Land Services has created several short films using images captured from motion detection cameras that will be available for viewing on the link below in coming weeks http://riverina.lls.nsw.gov.au/our-region/projects-and-programs/malleefowl-protection-and-habitat-management-project .

Last but not least, I was invited to give a presentation to the Bland Shire Parkinson's Group in July on the Malleefowl Project that I manage here in the Bland Shire. What was supposed to be a short presentation, turned out to be just over an hour as the group were very interested to hear (in amazement) that there are still Malleefowl in the area. There were many questions in regards to the welfare of the Malleefowl and all seemed very happy that local landholders were working with RLLS in order to help save the birds from extinction. It was really great to hear all their stories of years gone by and how many of them have fond memories of seeing Malleefowl when they were young. It was also quite fascinating that one gentleman in his eighties had hunted and eaten a few birds many, many years ago. He was quite sheepish when he told the group that "they were delicious" and it is lucky that the Malleefowl can be very elusive as he mentioned they were very rarely able to get them.

LIVE CAMERA AT MOUND

LACE MONITOR VISITING MOUND

THE MALLEE POST

ATM HISTORICAL ARTICLE

BY GRAEME TONKIN

MALLEEFOWL EGGS (AUTHOR UNKNOWN)

As different as the Malleefowl nest is to that of conventional birds, so too is the Malleefowl egg. The typical avian egg has a shell perforated by cylindrical pores that allow the exchange of gases between the embryo and the outside atmosphere. This typical egg also has an air sac. When the embryo is ready to hatch, it punctures the air sac (internal pipping) and begins to breathe through its lungs for the first time. The chorioallantois, a network of blood vessels and membranes lining the inner surface of the shell and up until now the only means of gaseous exchange, begins to shut down. The changeover from chorioallantoic to pulmonary (lung) respiration usually takes about one day. The chick then chisels its way through the shell with its egg tooth (external pipping), flexes its body, and eventually frees itself from the shell.

For buried eggs, like those of the Malleefowl, adequate gas exchange is potentially more difficult. Although the nest chamber is exposed to fresh air when the adults dig into it, the decomposing leaf litter usually means that the air around the eggs is high in carbon dioxide and low in oxygen. The structure of the Malleefowl egg has evolved to cope with the difficulties associated with gas exchange below ground.

Pores within the shell of an egg-facilitate the flow of carbon dioxide and oxygen, but also allow moisture to escape from the egg. Pores need to be narrow to conserve water but this can impede the flow of carbon dioxide and oxygen. The pores in the shell of the Malleefowl egg are conical, not cylindrical as in most eggs, with the apex (pointy end) of each cone on the inside of the shell. In the early stages of development, the amount of gaseous exchange needed to sustain the embryo is low, so small pores are adequate. As the Malleefowl embryo grows, its need for oxygen increases, as does its need to excrete carbon dioxide. However the original pore size is too small to cater for this increase in metabolic activity. The Malleefowl embryo resolves this problem by absorbing calcium from the eggshell as it develops, causing the shell to thin (and the bones to strengthen). As this thinning proceeds, the conical-shaped pores of the shell are continually truncated, thereby enlarging the internal opening of each and increasing the rate of gaseous exchange. Although the larger-diameter pores have the potential to increase the rate of water lost from the egg, this loss is limited by the high relative humidity (often over 75 per cent) within the egg chamber.

Malleefowl also differ from typical birds in their mode of hatching. Malleefowl eggs do not contain an air sac, so there is no internal pipping. Nor is there any external pipping. Consequently, the Malleefowl chick must switch from chorioallantoic to pulmonary respiration as soon as it breaks the shell. The Malleefowl embryo develops within the egg with its back arched, its head resting on its chest, and its feet tucked up under its body. To rupture the shell, the embryo stretches violently by simultaneously straightening its back and extending its legs. The eggshell shatters and the chick's head rears up to take its first breath. This is a critical time for the embryo. If the lungs are not functioning sufficiently, the chick dies.

Once free of the egg, the chick must dig its way out of the mound through soil up to a metre deep. This can take from two hours to as long as two days. The chick pops its head out of the mound and opens its eyes for the first time. It may rest here a while before it extricates itself in a puff of dust to wobble off the mound, often stopping to rest under a nearby bush. Within minutes, the chick is able to walk properly and peck at seeds and passing invertebrates. A few hours later it can flutter, and within a day it will be flying strongly. Malleefowl chicks live completely independently of their parents.

There is nothing easy in the life of a Malleefowl. The adults endure a long and laborious breeding season in some of the harshest environments in Australia. Young Malleefowl have it tough from the moment they hatch. Having dug their way up through the mound, the chicks must find food and avoid predators, totally unaided by their parents. Regardless of these hardships, Malleefowl have survived for millions of years, evolving an elaborate and unique testing procedure to cope with the interior of this country as it changed from luxuriant forest to semi-arid shrub lands dominated by mallee eucalypts.

Despite their past resilience, Malleefowl have declined appreciably in number since European settlement of Australia. Their camouflage and habit of remaining motionless when threatened helps against aerial predators, but is not so effective against introduced mammalian predators such as the Fox, which can easily sniff them out.

Intensive ground-baiting of Foxes has met with limited success in protecting Malleefowl. However, baiting from the air in addition to ground-baiting has significantly improved the survival rate of Malleefowl in parts of New South Wales. This type of baiting needs to be extended, as does the control of rabbits and feral Goats. Preventing the clearance of what is left of Malleefowl habitat is also crucial if this truly unique Australian is not to be lost forever.

The extinction of the prehistoric giant megapode *Proqura gallinacea* appears to have coincided with the first wave of people arriving in this country. There is some debate as to whether this extinction was caused by humans or by climate change. Whatever the case, we should do everything necessary to ensure that its cousin, the Malleefowl, does not disappear as a result of the latest arrival of humanity.

PHOTO SHARON GILLAM

MEMBER OF THE NMR TEAM

JOY MCGILVRAY

After spending 40 years working in an office and approaching retirement, I enrolled in an evening class at TAFE to expand my interest in the natural environment and as time went by gained a Certificate IV in Conservation and Land Management. The course included field work with community groups which led to volunteering for groups involved in conservation and land management. Upon leaving the paid workforce in 2006 I embarked on a volunteering journey, working with Conservation Volunteers; Australian Wildlife Conservancy; Dept of Biodiversity, Conservation and Attractions (formerly DPaW); Friends groups within the Shire (now City) of Kalamunda and Malleefowl conservation.

I consider myself fortunate to have the opportunity to work voluntarily in some conservation and restoration areas along the Swan coastal plain which I didn't know about. These and other projects have included revegetation and stream bank erosion control along the Swan and Canning Rivers; assisting with trapping endangered mammals with AWC and DBCA; tagging turtles on Rosemary Island off the Pilbara coast; running a small plant nursery at AWC's Karakamia sanctuary; assisting a PhD student to search for underground truffles as part of a woylie diet research project; co-ordinating a Friends group in Kalamunda to remove woody weeds from a former golf course which is now a popular park and recreation reserve bordering a National Park, and mounting flora specimens at the WA Herbarium. I have also been fortunate to travel to the Western Desert and Matuwa (Lorna Glen Conservation Park) to assist with trapping threatened species with traditional owners. Volunteering can take you many places!

For the past few years I have been co-ordinating the Malleefowl monitoring program for what were the Malleefowl Preservation Group sites in Western Australia and now, with the recent formation of the WA Malleefowl Recovery Group includes the North Central Malleefowl Group's sites. I have also been involved with surveying Malleefowl sites and annual mound monitoring. I have been a community member of the National Malleefowl Recovery Team for the past two years.

MARALINGA TJARUTJA CAMERA BY BRETT BACKHOUSE, DEWNR, SA

THESE IMAGES WERE TAKEN NEAR MARALINGA FROM A CAMERA SET UP IN DECEMBER 2014

NGANAMARA (MALLEEFOWL)

KIBRA (AUSTRALIAN BUSTARD)

This newsletter is supported by Malleefowl Offset Funds from Iluka Resources Ltd.