Introduction to the 2018 forum

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One of the greatest challenges for a threatened species with a range that extends across the nation is to unify the actions that are taken by four state governments, several non-government agencies and hundreds of individuals. The National Forum is one of the tools to achieve a unified approach. It's also a chance to hear from leaders in conservation in Australia such as the Threatened Species Commissioner, **Sally Box** and **Professors Steve Donnellan** and **Brendan Wintle** who will each be speaking shortly.

In this introduction to the Forum we will touch on the topics to be covered over the next two days. We'll give a brief account of what has happened in Malleefowl world since the last Forum in 2014 and we'll look at what we hope for in the coming years.

Malleefowl are special

But first let's have a quick reminder of what we are all here for. Malleefowl are special birds: universally loved and admired for unique and bizarre habits and, sometimes, their unexpectedly confiding nature. Many of us here today have a good understanding of what makes Malleefowl particularly special, but there are some newcomers to the Malleefowl family that may benefit from a quick recap.

Perhaps the most striking thing about our birds is their nests; the mounds. While there are three megapodes in Australia that use mounds to incubate eggs (rather than sitting on eggs), only the Malleefowl does this in the arid zones. This makes the job particularly complicated because the mound needs moisture to start the rotting of compost that creates the warmth required to hatch an egg, and this cannot be relied upon in the drier areas of Australia. This means that Malleefowl have to constantly measure the temperature inside the mound and make adjustments to keep the mounds at around 35 degrees.

In the early stages of incubation heat from the compost is too great for incubation and mounds are opened to allow heat to disperse but as the compost dries, the birds must use heat from the Sun to warm the nest. This requires the movement of about a cubic metre of matter some days, amounting to the movement of perhaps a hundred tonnes of material each breeding season. Because of this, Malleefowl are considered to be the hardest working birds in existence.

David Wells has some great images and film to share with us that will highlight how beautiful, extraordinary and enigmatic our bird is.

Malleefowl monitoring

With any threatened species we want to know how they are going; are numbers increasing or declining? What are the long term trends in populations? Are we approaching a crisis point? Do we need to take emergency actions?

In the case of the Malleefowl, the best way of doing this is to monitor mounds. If mounds are used for breeding this is a good sign, and if the number of breeding Malleefowl is stable or increasing, this is great! But if the number of breeding Malleefowl at a site is decreasing we become particularly concerned and look for reasons why. Monitoring tells us how Malleefowl are faring in the wild and allows us to measure the success or otherwise of management actions, and hopefully understand

where or why populations in one area may decline whereas others increase. In short, without monitoring we would be running blind.

When Joe first started monitoring Malleefowl he was ably assisted by **Paul Burton**. Paul will talk about those early days later this morning. I remember Paul once saying that, as they sat around the fire at the end of another hard days slog through mallee scrub, they realised that there would have to be a lot of monitoring sites across the species range to really understand the conservation situation. They were going to need a lot of help!

There wasn't enough money to employ people on the grand scale required (grand in those days was just a handful sites) so volunteers would be needed. But you can't just throw a group of people into the bush without training and you can't do that without a system developed to do the monitoring. All this happened in time, often through small grants here and there and the support of volunteers.

Since then Malleefowl monitoring has grown to annual effort covering about 120 sites and over 3500 mounds, mostly by volunteers. Monitoring is now core business for the recovery team. There are different ways to calculate what this volunteer effort is worth but we think it to be at least 200 thousand dollars each year. It's the largest single species monitoring effort in Australia.

To illustrate the extent of the effort, I'd like to take you on a very short trip to just a couple of mounds out of the 3500 mounds we visit every year. I hope it demonstrates just how remote we go and the breadth of our monitoring.

The trip starts at Naen Naen near the Coorong in SE South Australia where **Vicki Natt** manages the annual monitoring effort. It's the site that Donna and I go to each year. Because I'm a lazy person it's also one of the smallest sites, with just 15 mounds. We love it because there is a mound nearby our campsite that is normally active and for some reason, the pair are quite tame. I use this shot, taken from our campsite. I think it emphasises that monitoring doesn't have to be all hard work, a view I know is held by many at the Victoria Malleefowl Recovery Group (VMRG)! So here are the images of mound 8 since 2009 when we started recording annual image of the mound on the database.

Figure 1: Naen Naen near the Coorong in SE South Australia

We then go to Victoria site of Annuello which has about 70 mounds monitored by our good friends **Ronni and Tom O'Donnell**. We chose to look at mound 87 because it's a great example of the persistence of our volunteers. The photos since 2009 show that this is a real dud of a mound… until last year that is. It also shows Malleefowl do sometimes return to use these really old deserted mounds.

Then we go to Cowell on Eyre Peninsular where **Lorraine and Jim Walford** have dutifully monitored 70 odd mounds for many years. Here's a photo taken when I first started. Lorraine is marshalling us ready for a mound search. It's what we did before LiDAR and It's really hard work. Here's a photo of exhausted volunteers at lunch. Moving a little north we come to Secret Rocks the property of **Katherine Moseby** and John Reed where there are over 300 mounds registered. Not all are monitored every year but well over a hundred are. Here's Graeme and me running through the monitoring process with a group at secret rocks just before retiring to nearby beer rock for a sundowner. We'll be hearing from Katherine later in the forum talking about how Malleefowl on the Eyre Peninsula are going.

Next we stop over briefly at Maralinga for a look at the mounds monitored there. **Brett Backhouse** is talking later today about exciting developments in the Maralinga Tjarutja lands

And finally on this short tour of just a few of the 3500 mounds we look at each year, we'll go to WA and Mt Gibson Iron Pty Ltd where **Jessica Sackmann** rules the annual monitoring with a whopping 350 mounds monitored annually. Jess doesn't do them all on her own. In recent years the national recovery team have been contracted to do that job and we have been able to reinvest that money earned into things like training and equipment.

Perhaps more amazing and important than those quite impressive figures of mounds monitored is the fact that the Malleefowl monitoring program has developed the resilience to carry on the effort even when funding dries up for a period.

As an organisation, VMRG was regularly supported by Parks Vic to cover costs of volunteer monitors. This dried up for some years but VMRG had the strength as a group to keep the effort going. They continued their annual training at Wyperfeld NP, regularly attracting 70 odd people for a weekend of monitor training, and actually increased the number of mounds monitored. We regularly point to VMRG as an example of what we need to do nationally. That is to improve resilience. **Peter Stokie** who received an Order of Australia earlier this year for his volunteer work, **John Olsen**, **Ralph Patford, Sue Hayman, Greg Davis, Gil Hopkins, Ross McFarlane, Robyn Ratray-Wood** and many many more have made this happen.

Another example of monitoring resilience is that of WA.

Up until a couple of years ago the WA group 'Malleefowl Preservation Group (MPG)' oversaw the majority of monitoring in WA. The North Central Malleefowl Preservation Group (NCMPG) was also quite active. Both groups had a history of over 20 years. But in 2013 the MPG commitment to monitoring faltered and over a two year period the group left the stage altogether. But in the middle of that**, Joy McGilvray** decided to pick up the responsibility herself. Joy did this under the National banner and we gratefully supported her and **Carl Danzi** to ensure the ongoing flow of data to the database.

But we were also able to do more. With assistance from a WA Community Grant we increased the training in WA and partially funded the employment of **Liz Kington** to work with all the WA people to unite under one banner. It was the generosity of **Gordon and Glenda McNeil** from NCMPG to

transfer all of its funds and responsibilities to a new group that really pushed things along to a point last year where the WA Malleefowl Recovery Group (WAMRG) was officially formed with **Harriet Davie** stepping into the presiding role. We are working closely with WAMRG to grow the strength of this new group.
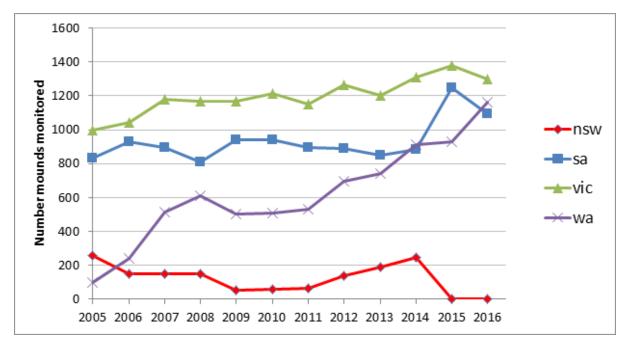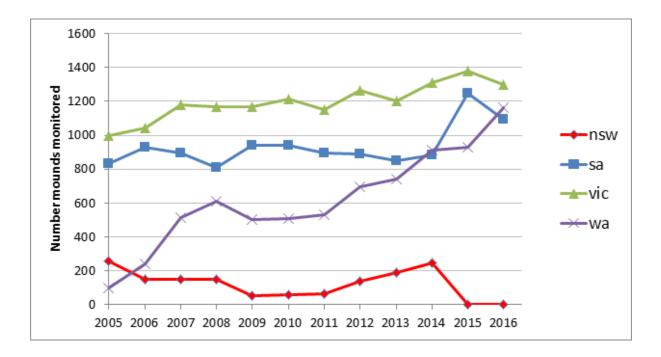

Figure 2: the total number of mounds monitored in each state in the past decade

In the past 4 years WA has seen the greatest growth in monitoring. We have built strong relationships with a diverse group of people. **Jessica Stingemore** from The Northern Agriculture Catchment Council, Geraldton, has been a strong supporter as has **Jennifer Jackson** from The WA Department of Biodiversity Conservation and Attractions (DBCA) in Kalgoorlie. Jessica has presented a poster for this Forum that can be viewed during breaks.

South Australia has always had a strong monitoring work ethic. Much of the work is coordinated by government, thanks to strong interest from **Pete Copley and Sharon Gillam** from within The Department of Environment and Water (DEW), with a lot of help from many volunteers. It is an interesting observation that the long distance (about 12hrs drive) from one end to the other of Malleefowl range in SA makes it hard to gather all of the interested parties in one place. But the SA monitoring continues very well but as separate well-functioning units under the coordination of **Vicki Natt**, **Liz McTaggart and Rowena Danks** who has taken on the role from **Dave Setchell**, with the invisible hand of **Graeme Tonkin** our national training and database manager, making sure it all works.

In NSW Malleefowl monitoring has been a department job. Much of the monitoring was done by helicopter but it's expensive and doesn't happen much these days. Instead, dedicated staff like **Ray Dayman** have continued monitoring as time permitted in some pretty remote places.

While monitoring in NSW has taken a dive in recent years, there's a lot happening to turn that around. We will hear later from **Laurence Berry** who along with **Felicity L'Hotellier** from The Australian Wildlife Conservancy (AWC), is reviving and substantially growing Malleefowl monitoring in NSW. And out at Goonoo NP, the **Dubbo Field Nats** have commenced regular monitoring with a bit of help from **Libby McIntyre** and others at Central West Local Land Services (CWLLS). **Ronni O'Donnell** and the team from Western Local Land Services (Western LLS) are keen to support a state-wide approach and perhaps form a NSW Malleefowl Recovery Group.

When **Dave Kellett** from Riverina LLS started work in West Wyalong he found a strong community concern for Malleefowl and proceeded to establish monitoring sites. This is very well known Malleefowl territory. It's in this region where the grandfather of Malleefowl research, Harry Frith, did his work and then later Dave Priddel and Rob Wheeler conducted studies during the 1990s. We will be hearing from **Rob** on Sunday for his perspective on the threats to Malleefowl.

While the establishment and management of this monitoring effort is of an impressive scale, we have had to develop systems that can handle all this information. **Graeme Tonkin** and **Liz Kington** are the two other paid members of our team and will give a short presentation later today to describe the route travelled by our data from smart phones using our own app all the way, via our massive database that now holds about 2000 site-years of data, and ultimately reported to land managers and analysed by researchers. **Joe Benshemesh** and **Darren Southwell** will update us all tomorrow on their work determining and understanding Malleefowl population trends across the continent.

It is with some pride that we announce that Malleefowl monitoring has been featured in two recent CSIRO books on best practice threatened species recovery and monitoring. **Sharon Gillam**, the chair of our recovery team, will be providing an overview of the Malleefowl section in the 'Book of Hope'

But, the last word on monitoring has to be to emphasise our gratitude to the army of citizen scientists, or volunteers, that make this possible. It must be very clear to everyone here that without their effort we really would have nothing to work with.

Adaptive Management (AM) project

Let's now talk about the other main thrust of the National effort. That is the Adaptive Management project.

There has long been a question hanging over the effectiveness of recovery actions on Malleefowl such as predator control. With the growing interest in Adaptive Management principles, it was recognised that Malleefowl, with their citizen science based monitoring was an ideal candidate for this powerful approach to conservation management. The initial focus was to design a rigorous experiment on one of the most controversial threats to Malleefowl, predators, and examine the benefits of control work.

Because it was such an ideal candidate, Melbourne University **Professor Brendan Wintle** (who is presenting after us) got interested and engaged a team of some of Australia's leading mathematical ecologists to develop an Adaptive Management framework. I don't think anyone expected that when **Cindy Hauser, Michael Bode** and **Jose Lahoz-Monfort** had finished their preliminary works we would be needing to establish the largest predator control experiment in Australia. The first power analysis said that we needed 20 paired sites (20 treated and 20 nearby untreated sites). In practical terms, this meant we needed to search for mounds at new sites, monitor them for Malleefowl, and establish camera-traps at each site to monitor predator activity and their response to baiting. It is truly a massive endeavour. And we had limited funding.

Nonetheless, through a combined effort from many partners this very valuable project is able to progress; we are nearly there.
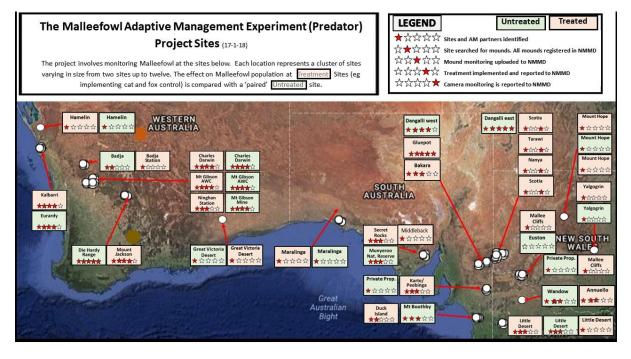

Figure 3: 5-star maps of all Adaptive Management Predator Experiment sites in Australia

We will be hearing from several of our AM partners today but also we will get a greater insight into AM as a process for discovering and implementing new knowledge on the run from **Katherine Schneider, John Wright** and **Darren Southwell** tomorrow. And I must make special mention of John Wright. John has been with the AM project all the way since inception but unfortunately there was no money in Victoria to do the necessary work to get a site up and running. Until just last year! A LiDAR of Little Desert National Park and subsequent monitoring and camera establishment has seen Victoria in the game with more sites coming. Great effort and persistence John.

The AM project has also thrown up the need for further development of the tools we use to conduct our experiments. **Alys Young** will talk about her Masters study into using remote vegetation

measures as a better way to understand Malleefowl breeding numbers than the use of rainfall data alone. **Jess Sackmann** has done some important work for us comparing the three different methods for identifying mounds within a monitoring site (a necessary and costly exercise needed prior to monitoring). We'll hear from Jess and **Peter Jamieson** from Anditi tomorrow about how these searches for mounds compare, and in a separate talk Peter will explain LiDAR to us and how we can improve efficiencies to reduce costs to get this important work done.

We will hear from **Gareth Lynch** tomorrow on Targeted Land Management to Aid Malleefowl Recovery in North-West Victoria. Work that is based on findings by **Ian Sluiter** as contracted by the VMRG that identifies ideal sites for revegetation works. And our last speaker, **Joe Benshemesh** will give us an update on the increasing reliance we have on cameras and how we deal with issues as they arise.

There have been many exciting developments with the AM project since the last Forum. We are seeing a lot of new predator experiment sites being developed and most exciting, the first processing of data from the experiment earlier this year. It was just a few sites and only a fraction of the data required but it gave Darren a chance to fool with the machine and get rid of some glitches. It allowed us to establish the system of data flow from field to Darren's machine and prepare for the tsunami of information that is beginning to flow.

Indigenous Involvement

We are also proud to say that we have achieved strong indigenous involvement in both monitoring and the AM project. Ninghan Indigenous Protected Area (IPA) in WA is a partner in the AM Predator Experiment (AMPE) project and we are hopeful that we will see another IPA near Yathong (NSW) involved soon. We will be hearing from **Brett Backhouse** about exciting developments in the Maralinga Tjarutja lands in SA, and from **Mick Kelly** about an inspiring program involving Malleefowl that his team is developing at Rick Farley reserve adjacent to Mungo National Park in NSW.

Elsewhere, the Great Victoria Dessert Biodiversity Trust is working with local indigenous groups and those next door in the Maralinga Lands to monitor Malleefowl breeding.

What happens next?

We want to take this opportunity to share a vision of where we see this whole gig going in the coming years.

First, we consolidate all of our monitoring. We make sure that we are training and attracting enough newbies into the family as to be sure that this foundation activity continues into the future; regardless of funding fickleness. Even after we get Malleefowl off the threatened species list we'll need to keep monitoring to make sure they don't secretly slip back as climate change bites.

In the next year we plan to have all the AM Predator Experiment sites operational.   It will take 4-5 years of data to really understand the effects of predator control on Malleefowl, and then land managers will be able to adapt their management in response to this understanding.

With our monitoring system and analytic machinery well-oiled and tested, we may well continue the AM experimental approach focussing on another threat. A likely candidate is herbivore competition.

We are confident that the AM approach is the most likely way to recover Malleefowl and shift the species down the threatened scale. If we had the resources, we could be running the experiments

concurrently and really speed up the process of understanding the greatest threats to Malleefowl. So another goal is to secure funds to make this happen

Conclusion

There are over 120 delegates here today, having travelled from across the country. That in itself demonstrates the enduring interest from community, industry and government that has driven great advances in Malleefowl conservation over the past decade or so.

So, we welcome you to this the 6th National Malleefowl Forum. It's an opportunity for everyone who cares about Malleefowl to come together, catch up with old friends and enjoy the camaraderie of a group with a unified concern.