

'A History of Malleefowl Monitoring'

Paul Burton

Introduction

It has to be stressed that what follows is 'A' History of Malleefowl Monitoring and not 'The' one and only. It is based on my experiences working in the field from the early 1990's to the present. This has incorporated a wide variety of people and projects in the Malleefowl monitoring universe across much of Australia.

The term 'monitoring' used in this presentation relates to the permanent identification of nesting mounds and subsequently recording the activity and signs at them over time. It does not cover ad hoc procedures such as cameras at lone nests or atlas based sighting records.

From the Dreamtime >> First Australians

Aboriginal people were the first monitors of Malleefowl populations in Australia. Though having an oral culture without written records, it is well documented that our First Australians have always had vast stores of handed down knowledge of country and the wildlife that lives there. Their very survival depended on it and much of this knowledge still exists

These people's skills of tracking and reading the signs of the bush are unparalleled and any researcher who gets the opportunity of being taught by them should grab it with both hands. A session with Ginger Wikilyiri in central Australia taught the author skills he uses to this day when reading Malleefowl mounds and animal signs in the landscape generally.

Near this very conference site there would have been local people with a store of knowledge about Malleefowl as they were an important seasonal source of food. Indeed the sky itself told them when the birds were active with the arrival of the annual Leonid Meteor showers in November. This symbolized a male kicking soil and twigs over the now active nest. Simply reading and tracking Malleefowl prints would have led people to the mounds, each with their highly valued cache of eggs.

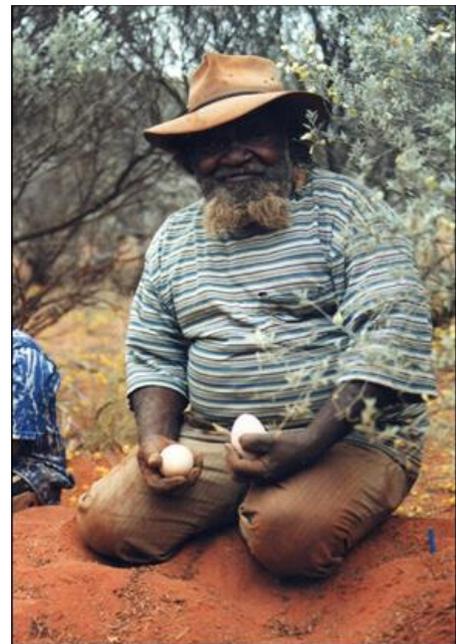


Figure 1: Robin Kankapankatja, Anangu Pitjantjatjara Lands, 1998.

To this day, people such as the Anangu Pitjantjatjara in northern South Australia have knowledge of the local, low density, populations of the bird they call Nganamara.

1950 >> Earliest scientific monitoring

Harold Frith AO

Of all of the people to research and monitor Malleefowl, Harold Frith AO is one of the best known. Working between 1955 and 1962 he undertook research at a property called 'The Acres', near Yenda in New South Wales. A returned war veteran Harold became one of the most famous Ornithologists in Australia. He was instrumental in the formation of Kakadu National park having undertaken studies on waterbirds in the Northern Territory after his mallee experiences. We as Malleefowl researchers follow in the footsteps of a giant.

His work on Malleefowl was documented in research papers but he is best known for the publication of a groundbreaking wildlife book called 'The Mallee-Fowl: The Bird that Builds an Incubator'. This book changed forever how the subject of wildlife was presented to the public and spawned many other coffee table titles.



Figure 2: Harold Frith and Joe, 1952. (Source: Tyndale-Biscoe, Calaby & Davies)

Harold was convinced that foxes were an over-rated problem as the Malleefowl seemed to coexist with them and was worried much more about habitat loss and/or its degradation. He laments in his book about the gradual loss of the mallee forests around the district where he was studying.

1960 >> Community Monitoring

Angus Torpey

A local from the small Victorian railway siding township of Turriff south of Ouyen, Angus Torpey played a very significant role in early Malleefowl monitoring. His is the earliest known set of individual mound data entered into the National Database. He marked a set of nests at the Wathe Flora and Fauna Reserve between 1962 and 1964 and recorded activity at them. Using wooden stakes and later number stamped, small, metal markers he could accurately identify each of them.

Angus also captively bred Malleefowl with the permission of the government at his home and certainly became known as a local legend in Malleefowl circles. He owned a small shack in the *Melaleuca* scrub actually within the reserve along-side the old irrigation channel that ran through it. Many soaks and small lakes were prevalent in those days



Figure 3: Angus Torpey, Wathe, 1997.

and the author well remembers the day Angus arrived on his ancient tractor to recover a heavily bogged, yabby laden, red Subaru wagon.

Mid Murray Field Naturalists

It would be fair to say that community groups throughout parts of rural Australia in the 20th Century had been interested in observing and sighting Malleefowl and their mounds, yet few actually searched and mapped them. The Mid Murray Field Naturalists near Boundary Bend on the banks of the Murray in Northern Victoria are an exception. During the 1968/69 season, they mapped a local area including what we know as Wandown using a moving line search party, marking their route using a shovel and hand drawing a map which used the distinct regular dunes as landforms the nests could be related to. In 1970 the results were written up by J.L. Hayward of Wood Wood as the '*Report of a Mallee Fowl Survey*' in the group's newsletter.

Of interest with this survey was that much of the search area had been previously cleared for agriculture but had remained unused and was allowed to regenerate naturally. The National Database contains the data from this survey.

1980 >> Hard Monitoring and Research Begins

Joe Benshemesh

During the 1980's things certainly started happening in earnest in the field of Malleefowl research. Obviously the name Dr. Joe Benshemesh is well known to all in Malleefowl circles today and it was in the 1980's that his commitment started.

From 1983 working with search teams at locations such as Dattuck, Lowan and Moonah in north-west Victoria's Wyperfeld National Park, sets of nesting mounds were mapped and studied. Parts of the research included home-range radio tracking of adult birds, mound opening and closing dynamics using light sensitive measurements and general monitoring and data collection. Fire played a major role and was present at studied locations and Joe's thesis titled '*The Conservation Ecology of the Malleefowl, with particular regard to Fire*' reflects this and was published in 1992.

The monitoring data from this period is in the National Database and it is interesting to note that the VMRG Malleefowl Monitoring training weekend held every October at Wyperfeld National Park is extremely close to both Lowan and Dattuck and they are utilised in the field exercises.

David Priddel and Robert Wheeler

Another set of monitoring data over a decade in length between 1986 and 1999 was collected during a major project undertaken at Yalgogrin in New South Wales by David Priddel and Robert Wheeler. The project is described in the research paper titled '*Nesting activity and demography of an isolated population of Malleefowl (Leipoa ocellata)*'. David and Robert worked on other Malleefowl research projects from the mid-eighties into the nineties mainly in NSW and in parts of South Australia. Research

near Cobar in NSW included reintroductions and radio-tracking of chicks bred from incubated eggs, fox management and control, and general monitoring. The length of their studies means a valuable amount of data is available that could be entered into the National Database.

David Booth

South Australia has a history of monitoring Malleefowl that goes back to the eighties also. Work undertaken near Renmark by David Booth included monitoring nests at Cooltong Conservation Park for several years. This work was interesting as the research completed by Harold Frith was very much being tested. David studied home-ranges of adult birds and nesting success rates interestingly noting no fox predation of eggs took place. His work at Cooltong was published in 1987 and titled ‘Home Range and Hatching Success of Malleefowl, *Leipoa-Ocellata* Gould (*Megapodiidae*), in Murray Mallee near Renmark, SA.’ He continued with other studies on Malleefowl but they were without a monitoring facet.

1990 > A Decade of Major Change

Monitoring (R)evolution

During the 1990’s activity in the Malleefowl monitoring would started to increase substantially. Government departments in Victoria, South Australia and New South Wales were contributing like never before. Many locations were searched and mapped using a grid network and this is where the generic term ‘grids’ for monitoring locations comes from. With a variety of officers in control, grids were established including in 1990 at Bakara and Swan Reach in SA, 1991–1992 Pheeneys, Bambill, Washing Machine and Nowingi in Victoria and later at Mallee Cliffs in NSW.

Each grid network was laid using a hip chain with markers being erected to form a permanent skeleton seen represented on the map in Figure 4. A baseline as the spine and radiating transects as the ribs were 2km long and therefore most grids covered four sq/km.

Grid markers used have included flagging tape, hand written metal tape and red roadside reflectors. Of interest here is that a species of ant in the mallee has a voracious appetite for removing flagging tape from branches. Often the author returned hours later to find flagging tape chewed through and lying on the ground.

Red reflectors were introduced by Joe Benshemesh and the author to most grids in this period. Easily inscribed with distance coordinates using a portable soldering iron they were threaded with tie-wire and many hours were spent in camp making them. Carried on a stout

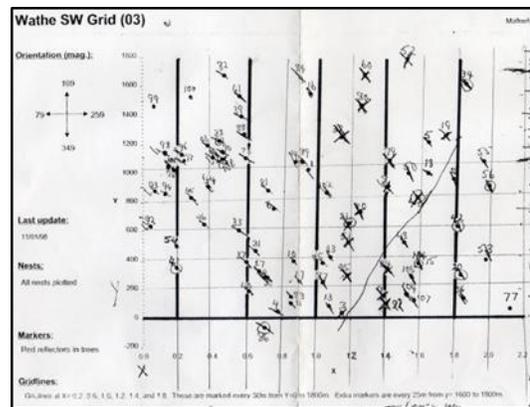


Figure 4: Working Field Map showing grid lines at Wathe SW Grid (03) 1990’s.

wire frame they were placed every 50 metres along grid-lines. Safety was a major consideration as anyone lost could easily find them and with a torch at night especially so. Their downside was that they could melt in wildfire.

The most valuable tool when laying out grids and then monitoring the nests within them was the humble sighting compass. The orientation of grids varied and square bearings were essential when walking to nests from the gridlines. Pacings were calculated for each participant with the authors being 65 steps for 50 metres travelled. Even with over 800 nests to complete it became common to 'know' where nests were and the compass could be lowered with memory taking over.



Figure 5: Red reflector on its wire mount with melted written coordinates.

Early nesting mound markers including wooden stakes, flagging tape or reflectors were replaced by permanently stamped metal tags attached to in-ground metal stakes. This allowed for nests to remain permanently identified as in some areas such as Wathe or Bronzewing mound densities were so great in places it was important you knew which nest was which. Also, text written or painted metal signs such as Harold Frith's near Griffith can deteriorate over time and eventually becoming unreadable.

Searches of new and existing grids were completed using fanned-out lines of people that followed the orientation of the grid using the reflector marked gridlines. Mounds could be referenced accurately back to the nearest marker and monitored later. The Government's Greencorps was used to search new sites and re-search others during the mid-nineties. At other times volunteers and community groups did so also.

All data was collected on paper sheets which also evolved over time. Each nesting mound sheet was designed to quickly record data but simple things such as pre-filled information from the previous visit, hints about location, previous activity levels or simple keys about mound profiles were added over time. Maps were downsized from A4 to pocket size alleviating the need for folding. How often the author had nest numbers rubbed away by constantly refolding an A4 map page cannot be understated? On a hot day with over 30 nests to check a missed nest could add a lot of walking.



Figure 6: Monitoring tools. (Notebook, Hip Chain, Compass, Pocket map, Measuring pole, tape measure and nest data sheet).

The mound measuring pole is a great example of an evolving field tool. Those who have had their metal spring loaded measuring tapes jamming with sand can attest to its usefulness. For example the suitability of varying types of cord was experimented with and that is why rubber coated clothesline cord is recommended. Uncoated ropes tended to wrap around branches and litter when trailed through the bush

and could bring the walker to an abrupt stop when they mysteriously wrapped to form a temporary knot with no amount of extra yanking releasing them.

Rabbit Calicivirus Disease Project

In 1995 Rabbit Calicivirus Disease (RCD) escaped during its field trials from Wardang Island off the coast of South Australia. With the worry that predators would swap to wildlife species research funds became available. A major Malleefowl component was included as part of the overall project and this was commenced during the 1996/97 season. The main focus was to investigate the impact of Fox predation on Malleefowl when the rabbits perished.

At a set of Malleefowl grids, new searches were undertaken to map known mounds, new mounds, rabbit warrens and fox dens. All of these were monitored regularly for three years.

Active nesting mounds were the main focus being excavated monthly for signs of egg predation. The eggs were measured, coded with colour pencil and restored to the nesting chamber. Subsequent excavations determined if they had hatched successfully or had been predated by foxes. Around nests remains of fox removed eggs or feathers from attacked birds were recorded. Of major significance was the discovery of fox cached eggs well away from mounds.

Results proved that predation of Malleefowl increased after RCD had spread as foxes switched prey. Of note was that because fox prints had been mapped on monitored mounds for years prior, the data could be used to compare with post RCD spread. The presence of dozens of dead rabbits stuffed into the burrow entrances of incredibly isolated warrens will be remembered forever by the author.



Figure 7: Mound Excavation, 1998

Surveys in Central Australia

In 1997 and 1998 the South Australian Government undertook wildlife surveys in the Anangu Pitjantjatjara/ Yankunytjatjara Lands of Central Australia and Malleefowl was a species of interest. It was thought they were there but evidence was required.

Densities of malleefowl and their mounds proved to be very low in the central deserts and most of the research involved simply walking long transects to encounter and map the prints of the birds on the ground. The outer edges of home-range could be determined and the mound hopefully located. The author never saw one Malleefowl (*Nganamara*) for the two visits but well



Figure 8: MF prints, Central Desert, 1998

remembers the wonderfully clear prints of the birds in the grainy red sand and their attraction to the wattle seeds around mulga-ant nests. The mounds were typical but the eggs had a beautiful blue tinge, stained by the leaves of *Acacia mineura* which was used as nesting litter.

The method of print mapping is interesting when you think about it, as a print is as good as a sighting. No other birds in Malleefowl habitat can be confused with them. So the discovery of prints on mounds by volunteers annually is very valuable.

Victorian Malleefowl Recovery Group

By 1997 interest amongst volunteers had grown. At the 3rd international Megapode Symposium in Nhill conversations were had about forming a group that would ultimately become the Victorian Malleefowl Recovery Group (VMRG).

As there were over 800 nests being monitored annually and most not by volunteers Joe benshemesh and the author dreamed around camp-fires about a program that would be run solely by the community. With the involvement of names such as Wiseman, Willis, Vann, Hawtin and MacFarlane amongst others, a nucleus was formed that eventually took on a life of its own.

The organizing of a simple training weekend was a critical key as it mixed the research with the social. Thus the annual Wonga Campground Training Weekend came into existence and the rest is history.

Monitoring is its focus and this can be done by anyone who can bushwalk. It is a testament to its success that the number of monitored nests nationally has escalated because of this training. It is not all about the VMRG as people attend from all over Australia.



Figure 9: Instruction by Experts, VMRG Training Weekend, Peter Stokie OAM & Neil MacFarlane

2000 > Consolidation to the present

Global Positioning System (GPS) Units

In May of 2000 US President Bill Clinton authorized the turning off of the Selective Capability component in the Global Positioning System. Competition from other nations launching their own systems was real. With this came a radical change in the way that Malleefowl nesting mounds could accurately be located. Sure in some areas those big old, battery hungry, brick shaped units had been used for some time but always with errors. In open forest this was ok but in some thickly vegetated areas such as Ferries McDonald or in high mound density reserves such as Bronzewing or Wathe it was not accurate enough.

The humble sighting compass and the red reflector grid network became obsolete as all nests could be visited using GPS guidance. This was a huge change for all monitors. The author was extremely

appreciative as those low pine thickets could be avoided (some would know this well! Remember the pine bark scratches as you crawled underneath following a bearing that sweating always made worse!). Think Washing Machine or one particular nest at Lowan. The lone nest in Port Lincoln National Park would be impossible to re-visit without GPS.

It also meant that new ground could be traversed. Previously square bearings were used so the same ground was covered on each visit. GPS allowed you to cross new ground by cutting corners or taking different routes between nests, and the author discovered several new mounds doing this.

And today we all carry a GPS in our portable devices and this has led to the Cybertracker revolution we have today. Even all those thousands of printed out datasheets are no more.

Monitoring Manual and Database

So the above history has aided in compiling a document that we must hold as sacrosanct – The National Malleefowl Monitoring Manual and designing a repository for our data – The National Database. Many monitors through their field experiences have contributed to these.

The manual comprehensively includes simple methods and procedures to not only deal with monitoring but how to do it safely.

Remember sometimes when you are out in the field, it's a hot day and that's the n'th inactive nest you have assessed for the day, it's those little signs that matter. The hidden scat, the malleefowl print in shadow, the piece of eggshell that only becomes visible after a hand-scrape - they are all important. The manual teaches us about it all.

And all of this is for the purpose of being able to include the data in the one place that scientists will be able to use forever - The National Database.

Remember it was those fox prints on mounds we had recorded for years that provided the only set of numbers that gave us some idea about historical fox densities before RCD spread.

So all monitors must remember it might only be a lone Malleefowl print on a long inactive mound, but it's a valuable piece of data that may be very important in the years to come. It really is a sighting, not just a sign or a piece of data.

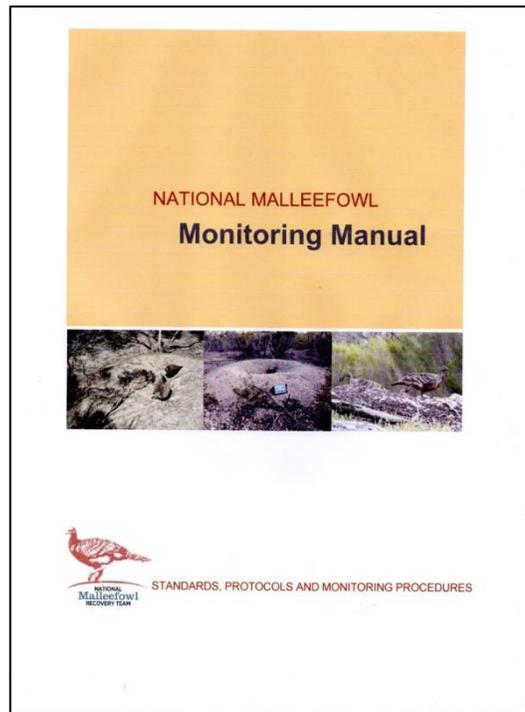


Figure 10: National Malleefowl Monitoring Manual, National Malleefowl Recovery Team