



# **Malleefowl Monitoring in Victoria: 2006/7**

*Report to the Victorian Malleefowl recovery Group*

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## **1. Monitoring effectiveness**

The VMRG visited 1043 Malleefowl nests during the 2006/7 breeding season, Appendix A.1 shows a breakdown of the effectiveness of the monitoring effort and the overall result is very impressive: over 99% of nests were visited and several new nests were added as a result of re-searches of several sites (35 nests added; see below) and incidental finds (4 nests). Ten nests were also taken off the monitoring lists as they were deemed not to be Malleefowl nests, could not be found despite several attempts, or were clearly outside the site boundaries.

During the winter of 2006 several re-searches of sites were organised by the VMRG and involved community volunteers from Hopetoun (site 02 Torpeys), Tim Connell and his students from RMIT (sites 11 Mopoke and 12 Pheeneys), VMRG volunteers (site 14 Menzies), and students from Bendigo Regional Institute of TAFE (site 21 Dumosa). These searches added 16 new nests to the monitoring lists for these areas, two of which were active in 2006/7. Regular re-searches of our monitoring sites is essential to ensure that we are not missing nests that are occasionally built from scratch, and an important outcome of the searches last winter is a renewed confidence that our monitoring results are accurate representations of the trends in Malleefowl breeding numbers at these sites. However, it should also be noted that the effectiveness of searches (measured as the proportion of known nests that were re-found during the search) varied greatly between 60% - 95%. Not surprisingly, the most thorough search was conducted by VMRG members who each had lots of experience in spotting inconspicuous nests and navigating through the mallee. That other groups were less effective sends us a clear message that more training, and perhaps some helpful information sheets, is required when inexperienced observers are used to re-search monitoring sites.

## **2. Malleefowl Breeding numbers**

Of the 1043 nests that were visited in 2006/7 only 90 were active which is considerably less than last year when 123 nests were active (including nest within sites as well as those outside the original site boundaries). A more rigorous comparison between is obtained by counting only nests within the original site boundaries, in which case 85 nests were active in 2006 compared to 114 in 2005 (Appendix A 3a,b,c). Declines were noted in most areas (see Figures 1 and 2) with the exception of sites in the North-east (sites 15 Wandown, 14 Menzies and 27 O'Brees) at which breeding numbers actually increased. Elsewhere, breeding numbers were down to only 53% of what was recorded last year.

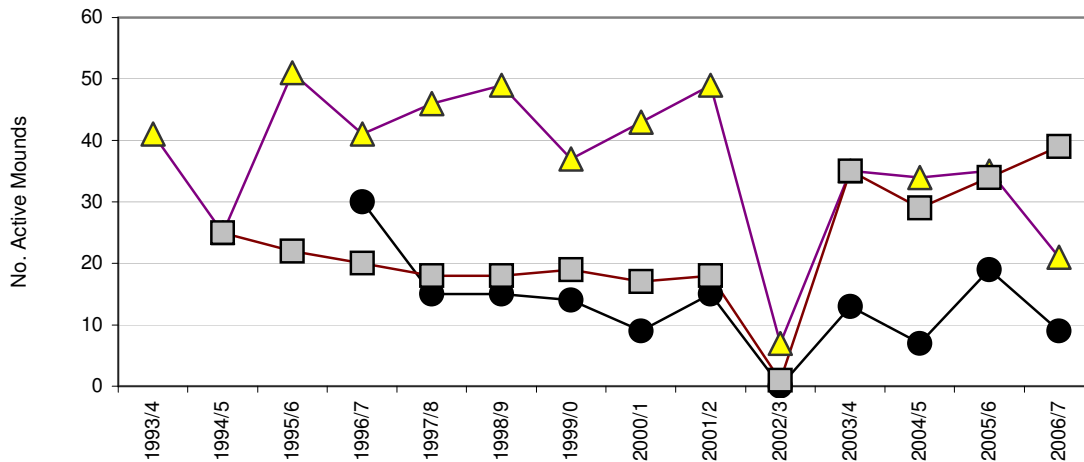
The decline in breeding numbers was not surprising considering the severity of the drought in 2006 which in many areas was the most severe for at least 20 years. For example, Ouyen received less than 44% of its average annual rainfall during 2006, and less than 40% of its cool season rainfall (April to October). This was less rainfall than occurred in either the 1994 or 2002 droughts (Figure 3), and one of the lowest rainfall totals for these periods since records began 97 years ago.

Given the severity of the drought, it is perhaps surprising that Malleefowl breeding was not even lower than what was recorded, especially considering the more severe impacts of the 1994 and 2002 droughts (Figures 1 and 2). It is possible that the rainfall record at Ouyen is not representative of all areas, and that some areas received critically important local rain that areas such as Ouyen missed out on. I have not yet

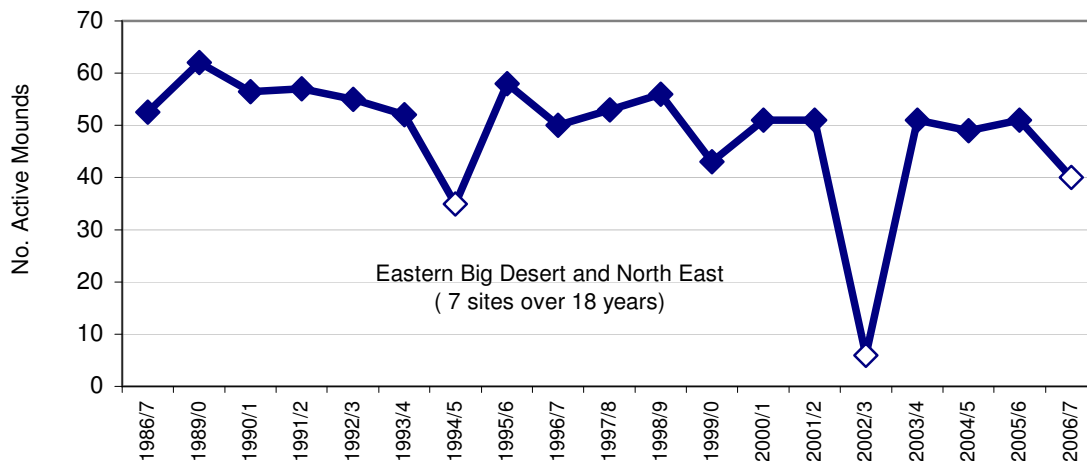
obtained the rainfall records at all sites to examine this possibility. It will be especially interesting to examine the rainfall records for the North east where Malleefowl numbers have continued to increase beyond the record breaking breeding numbers of the past few years. Alternatively, other factors may be at play although it is difficult to conceive anything that could be more important than rainfall.

In any case, it would be erroneous to conclude too much from the decline in breeding numbers in the 2006/7 breeding season. During droughts, Malleefowl are known to skip breeding and wait for better conditions, and it is apparent from long term trends (Figure 2) that breeding numbers often return to normal after the drought breaks. Let's hope that 2007 will be a year of at least average rainfall in the mallee, and that breeding numbers recover to what they were in recent non-drought years.

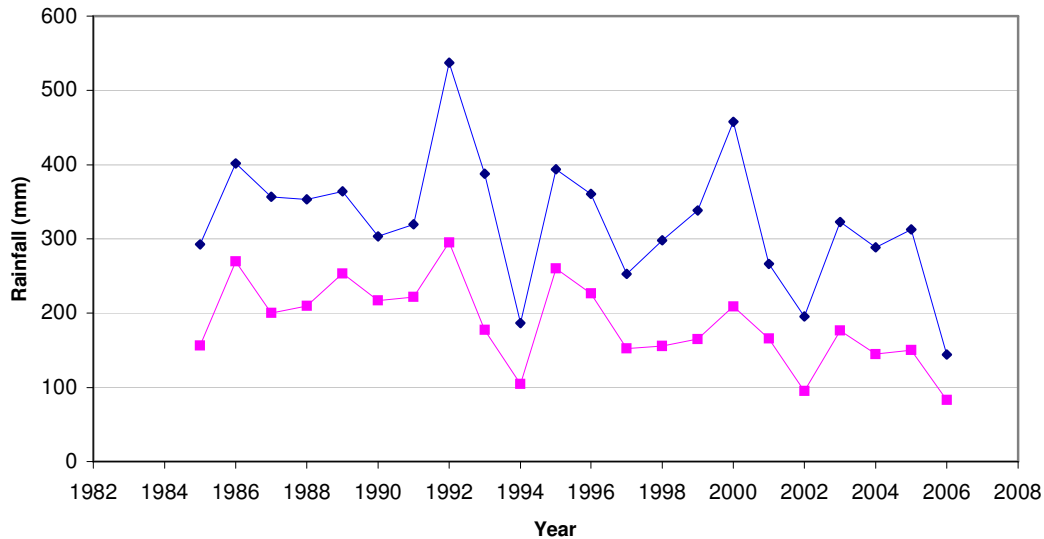
**Figure 1.** Trends in Malleefowl breeding numbers at 22 set sites over the past 11-14 years. Eastern Big Desert comprise 6 sites over 14 years (triangles), North East comprise 4 sites over 13 years (shaded squares), and North West comprises 12 sites over 11 years (solid circles). 1994/5, 2002/3, and 2006/7 were major drought years.



**Figure 2.** Trends in Malleefowl breeding numbers at 7 set sites over the past 19 years. 1994/5, 2002/3, and 2006/7 were major drought years (white points). Sites include 01, 02, 03, 04, 15, 20 and 23).



**Figure 3.** Trends in rainfall at Ouyen since 1984. The upper line shows the total rainfall during each calendar year, whereas the lower lines shows rainfall during the April to September period leading up to the Malleefowl breeding season.



### Individual Grid trends

Appendix B shows the histograms of grid trends from historical records to 2006/7. The value (ie number of active nests) for each histogram bar is also shown so that you can distinguish between seasons when there was no breeding at a site, and seasons when the site was not monitored. Note that there have been some corrections to previous year's results at some sites (especially 03 and 07): the current representation of the historical data is in line with the recent analysis of monitoring records from across Australia.

### **3. Changes to data recorded in the field**

This season, volunteers seemed to make very few errors regarding the activity of nests, but a number of nests were identified incorrectly on Cybertracker (either the wrong site or nest number), or the GPS location was recorded while not at the nest in question. These errors can be time consuming to correct but can be avoided by 1) checking the site/nest numbers entered at the top of the Cybertracker screen, and 2) making sure that each record is finalised while you are still at the nest in question (ie press OK on the thankyou screen). (If you are unsure about either of the points, please ask!)

#### 4. Fox scats

Fox scats were collected at 394 nests in 2006/7 and weighed a total of 4.8 kg. This is more than the total last year (275 nests and 3.4kg), but similar to the total in 2002/3 (also a drought year).

Grid	name	Wgt (g)	No. nests
v01	Dattuck	29	5
v02	Torpey's	196	18
v03	Wathe SW	368	32
v04	Bronzewing	851	63
v05	Colignan	68	9
v07	Annuello	141	14
v08	Powerline	37	5
v09	Mt Hattah	0	0
V10	One Tree Plain	0	0
v11	Mopoke	71	8
v12	Pheeneys	247	16
v13	Bambill	243	23
v14	Menzies	79	7
v15	Wandown	410	37
v16	South Bore	231	15
v17	One Tree Plain	64	6
v18	Washing Machine	56	3
v19	Underbool/Cowan	52	10
v20	Lowan	339	30
v21	Dumosa	7	2
v22	Denning	100	4
v23	Moonah	574	40
v24	Kiata	59	7
v26	Hattah Tracks	143	7
v27	O'Brees	102	8
v28	Nurcoung	196	11
v29	Wedderburn	24	5
v30	Hattah South	49	5
v31	Skidders Flat	39	4

May I remind everyone once again of the importance of being very systematic with fox scat collection. We must search the mound surface very carefully for a full minute to be absolutely sure that we get all the scats, as emphasised in the manual and during the training weekends.

#### 5. Lerp

2006 was the first season we introduced lerp counts in the monitoring sequence. In 2003 we tried counting lerp in random quadrats at each site, but this proved time consuming and rather unpopular! So in 2006 we tried a simpler way which involved scoring the number of lerp apparent on every nest visited during the monitoring effort. The results were encouraging and informative (see Appendix A 8). Only 49 out of 1036 nests were recorded with lerp, suggesting that a major psyllid (the bug that makes the lerp) outbreak was not underway in early summer. However, there are

reasons to suspect that a psyllid outbreak might be underway, and if so this may be very important to Malleefowl. Lerp outbreaks are thought to follow droughts when trees are stressed, especially when the following autumn is dry and mild, and this matches the current conditions in the mallee. Moreover, lerp was common at several monitoring sites showing that psyllids were reasonably abundant earlier in the season.

Given the potential significance of lerp outbreaks to Malleefowl recruitment, and the importance documenting outbreaks when they occur, it would be very useful to get an update of the abundance of lerp at selected sites over the next 2-4 weeks. Please give this request careful consideration and contact Peter and Ann Stokie, or myself, if you are interested in visiting one or more sites.

## **6. Concluding comments**

The VMRG has completed another excellent year of monitoring and the data are of a very high standard again. Unfortunately the drought, the worst in many years, meant that many Malleefowl did not attempt to breed and consequently the breeding numbers probably don't reflect the population numbers. If this is true, breeding numbers will recover in most areas in 2007 if there is sufficient rain. On the other hand, breeding numbers have increased once again in the North-east despite the drought, strongly suggesting a substantial population increase. The North-east, and Wandown in particular, has shown extraordinary increases that began immediately following the 2002 drought.

I believe the main issues to focus on now (in terms of the monitoring) are that we should:

- Continue the high standard of monitoring
- Refine the monitoring program and develop field techniques to describe and track changes in the habitats that support Malleefowl. Our data on Malleefowl is excellent, but it's power to explain trends in the birds populations is limited by our knowledge of our seasonal knowledge of their food resources, predator numbers, and other factors. With suitably fast and easy techniques, we could monitor these resources and greatly increase the value of the data we already collect. The possibility that a lerp outbreak may be underway provides some urgency to this objective.

Once again, I am very appreciative of the effort made by people in collecting the high quality data, and of the tremendous effort by Peter and Ann Stokie in keeping the program running, performing the duties of the Cybertracker 'hub', doing preliminary checks, supplying summaries, and conducting questionnaires which provide the sort of feedback I need to improve the technology.

Joe Benshemesh

25 March 2007

NOTE if you notice any likely errors in this report or the Appendices, or numbers that disagree with your recollections, please let me know!
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