



Malleefowl Monitoring in Victoria: 2010/11

Report to the Victorian Malleefowl Recovery Group

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28 April 2011

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1. Monitoring effectiveness

Appendix A.1 shows a breakdown of the effectiveness of the monitoring effort and the overall result is as impressive as it usually is. The VMRG visited 1213 Malleefowl mounds during the 2010/11 breeding season (all 'sought and found', plus all 'new' mounds), including 4 mounds found incidentally at three sites. Monitoring was delayed at some sites due to the extraordinary rainfall and floods in western and central Victoria during the summer, and monitoring at several sites was not completed until mid-late March. Despite these delays, the effectiveness of the monitoring and the estimates of breeding numbers were not adversely affected.

A total of eight mounds were not found during the 2010 season (Appendix A.2). One old mound (v08_02) has not been found since it was accidentally bulldozed during fire suppression works in 2008. The other seven mounds were scattered through seven sites and were not searched for; they all appear to have been forgotten. Only one of these mounds (v28_34) had been recorded as having been active in the past.

Overall, we managed to find 99.3% of the 1218 mounds that we set out to monitor (excluding the 4 newly found mounds). This includes 75 mounds that were partially omitted ("5-year") mounds that we were required to monitor this season and which will be optional mounds once again until 2015. One of the mounds on the 5-year list was active in 2010 (33_07 at Korong Vale site) and will be reinstated on the regular monitoring list next year (74 mounds are thus shown as 5-year in Appendix A1). Nonetheless, mounds on the 5-year list are much less likely to be active than regular mounds, and in 2010 only 1.3% of 5-year mounds were active, compared with 13% of regular mounds. That 5-year mounds are occasionally active highlights the value of checking these mounds if you have time in the field; the 5-year mounds are intended to be optional most years and mandatory every fifth year.

A search of the Powerline v08 site in early August 2010 was organised by Fiona Murdoch (VMRG), and involved VMRG members, the Colignan and District Kindergarten, and students studying Natural Resource and Management Diploma from Sunraysia Tafe. This site that had not been searched for several years and was mostly burnt in 2008. Two new mounds were found, but GPS readings were not captured due technical difficulties with equipment. We are working with the GPS tracklogs to determine the likely locations for these mounds. The VMRG also organised searches of key areas at Scotia Sanctuary in NSW run by Australian Wildlife Conservancy. The data collected has been handed over to AWC and we hope this will form the basis for ongoing monitoring.

2. Malleefowl Breeding numbers

Of the 1213 mounds that were monitored in 2010/11, 150 were active (140 of these were inside sites, and 10 were mounds outside the strict site boundaries; see Appendix A 3a-c). This is one of the highest total counts of active mounds we have ever observed (see Appendix 2 for individual site trends), and is close to the record set in 2008/9 when 153 mounds were active (143 inside sites). Although the heavy rains and consequent delays in monitoring some sites might have created problems in estimating breeding numbers, this was not the case in 2010 as most Malleefowl appeared to continue to maintain their mounds well into autumn. Comparisons between photos of mounds this season and in previous years, which is very easy with the new database, also helped reduce the number of ambiguous cases to low levels.

Rainfall was above average at most locations in the mallee in 2010 (Figure 1), with the exception of May-June in the southern regions where rains were lower than average. This is now the third season in which we have had average or better rains during the autumn to winter period, and is in marked contrast to the decade or so to 2007 when dry conditions prevailed during this period.

General trends in Malleefowl breeding numbers over the past few decades are shown in Figures 2 and 3, in which monitoring sites are grouped according to how long they have been monitored. In terms of the seven key monitoring sites that have been tracked for the past 23 years (Figure 2), the 2010 result was similar to last season, but below the record breaking in 2008 after the drought broke. In fact, the 2010 result was the second highest total recorded since 1998 (the highest total was in 2008), although it was still lower than breeding numbers often recorded in the early 1990s. Similarly, breeding numbers at 22 sites over the past 15 years (Figure 3) show that breeding numbers in 2010 were the highest for 15 years, with the exception of 2008.

Regional trends in Malleefowl breeding numbers over the past 15-18 years (Figure 4) show how Malleefowl have fared in different parts of Victoria. While breeding numbers have shown little overall trend since the 2002 drought in the Eastern Big Desert and in the Northwest, current numbers differ from those observed in these regions before the drought. In the case of the Eastern Big Desert, numbers are lower now than before the drought, due largely to the virtual collapse of the population at the Moonah site (v23; Appendix B). Coincidental to the decline at Moonah, Malleefowl breeding numbers 'went through the roof' at Wandown (v15) following the drought, and have more or less maintained themselves at these levels since then.

The clearest regional trend was in the North-west where Malleefowl breeding numbers plummeted in the mid-1990s and have remained worryingly low since then. While there have been some signs of recovery over the past few years, the results from the monitoring in 2010 show that breeding numbers have returned to historical (1996) levels. This has been the cause of considerable excitement among those who monitor these sites and encountered far more active mounds than they expected, and provides some compensation for effort required to visit these often remote sites.

Individual Grid trends

Appendix B shows the histograms of grid trends from historical records to 2010/11. The value (i.e. 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. All sites are represented in numerical order.

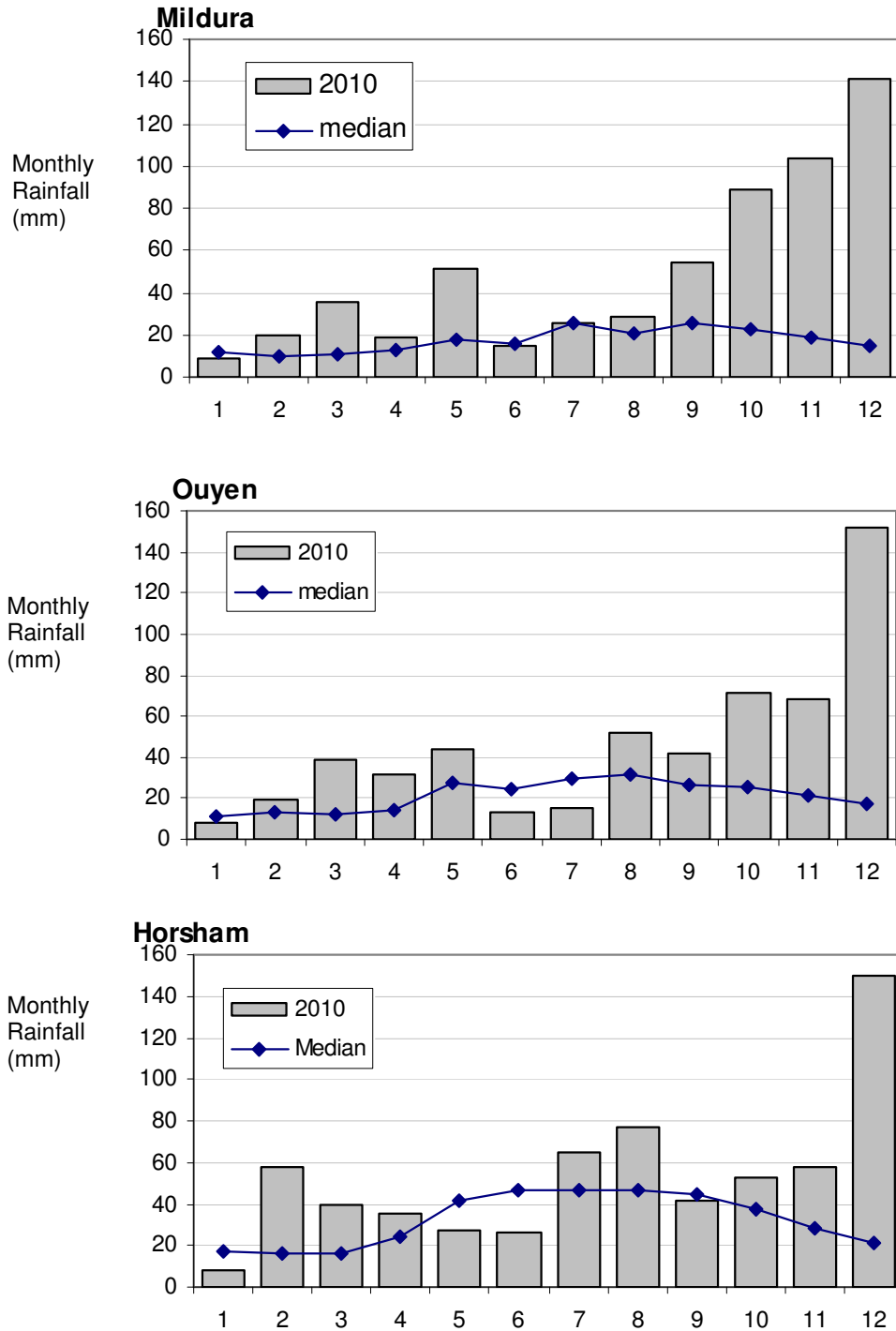


Figure 1. Rainfall at Mildura, Ouyen and Horsham in 2010 (bars) and median rainfall since early 1900s (line). During the critical months prior to breeding (May to August) in 2010, rainfall was well above the long term median in the northern mallee (Mildura), but was only slightly above median values in Ouyen and Horsham due to some relatively winter dry months. (Data from the Bureau of Meteorology website).

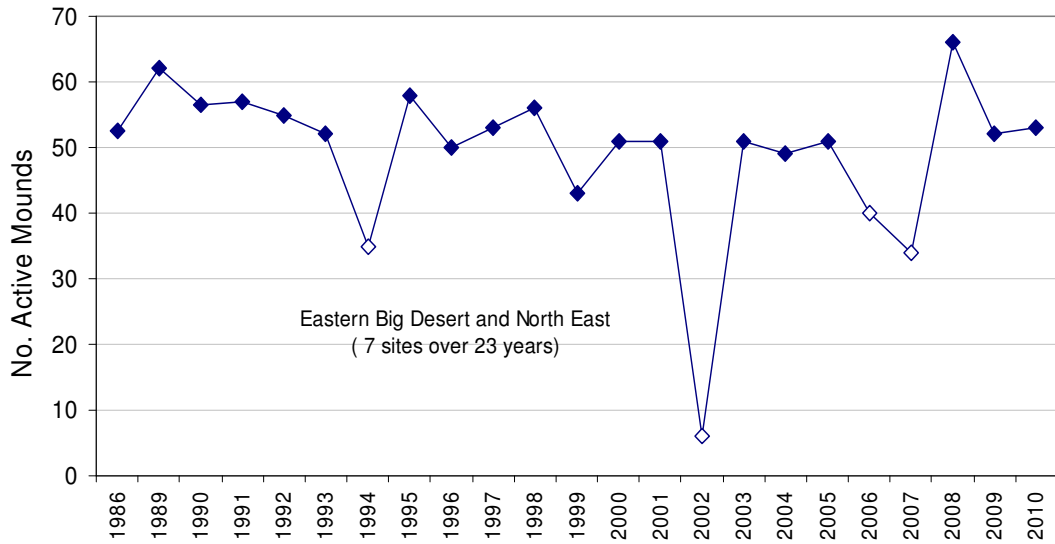


Figure 2. Trends in Malleefowl breeding numbers at 7 of the longest monitored sites over the past 23 years. 1994, 2002, 2006 and 2007 were major drought years (white points). Data comprise the common sets for sites 01, 02, 03, 04, 07, 20 and 23.

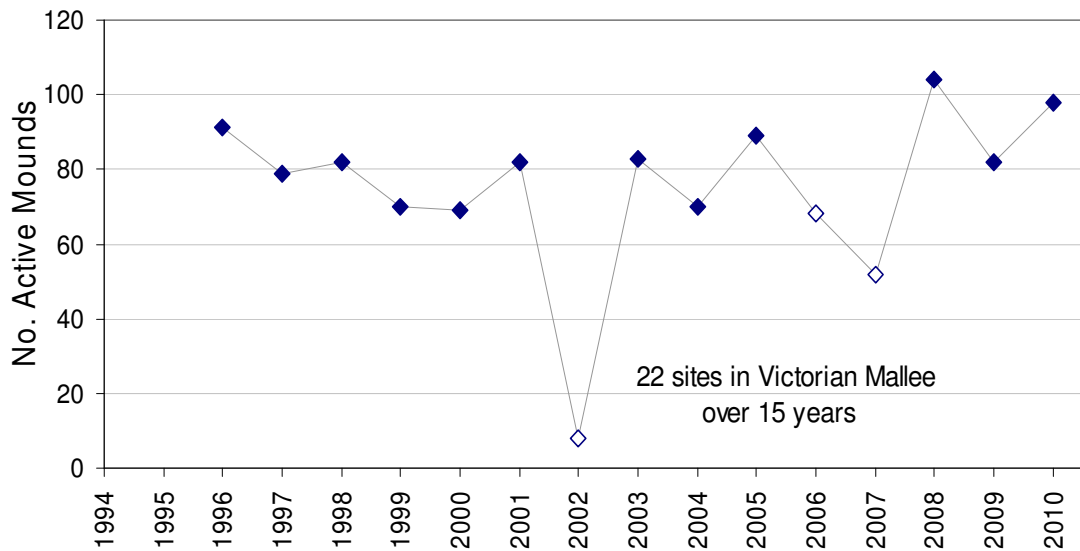


Figure 3. Trends in Malleefowl breeding numbers at 22 sites over the past 15 years shown as collective total. 1994, 2002, 2006 and 2007 were major drought years (white points). Data excludes mounds outside site boundaries. See figure 4 for regional breakdown.

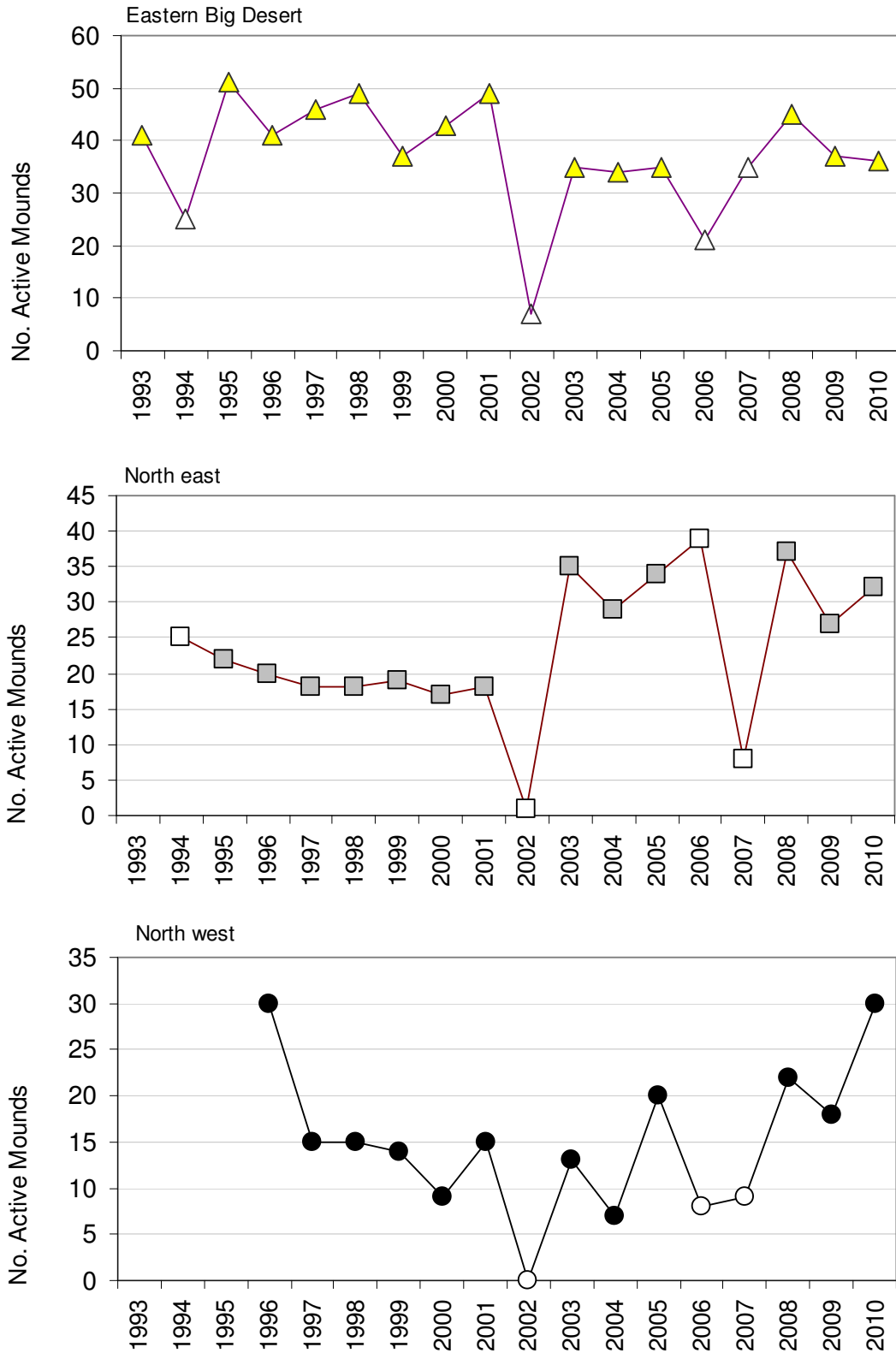


Figure 4. Trends in Malleefowl breeding numbers at 22 sites over the past 15-18 years shown by region. Eastern Big Desert comprise 6 sites over 18 years (triangles), North East comprise 4 sites over 17 years (shaded squares), and North West comprises 12 sites over 15 years (solid circles). 1994, 2002, 2006 and 2007 were major drought years in many areas. Data excludes mounds outside site boundaries.

3. Changes to data recorded in the field

No changes were needed to the way data was collected in 2010/11, and no major changes are expected next season. Although there were a number of cases where people apparently finalized their monitoring record after they had already left the mound, this was less common in 2010 than in previous years. This error can be avoided by making sure that each record is finalised while you are still at the nest in question. (If you are unsure about this, please ask!).

The new Mobilemappers performed well for the majority of people and far fewer problems were experienced than last year. Most people successfully used the new GPS function in Cybertraker and found it as easy and accurate as using a separate GPS.

Much of the success in using the equipment this season was likely due to the Mobilemapper training that was conducted at the training weekend, although the correction of some bugs on Cybertraker also saved people from unexpected errors. We have also introduced a simple user-manual for the use of the devices for the monitoring; make sure you have this when you go out to monitor.

The new database

The on-line database that has been developed for our monitoring by Richard and Margaret Alcorn (initially funded by DEWHA) has undergone considerable improvement in the past year thanks to funding from the financial offset Iluka Resources is committed to as part of the mineral sands development in the Ouyen region. We have now loaded all of the historical data and photos from Victoria, and most from other states. The old juggernaut Victorian database is still in use to produce some of the appendices in this report, and to check the processing of data on the new online database. However, the on-line database is now the workhorse for processing, storing and accessing the monitoring data. It has also proved to be more powerful, more reliable and much easier (and fun) to use than the old database. Further development of the on-line database will make the old database completely redundant.

Many of the most recent development of the on-line database have been aimed at data collectors, rather than in processing data. We will be showcasing these developments and the database generally, at the Malleefowl Forum in Renmark in July.

4. Lerp

This season was the fifth time we have recorded the occurrence of lerp (the sweet and nutritious casing of psillid sap-sucking insects that fall from leaves) on Malleefowl mounds, but there were very few to count. Lerp were recorded at about 4% of mounds in 2010 (Appendix A VIII), compared to only 1% last season and 7% in 2008/9.

While lerp abundance was low, there was a strong trend between the date that sites were visited and lerp abundance (i.e. sites that were visited later had more lerp)(Pearson correlation: $r=0.67$, $n=34$, $p<0.0001$). Lerp become significant food resources for Malleefowl when there are psillid outbreaks and given the steep rise in abundance measured in the monitoring data, it is possible that we may be in for a lerp outbreak if conditions are favourable for the psillids. This could be great news for the

birds coming into autumn and early winter, and may assist the survival of chicks hatched in the 2010 season.

These comments notwithstanding, the number of mounds with lerp on them was still low (1% of mounds with lerp before Xmas, 9% after Xmas) and at this stage there does not seem sufficient justification to call on VMRG members to conduct more intensive lerp surveys this autumn. But, *if you are local to some of our monitoring sites, or are looking for some excuse to head out to the mallee, please let me know as it would be very useful to get an update on the lerp situation.*

5. Fox scats

Fox scats were collected at 368 mounds in 2010/11 and weighed a total of over 5.2 kg. This is less than last year when there were 427 mounds with fox scats which weighed a total of 7.0 kg (Table 1), but is similar to scat frequencies and weights in 2006-2008. Nonetheless, the decline in fox scats in 2010 compared to 2009 is a little puzzling considering the excellent rainfall during the year. One possibility is that the torrential rains that occurred during the summer washed scats off mounds, or that the increased humidity hastened decomposition. Relatively few Malleefowl feathers were collected despite the high number of active mounds, and many people commented on difficulty of finding feathers. Feathers that were collected have been forwarded on to Taneal Cope (conducting the genetics study at Melbourne University).

May we 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.

6. Concluding comments

Once again the VMRG has completed another excellent year of monitoring, and once again the data are of a very high standard.

While the breeding numbers this year may not have been quite as stellar as those two years ago, the results of the monitoring were nonetheless excellent, especially in the North west which has been the subject of concern for many years. The return of average or better rainfall conditions in the north west over the past three years has been associated with a return to breeding numbers that were recorded in the mid 1990s. Nonetheless, there are still worrying declines in some areas, especially in the Big Desert, that we still do not understand.

Elsewhere, we are still developing an effective spread of monitoring sites in the Wychitella area and in the Little Desert area where several sites need to be established or researched. The recent search for Malleefowl footprints on tracks in the Little Desert by the VMRG and Victorian Mobile Landcare Group has provided a means of identifying where future monitoring sites may be located. Searching sites for on-going monitoring is a laborious job that involves teams of people, and while the VMRG has been creative in enlisting the support of locals to conduct searches, the involvement of experienced VMRG members is crucial in conducting efficient searches. Please become involved in these searches if the opportunity arises.

Malleefowl monitoring 2010/11
Report to VMRG by Joe Benshemesh and Peter Stokie, April 2011

Table 1. The total weight of fox scats, the number of mounds at which fox scats were collected, for both 2010 and the previous year (*italics*). The number of mounds at which Malleefowl scats and feathers were collected is also shown.

Grid	Name	Fox Scats				MfFeather	MfScat
		2010 Wt (g)	<i>2009 Wt (g)</i>	2010 Wt (g)	<i>2009 Count</i>	2010 Count	2010 Count
v01	Dattuck	168	<i>39</i>	14	<i>3</i>	1	
v02	Torpeys	374	<i>464</i>	18	<i>28</i>		
v03	Wathe SW	511	<i>867</i>	39	<i>38</i>		10
v04	Bronzewing	785	<i>1195</i>	46	<i>60</i>	4	17
v05	Colignan	63	<i>75</i>	5	<i>6</i>		
v07	Annuello	349	<i>257</i>	18	<i>16</i>		6
v08	Powerline	35	<i>19</i>	3	<i>2</i>		2
v09	Mt Hattah	104	<i>44</i>	4	<i>3</i>		
V10	One Tree Plain BNT	0	<i>0</i>	0	<i>0</i>		
v11	Mopoke	62	<i>143</i>	7	<i>9</i>		3
v12	Pheeneys	126	<i>283</i>	12	<i>16</i>		12
v13	Bambill	261	<i>340</i>	21	<i>21</i>		9
v14	Menzies	52	<i>179</i>	3	<i>11</i>		
v15	Wandown	65	<i>256</i>	12	<i>28</i>		
v16	South Bore	74	<i>113</i>	8	<i>12</i>	1	6
v17	One Tree Plain	0	<i>0</i>	0	<i>0</i>		
v18	Washing Machine	60	<i>52</i>	8	<i>4</i>		
v19	Underbool	30	<i>90</i>	3	<i>4</i>		1
v20	Lowan	243	<i>341</i>	16	<i>26</i>		1
v21	Dumosa	160	<i>214</i>	10	<i>15</i>		14
v22	Denning	58	<i>21</i>	5	<i>2</i>		
v23	Moonah	852	<i>641</i>	48	<i>36</i>	5	9
v24	Kiata	55	<i>24</i>	6	<i>3</i>		
v26	Hattah Tracks	123	<i>165</i>	6	<i>16</i>		
v27	O'Brees	36	<i>72</i>	3	<i>8</i>		3
v28	Nurcoung	59	<i>49</i>	8	<i>6</i>		2
v29	Wedderburn	23	<i>29</i>	5	<i>5</i>		
v30	Hattah South	65	<i>67</i>	6	<i>5</i>		
v31	Skinners Flat	25	<i>13</i>	5	<i>3</i>		
v32	Wychitella	4	<i>24</i>	1	<i>1</i>		1
v33	Korong Vale	11	<i>55</i>	1	<i>2</i>		1
v34	Paradise	317	<i>847</i>	25	<i>34</i>		7
v35	Broken Bucket	20	<i>25</i>	2	<i>3</i>		
v36	Broughtons WH	0	<i>4</i>	0	<i>1</i>		
TOTAL		5170	<i>7007</i>	368	<i>427</i>	11	104

The database continues to be improved through the work of Richard and Margaret Alcorn. While much of the work in the past has been concerned with data processing, an effort is currently being made to making the database useful, informative and fun for data collectors. We will be showcasing these developments at the Malleefowl Forum in Renmark in July. Meanwhile, please check out the database every now and then and watch for the developments, and please let us know what new features you would like to see.

Last year we were part of an application for an ARC Linkage grant to fund the development of an adaptive management (AM) project for Malleefowl, together with Drs Michael Bode and Brendan Wintle of Melbourne University, and Dr John Wright of Park Victoria. Unfortunately we did not succeed with this application, although we know that we were amongst the top ranked applications and must have just missed out. We will be re-submitting the application, with some improvements, for the next round of grants

The AM project would fund a post-doc at Melbourne University to develop a mathematical framework that would allow us to measure the success or failure of management actions aimed at benefitting Malleefowl. While this may seem a little esoteric, it's actually very pragmatic and will provide a way of "learning by doing", in contrast to the conventional scientific approach where there are typically long delays between research and implementing management actions.

The monitoring information collected by the VMRG and other groups around Australia is fundamental to the AM project and will provide the data that will test the effectiveness of management actions. Indeed, the AM approach can be viewed as a culmination of the monitoring program, elevating it from an essentially passive activity of observing, to a dynamic activity with clear feedback loops to managers. While the application will be submitted in May, it will be six months before we hear from the ARC whether we have succeeded. We certainly hope so.

Once again, we are very appreciative of the effort made by people in collecting the high quality data, helping to keep the program running, and providing the sort of feedback we need to improve the program for volunteers and Malleefowl.

Joe Benshemesh and Peter Stokie

28 April 2011

<p>NOTE: If you notice any likely errors in this report or the Appendices, or numbers that disagree with your recollections, please let us know!</p>
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Appendix A 1. 2010/11 Mound Inspection Report for All Victorian Sites

29-Apr-11

Table 1. Page 1 of 1
2010/11 Malleefowl Monitoring Report

Updated records

▶ *Mounds that will be included in future annual lists*

	Grid	01	02	03	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37
Sought and found	1127	79	53	89	102	15	51	17	14	3	16	25	38	28	94	42	31	27	22	62	36	12	60	8	24	20	17	8	11	11	11	6	84	6	5	
New incidental	4			1			1																											2		
NOT sought or found	7			1	1		1	1							1												1						1			
Total	1138	79	53	91	103	15	53	18	14	3	16	25	38	28	95	42	31	27	22	62	36	12	60	8	24	20	18	8	11	11	11	6	87	6	5	

▶ *Mounds that will be checked every 5th year*

	Grid	01	02	03	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37
Sought and found	74	1	3	11	6							2		2	6				1		5	7	7	8			2	1		6	3	2			1	
Total	74	1	3	11	6							2		2	6				1		5	7	7	8			2	1		6	3	2			1	

▶ *Mounds that will be omitted from annual lists (erroneous records, and nests well outside grid boundaries)*

	Grid	01	02	03	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	35	36	37
Sought and found	8			1																				3										4		
Sought, NOT found	1							1																												
NOT sought or found	1			1																																
Total	10			2				1																3										4		

Grand Total 1222 80 56 104 109 15 53 19 14 3 16 27 38 30 101 42 31 27 23 62 41 19 67 19 24 20 20 9 11 17 14 8 91 6 6

* This row shows mounds previously listed on 5yr list and thus not visited this season.

Note: Grid 06 and 07 were combined in 1997 into one grid named Annuello 07.

End

Appendix A 2. 2010/11 Details of Mounds Not found, New, or Omitted

2010/11 Malleefowl Monitoring Report

Grid_nest	sght/foun	Contributors	comment	Validation comment
<u>These mounds will be included in future ANNUAL lists:</u>				
● Previously known mounds that were Niether Sought, Nor Found				
03	123	n	n	ECOLOGIST: this mound seems to have been forgotten. May be dud, but 2009 photo looks unique so should be checked in field
04	116	n	n	ECOLOGIST: this mound seems to have been forgotten (no photo either)
07	101	n	n	ECOLOGIST:
08	6	n	n	ECOLOGIST: "no data, no photo=missed"
15	234	n	n	ECOLOGIST: this mound seems to have been forgotten
28	34	n	n	ECOLOGIST: this mound seems to have been forgotten WAS ACTIVE PREVIOUS SEASONS
34	94	n	n	ECOLOGIST: appears to have been missed
● New mounds encountered incidentally during monitoring				
03	131	n	y	COORDINATOR: From Notebook - new mound found by RWP (PJS) ECOLOGIST:
07	102	n	y	recently dug in whipstick mallee between n69 and n67 photo taken GPS WAYPOINT E0634322 N6138616 Notes entered by PJS from nortebok 29/11/10 ECOLOGIST: loc converted from observers notes UTM.
34	95	n	y	ECOLOGIST: "between n22 and n17, not a new mound by photo - in fact probably not a mound at all (practice record?). However, as treated as new mound i have added it to nest list as regular mound 34_95. It is so close to 22&17 checking this out will not take long"
34	96	n	y	ECOLOGIST: "2010 new mound photo but NO LOCATION or record (just photo). by time on photo must be just west of 34_14, so here i have guessed location as about 40m west of 34_14."
<u>These mounds will be omitted from future lists:</u>				
● Previously known mounds that were Niether Sought, Nor Found				
03	125	n	n	ECOLOGIST: Not a mound, in centre of track=search waypoint from 2008 search
<u>These mounds have been marked THIS season for monitoring only every FIFTH year</u>				
● Other reasons				
02	52	y	y	COORDINATOR: Consider for 5 yr visit from JNO's notes (PJS) ECOLOGIST: moved to 5yr list
02	59	y	y	COORDINATOR: "Mound totally covered by fallen tree, consider for 5 yr visit from JNO's notes (PJS)" ECOLOGIST: moved to 5 year list by photos
03	3	y	y	COORDINATOR: From notebook - 5 year mound (PJS) ECOLOGIST: 2010 put on 5yr list following recommendation and inspection of photo. never active
03	4	y	y	COORDINATOR: From notebook - 5 year mound (PJS) ECOLOGIST: 2010 put on 5yr list following recommendation and inspection of photo. never active
03	9	y	y	COORDINATOR: From notes- consider 5 year mound? (PJS) ECOLOGIST: 2010 put on 5yr list following recommendation and inspection of photo. never active
03	107	y	y	COORDINATOR: From Notebook - 5 year mound (PJS) ECOLOGIST: "2010 inconspicuous, never active, put on 5yr list on rec of observer"
04	33	y	y	possible 5 year list ECOLOGIST: added to 5yr list based on rec and photo

Grid_nest	sght/foun	Contributors	comment	Validation comment
● Other reasons				
12	21	y	y	COORDINATOR: Crab hole 5 year list (From notes- PJS) ECOLOGIST: nominated and added to 5yr list after viewing photos etc
12	26	y	y	suggest delete from grid pine tree all over it PJS from notes ECOLOGIST: 2010 nominated for omit but added to 5yr list as only 80m from another mound. Photo inspected and over grown with pines
14	26	y	y	5 year plan ECOLOGIST: "never active, nominated by obserer to 5yr list and added following inspection of photos"
14	34	y	y	5 year plan ECOLOGIST: 28m but photo ok. nominated for 5yr list and added afetr inspecting photos etc...never active
15	227	y	y	5 year plaan ECOLOGIST: "nominated for 5yr: never active and changed to 5yr following photo inspect, very inconspic and irregular"
15	228	y	y	5 year or more ECOLOGIST: "63m but photo ok. nominated for 5yr: never active and changed to 5yr following photo inspect, very inconspic and irregular"
15	242	y	y	5 or more plan ECOLOGIST: 2010 nominated for 5yr and accepted based on photo and never active
15	243	y	y	5 year plan ECOLOGIST: 16m but photo ok. 2010 nominated for 5yr and accepted based on photo and never active
15	244	y	y	5 again ECOLOGIST: 2010 nominated as 5yr and listed as 5yr after inspecting photo and history
21	31	y	y	Recommend 5 yrly or remove from database . Barely distinguishable asa nest now. ECOLOGIST: "2010 observer Recommend 5 yrly, never active and small and barely discernible. Put on 5yr list"
22	5	y	y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: 87m but photo ok. added to 5yr list as recommended dec 2010 after examining photo etc
22	8	y	y	ECOLOGIST: 32m but photo ok. dec 2010 added to 5yr list on obs recommendation and after examining photo etc
22	14	y	y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: dec 2010 added to 5yr list on obs recommendation and after examining photo etc
22	18	y	y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: dec 2010 added to 5yr list on obs recommendation and after examining photo etc
23	6	y	y	Herb =Lots overhang AC Lig Partial delete ECOLOGIST: put on 5yr list on recommendation of observer
23	8	y	y	?5yr ECOLOGIST: "2010: put on 5yr list on recommendation of observer, never active"
23	47	y	y	5yr ? ECOLOGIST: "put on 5yr on recommendation of observer, never been active"
23	55	y	y	Completely unrecognfaable 5yr ECOLOGIST: "put on 5yr on recommendation of observer, never been active"
23	56	y	y	5yr ECOLOGIST: "put on 5yr on recommendation of observer, never been active"
23	65	y	y	-5yr ECOLOGIST: put on 5 yr list on recommendation of observer
24	11	y	y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: 16m ok. dec 2010 added to 5yr list on obs recommendation and after examining photo etc
24	15	y	y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: 25m but ok. dec 2010 added to 5yr list on obs recommendation and after examining photo etc
24	16	y	y	COORDINATOR: From notebook - 5 year only (Rob & Peter) ECOLOGIST: dec 2010 added to 5yr list on obs recommendation and after examining photo etc
28	29	y	y	not a mound ECOLOGIST: 2010 nominated and added to 5yr list after inspecting photos etc

Grid_nest	sght/foun			Contributors comment	Validation comment
● Other reasons					
32	3	y	y		COORDINATOR: from RLC notes - candidate for 5 year monitoring? (PJS) ECOLOGIST: dec 2010 added to 5yr list on obs recommendation and after examining photo etc

These mounds will be omitted from future lists:

● Previously recorded and Sought in monitoring, but Not Found Again					
08	2	y	n	Still no mound at this location. Stake still in place.	ECOLOGIST: accidentally bulldozed in fires 2008/9. Stake found but mound lost. 2007 photo shows very slight crater and may not be mound. JB2010: not found again in 2010 thus omit
● Other reasons					
03	94	y	y	very overgrown. can take off list	ECOLOGIST: "2010 very inconspicuous before fire, never active, now burnt, and progressively overgrown. thus omitted from future monitoring (nb is outside grid too)"
24	9	y	y		COORDINATOR: "From notebook - No obvious sign of mound here, delete or 5 year (Rob & Peter)" ECOLOGIST: "loc way off but photo good. already on 5y list, now changed to omitted"
24	20	y	y		COORDINATOR: "From notebook - 5 year, not a mound, delete (Rob & Peter)" ECOLOGIST: already on 5y list
24	22	y	y		COORDINATOR: "From notebook- 5 year, not a mound, delete (Rob & Peter)" ECOLOGIST: dec 2010 added to omitted list on obs recommendation and after examining photo etc
34	3	y	y		ECOLOGIST: no loc but photo checked & ok
34	10	y	y		COORDINATOR: "This mound was deleted last year, but Les visited it again this year (PJS)" ECOLOGIST:
34	31	y	y	delete	COORDINATOR: PST from notes. This is an old rabbit warren and should be deleted ECOLOGIST: "omitted after inspecting photo..." "old rabbit warren""
34	39	y	y	delete	COORDINATOR: PST from notes. This is an old kangaroo scrape and should be deleted ECOLOGIST: omitted after checking photos

These mounds were previously marked for monitoring every FIFTH year

● Other reasons					
01	32	y	y		ECOLOGIST:
02	47	y	y		COORDINATOR: Remain on 5 yr list from JNO's notes (PJS) ECOLOGIST: 68m but photo ok
03	5	y	y		ECOLOGIST: loc way off but photo ok
03	17	y	y		ECOLOGIST:
03	39	y	y		ECOLOGIST:
03	60	y	y		ECOLOGIST: 17m ok
03	80	y	y		ECOLOGIST: 41m but photo ok
03	90	y	y		ECOLOGIST:
03	103	y	y		ECOLOGIST:
04	16	y	y		ECOLOGIST:
04	42	y	y		ECOLOGIST:
04	68	y	y		ECOLOGIST: no loc but ok by photo
04	95	y	y		ECOLOGIST: data from photo only
04	113	y	y		ECOLOGIST: 20m but ok by photo
15	27	y	y	NO C>HANGE ??? RACTERS	ECOLOGIST: 2010 added to 5yr list from photo. Never act, very inconspicuous

Grid_nest	sght/foun	Contributors comment	Validation comment
● Other reasons			
19	23	y y	ECOLOGIST: 16m ok
21	7	y y	Keep at 5 years ECOLOGIST: 47m but photo ok
21	33	y y	Retain on 5 yr list. ECOLOGIST: retained on 5yr list as recommended
21	35	y y	Retain on 5 yr list ECOLOGIST: retained on 5yr list as recommended
21	36	y y	Nothing to see here folks ! ECOLOGIST: absolutely pathetic excuse for a mound: retained on 5yr list as recommended
22	7	y y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: already on 5yr list and retained there
22	10	y y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: already on 5yr list and retained there
22	11	y y	COORDINATOR: From notebook - 5 year mound (Stan & Peter) ECOLOGIST: 74m but photo ok. already on 5y list
23	53	y y	ECOLOGIST:
24	5	y y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: 35m but photo good; already on 5y list
24	6	y y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: loc way off but photo good. already 5 y list
24	7	y y	ECOLOGIST: 42m but photo good. already 5y list
24	8	y y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: already on 5 yr list
24	18	y y	COORDINATOR: From notebook - 5 year mound (Rob & Peter) ECOLOGIST: 45m but photo good. already on 5y list
28	38	y y	not a mound ECOLOGIST: 2010 nominated and added to 5yr list after inspecting photos etc (agreed...not a mound but worth checking again in 5yr)
29	4	y y	COORDINATOR: From dougs notes - stay as 5 year mound (PJS) ECOLOGIST:
31	1	y y	very old now has trees fallen on it ECOLOGIST:
31	2	y y	ECOLOGIST:
31	3	y y	ECOLOGIST:
31	5	y y	interesting scat and burrow in mound. don't think its fox? ECOLOGIST:
31	8	y y	this is barely distinguishable as a mound. only a hole 6cms. not worth the walk in!! ECOLOGIST:
31	17	y y	is this a mound?? has been filled with water . ECOLOGIST:
32	7	y y	COORDINATOR: From RLC notes - 5 year monitoring (PJS) ECOLOGIST: already on 5y list
32	14	y y	COORDINATOR: "From RLC notes - had been dug out maybe a prospector, looked totally destroyed - retire this one? (PJS)" ECOLOGIST: retain on 5y list as mf like holes! but agree that this is probably not a mound
33	4	y y	I=tsavs as 5 year m9und ECOLOGIST:
33	5	y y	leave as 5 year mound ECOLOGIST:
36	5	y y	disfturbed by ecchuida lea ve on 5y list ECOLOGIST: changed from Active to Inactive considering obs note and descriptions. Must have been a typo

Printed on 29-Apr-11

Appendix A 3a. 2010/11 Activity by Site (Grid)

Printed on 26-Apr-11

2010/11 Malleefowl Monitoring Report

Grid	Part	Total nests	Active (y)	Not Active (n)	Not Found ()	Active Last Year	Area (ha)	Active density (per km sq)
01	A	53	1	52	0	0	300	0.3
01	B	27	0	27	0	0	300	-
02		55	4	51	0	6	400	1.0
03		86	11	73	2	10	324	3.4
04	A	57	7	50	0	9	270	2.6
04	B	29	4	25	0	3	270	1.5
05		15	1	14	0	1	400	0.3
07	A	19	4	15	0	1	150	2.7
07	B	8	1	7	0	3	150	0.7
07	C	10	3	7	0	1		
08		19	2	15	2	1	400	0.5
09		14	0	14	0	0	400	-
10		3	0	3	0	0	400	-
11		16	4	12	0	1	400	1.0
12		25	6	19	0	3	400	1.5
13		38	4	34	0	3	400	1.0
14		30	9	21	0	7	380	2.4
15	Ab	12	4	8	0	3	115	3.5
15	Au	30	9	20	1	8	325	2.8
15	B	19	5	14	0	5	440	1.1
15	Cb	19	7	12	0	8	660	1.1
15	Cu	6	1	5	0	1	370	0.3
15	D	15	2	13	0	1		
16		42	2	40	0	1	400	0.5
17		31	0	31	0	0	400	-
18		27	5	22	0	3	400	1.3
19		23	1	22	0	1	400	0.3
20		48	2	46	0	2	282	0.7
20	B	14	0	14	0	0	135	-
21		38	5	33	0	4	400	1.3
22		17	0	17	0	0	542	-
23		49	7	42	0	7	400	1.8
24		18	0	18	0	0	210	-
26		24	7	17	0	4		
27		20	2	18	0	3	290	0.7
28		20	6	13	1	8		
29		9	0	9	0	0		-
30		11	1	10	0	1	400	0.3
31		17	0	17	0	0		-
32		14	1	13	0	2		
33		8	3	5	0	2		
34		91	8	82	1	7		
35		6	0	6	0	0		-
36		5	1	4	0	1		
Totals		1137	140	990	7	121	11513	1.2*

* Over a total area of 115.1 km sq (excluding sites with as yet undetermined areas)

Appendix A 3b. 2010/11 Activity of nests that were OUT OF GRID (OOG)

Printed on 29-Apr-11

2010/1 Malleefowl Monitoring Report

Grid		Total nests	Active (y)	Not Active (n)	Not Found ()	Active Last Year
02	oog	1	1		0	0
03	oog	18	2	16	0	2
04	oog	23	3	19	1	2
07	oog	16	1	14	1	3
12	oog	2	0	2	0	1
21	oog	3	0	3	0	0
22	oog	2	0	2	0	0
23	oog	18	2	16	0	2
24	oog	1	1		0	0
36	oog	1	0	1	0	0
Totals		85	10	73	2	10

Appendix A 3c. 2010/11 Active Nests List

+ Mounds that have been newly added to the monitoring program

Where sites have been divided into various parts, these are indicated to the right of the mound code (e.g. A, B, C, and 'oog' (out grid)). At Wandown (v15) site parts have been further subdivided into burnt ("b") and unburnt sections ("u").

v01 : 1 active nests	v05 : 1 active nests	14_12	16_22
01_72 A	05_2	14_13	v18 : 5 active nests
v02 : 5 active nests	v07 : 9 active nests	14_21	18_2
02_11	07_7 A	14_27	18_5
02_43	07_11 A	14_28	18_7
02_45	07_15 A	14_33	18_12
02_46 oog	07_16 A	v15 : 28 active nests	18_13
02_62	07_22 C	15_8 Au	v19 : 1 active nests
v03 : 13 active nests	07_24 C	15_10 B	19_5
03_10	07_61 B	15_11 B	v20 : 2 active nests
03_14	07_69 oog	15_23 Au	20_34
03_20	07_89 C	15_24 Au	20_37
03_21	v08 : 2 active nests	15_50 Cb	v21 : 5 active nests
03_23	08_7	15_61 Cb	21_4
03_34	08_11	15_66 Cb	21_11
03_41	v11 : 4 active nests	15_69 Ab	21_14
03_49	11_1	15_91 Cb	21_23
03_52	11_2	15_93 Ab	21_30
03_53	11_4	15_96 Au	v23 : 9 active nests
03_86 oog	11_11	15_103 Cb	23_13
03_91	v12 : 6 active nests	15_105 Cb	23_14
03_106 oog	12_7	15_107 Au	23_19
v04 : 14 active nests	12_8	15_116 Cb	23_21 oog
04_14 A	12_10	15_202 Au	23_36
04_17 A	12_12	15_203 Ab	23_37
04_22 A	12_17	15_204 Au	23_40 oog
04_26 B	12_22	15_216 Au	23_51
04_36 B	v13 : 4 active nests	15_222 Ab	23_58
04_39 B	13_7	15_224 Au	v24 : 1 active nests
04_45 A	13_8	15_229 B	24_99 oog
04_54 A	13_14	15_230 B	v26 : 7 active nests
04_55 A	13_24	15_233 B	26_4
04_71 A	v14 : 9 active nests	15_252 Cu	26_5
04_81 oog	14_3	15_261 D	26_15
04_87 oog	14_8	15_272 D	26_16
04_92 oog	14_9	v16 : 2 active nests	26_17
04_107 B		16_15	

Appendix A 3c. 2010/11 Active Nests List

+ Mounds that have been newly added to the monitoring program

Where sites have been divided into various parts, these are indicated to the right of the mound code (e.g. A, B, C, and 'oog' (out grid)). At Wandown (v15) site parts have been further subdivided into burnt ("b") and unburnt sections ("u").

26_24

26_27

v 27 : 2 active nests

27_7

27_13

v 28 : 6 active nests

28_3

28_4

28_6

28_12

28_16

28_21

v 30 : 1 active nests

30_1

v 32 : 1 active nests

32_6

v 33 : 3 active nests

33_1

33_3

33_7

v 34 : 8 active nests

34_6

34_11

34_13

34_16

34_23

34_51

34_58

34_67

v 36 : 1 active nests

36_2

Appendix A 4. 2010/11 Nests Needing Tags or Stakes

All 29 nests listed here require tags (astericks denote tags that are available but not yet placed in the field).

Grid	Nest	Need...	Note	Grid	Nest	Need...	Note
<i>Grid 01 needs 0 stake, 1 tag:</i>				<i>Grid 34 needs 0 stakes, 0 tags:</i>			
	01_ 82		Needs Tag		34_ 69		? (need to confirm)
<i>Grid 03 needs 1 stakes, 2 tags:</i>					34_ 94		? (need to confirm)
	03_ 114		Needs Tag		34_ 96		? (need to confirm)
	03_ 117		Needs Stake & Tag	<i>Grid 36 needs 1 stake, 1 tag:</i>			
	03_ 123		? (need to confirm)		36_ 99		Needs Stake & Tag
<i>Grid 04 needs 0 stakes, 0 tags:</i>							
	04_ 78		? (need to confirm)				
	04_ 92		? (need to confirm)				
	04_ 116		? (need to confirm)				
	04_ 119		? (need to confirm)				
<i>Grid 07 needs 0 stake, 0 tag:</i>							
	07_ 101		? (need to confirm)				
<i>Grid 08 needs 0 stake, 0 tag:</i>							
	08_ 6		? (need to confirm)				
<i>Grid 15 needs 0 stakes, 0 tags:</i>							
	15_ 54		? (need to confirm)				
	15_ 234		? (need to confirm)				
<i>Grid 17 needs 2 stakes, 2 tags:</i>							
	17_ 35		Needs Stake & Tag				
	17_ 40		Needs Stake & Tag				
<i>Grid 20 needs 0 stake, 0 tag:</i>							
	20_ 27		? (need to confirm)				
<i>Grid 22 needs 2 stakes, 1 tags:</i>							
	22_ 6		Needs Stake				
	22_ 20		Needs Stake & Tag				
<i>Grid 24 needs 1 stake, 1 tag:</i>							
	24_ 99		Needs Stake & Tag				
<i>Grid 26 needs 2 stakes, 2 tags:</i>							
	26_ 4		Needs Stake & Tag				
	26_ 24		Needs Stake & Tag				
<i>Grid 27 needs 0 stake, 0 tag:</i>							
	27_ 17		? (need to confirm)				
<i>Grid 28 needs 0 stakes, 0 tags:</i>							
	28_ 34		? (need to confirm)				
	28_ 36		? (need to confirm)				
<i>Grid 29 needs 0 stakes, 2 tags:</i>							
	29_ 1		Needs Tag				
	29_ 5		Needs Tag				

Appendix A 6. 2010/11 Frequencies of Animal Scats at Nests

29-Apr-11

Note: New observers collected data at several grids. Scat frequencies at these grids are not comparable with frequencies recorded in previous years or by other observers.

Grid	AvgDate	Total	MF	Fx	K	R	G	E	H	D	C	X	S
01	31/10/2010	79	1%	16%	54%	5%	1%	4%	-	1%	-	-	-
02	12/10/2010	53	8%	34%	32%	-	6%	-	-	8%	-	8%	-
03	30/12/2010	90	11%	43%	34%	2%	-	-	-	-	-	-	-
04	23/11/2010	102	23%	54%	31%	2%	-	-	-	-	-	1%	-
05	7/11/2010	15	13%	33%	40%	20%	-	-	-	-	-	7%	-
07	17/11/2010	52	15%	42%	31%	-	-	-	-	-	-	-	-
08	12/03/2011	17	12%	24%	59%	-	18%	-	-	-	-	-	-
09	13/03/2011	14	0%	29%	36%	-	21%	7%	-	-	-	-	-
10	3/03/2011	3	0%	0%	-	-	-	-	-	-	-	-	-
11	20/10/2010	16	25%	31%	6%	-	-	-	-	-	-	-	-
12	14/11/2010	25	56%	52%	16%	-	-	-	-	-	-	-	-
13	3/11/2010	38	21%	61%	39%	-	-	-	-	3%	-	-	-
14	16/11/2010	28	32%	11%	14%	-	-	-	-	-	-	-	-
15	7/11/2010	94	29%	18%	31%	-	-	-	-	-	-	1%	-
16	4/12/2010	42	14%	19%	45%	5%	14%	2%	-	-	-	-	-
17	3/03/2011	31	0%	0%	23%	-	-	-	-	-	-	-	-
18	5/11/2010	27	22%	26%	37%	-	7%	-	-	-	-	-	-
19	22/10/2010	22	0%	23%	27%	-	-	-	-	-	-	-	-
20	25/11/2010	62	0%	26%	45%	10%	2%	3%	-	2%	-	-	-
21	18/12/2010	36	44%	25%	33%	6%	-	3%	-	-	-	-	-
22	7/11/2010	12	0%	33%	67%	33%	-	-	-	-	-	-	-
23	9/02/2011	60	35%	75%	80%	5%	8%	-	-	-	-	-	-
24	13/11/2010	8	0%	63%	88%	-	-	25%	-	-	-	-	-
26	26/03/2011	24	29%	46%	38%	8%	-	4%	-	-	-	-	-
27	4/12/2010	20	21%	32%	50%	5%	-	-	-	-	-	-	-
28	14/11/2010	17	6%	44%	47%	-	-	-	-	-	-	-	-
29	12/11/2010	8	0%	63%	100%	-	-	-	-	-	-	-	-
30	9/11/2010	11	9%	45%	64%	-	-	18%	-	9%	-	-	-
31	21/11/2010	11	0%	36%	100%	-	-	-	-	-	-	9%	-
32	11/10/2010	11	9%	0%	73%	18%	-	-	-	-	-	-	-
33	29/11/2010	6	33%	17%	83%	-	-	-	-	-	-	-	-
34	22/11/2010	86	6%	14%	3%	-	-	-	-	6%	-	-	-
35	9/01/2011	6	0%	33%	33%	-	-	-	-	-	-	-	-
36	15/02/2011	5	0%	0%	60%	-	-	20%	-	-	-	20%	-
8/12/2010		1131	16.2%	33.0%	38.2%	2.9%	2.1%	1.2%	0.0%	1.1%	0.0%	0.8%	0.0%

K= Kangaroo, R= Rabbit, G= Goat, E= Emu, H= Human, D= Dog, C= Cat, X=Echidna, S=Sheep

Appendix A 7. 2010/11 Frequencies of Animal Prints at Nests

29-Apr-11

Note: New observers collected data at several grids. Print frequencies at these grids are not comparable with frequencies recorded in previous years or by other observers.

Grid	AvgDate	Total	MF	Fx	K	R	G	E	H	D	C
01	31/10/2010	79	4%	4%	57%	-	-	5%	-	-	-
02	12/10/2010	53	38%	2%	57%	-	2%	-	-	-	-
03	30/12/2010	90	33%	23%	16%	-	1%	4%	-	-	-
04	23/11/2010	102	41%	29%	17%	1%	-	-	-	-	-
05	7/11/2010	15	7%	27%	47%	7%	13%	13%	-	-	-
07	17/11/2010	52	17%	2%	10%	-	-	2%	-	-	-
08	12/03/2011	17	18%	12%	47%	-	24%	18%	-	-	-
09	13/03/2011	14	-	-	29%	-	64%	7%	-	-	-
10	3/03/2011	3	-	-	-	-	-	-	-	-	-
11	20/10/2010	16	19%	-	6%	-	13%	-	-	-	-
12	14/11/2010	25	24%	12%	28%	-	-	-	-	-	-
13	3/11/2010	38	13%	16%	21%	-	3%	-	-	-	-
14	16/11/2010	28	50%	25%	7%	-	-	-	-	-	-
15	7/11/2010	94	49%	28%	32%	-	-	1%	1%	-	-
16	4/12/2010	42	10%	2%	7%	-	5%	-	-	-	-
17	3/03/2011	31	3%	-	19%	3%	16%	3%	-	-	-
18	5/11/2010	27	22%	11%	19%	-	11%	-	-	-	-
19	22/10/2010	22	5%	-	45%	-	-	-	-	-	-
20	25/11/2010	62	2%	-	18%	-	2%	-	-	2%	-
21	18/12/2010	36	17%	14%	28%	3%	8%	-	-	-	-
22	7/11/2010	12	-	25%	75%	-	-	-	-	-	-
23	9/02/2011	60	33%	40%	17%	2%	7%	3%	-	-	-
24	13/11/2010	8	13%	38%	63%	-	-	-	-	-	-
26	26/03/2011	24	33%	21%	8%	4%	8%	8%	-	-	-
27	4/12/2010	20	16%	-	30%	-	-	-	-	-	-
28	14/11/2010	17	44%	25%	41%	6%	-	-	-	-	-
29	12/11/2010	8	-	-	13%	-	-	-	-	-	-
30	9/11/2010	11	9%	36%	55%	-	-	18%	-	9%	-
31	21/11/2010	11	-	9%	9%	-	-	-	-	-	-
32	11/10/2010	11	18%	-	-	9%	-	-	-	-	-
33	29/11/2010	6	17%	-	-	-	-	-	-	-	-
34	22/11/2010	86	36%	10%	2%	-	-	2%	-	1%	-
35	9/01/2011	6	-	33%	50%	-	-	-	-	-	-
36	15/02/2011	5	20%	-	60%	-	-	-	-	-	-
8/12/2010		1131	24.4%	14.8%	24.6%	0.7%	3.5%	2.2%	0.1%	0.3%	0.0%

K= Kangaroo, R= Rabbit, G= Goat, E= Emu, H= Human, D= Dog, C= Cat

Appendix A 8. 2010/11 Lerp on Malleefowl Nests

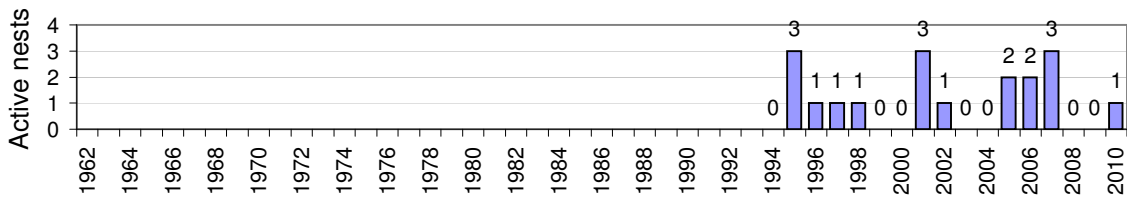
29-Apr-11

Note: Lerp on nests recorded as None (none), Some (1-10 lerp) or Lots (more than 10 lerp on the nest)

Grid	AvgDate	NUMBERS				FREQUENCIES (%nests)		
		Total	None	Some	Lots	Some	Lots	Any Lerp (at least some)
01	31/10/2010	80	75	5	0	6%	-	6%
02	12/10/2010	56	56	0	0	-	-	-
03	29/12/2010	102	96	6	0	6%	-	6%
04	23/11/2010	104	104	0	0	-	-	-
05	7/11/2010	15	15	0	0	-	-	-
07	17/11/2010	52	52	0	0	-	-	-
08	12/03/2011	17	14	0	3	-	18%	18%
09	13/03/2011	14	7	3	4	21%	29%	50%
10	3/03/2011	3	3	0	0	-	-	-
11	20/10/2010	16	16	0	0	-	-	-
12	15/11/2010	27	27	0	0	-	-	-
13	3/11/2010	38	38	0	0	-	-	-
14	16/11/2010	30	30	0	0	-	-	-
15	7/11/2010	99	98	1	0	1%	-	1%
16	4/12/2010	42	42	0	0	-	-	-
17	3/03/2011	31	29	2	0	6%	-	6%
18	5/11/2010	27	27	0	0	-	-	-
19	22/10/2010	23	23	0	0	-	-	-
20	25/11/2010	61	59	0	2	-	3%	3%
21	18/12/2010	41	41	0	0	-	-	-
22	7/11/2010	19	19	0	0	-	-	-
23	9/02/2011	67	66	1	0	1%	-	1%
24	5/11/2010	19	19	0	0	-	-	-
26	26/03/2011	24	19	4	1	17%	4%	21%
27	4/12/2010	19	19	0	0	-	-	-
28	15/11/2010	18	18	0	0	-	-	-
29	12/11/2010	9	9	0	0	-	-	-
30	9/11/2010	11	11	0	0	-	-	-
31	20/11/2010	17	17	0	0	-	-	-
32	12/10/2010	14	14	0	0	-	-	-
33	6/12/2010	8	8	0	0	-	-	-
34	22/11/2010	88	88	0	0	-	-	-
35	9/01/2011	6	5	1	0	17%	-	17%
36	15/02/2011	6	6	0	0	-	-	-
	8/12/2010	1203	1170	23	10	2%	2%	3.8%

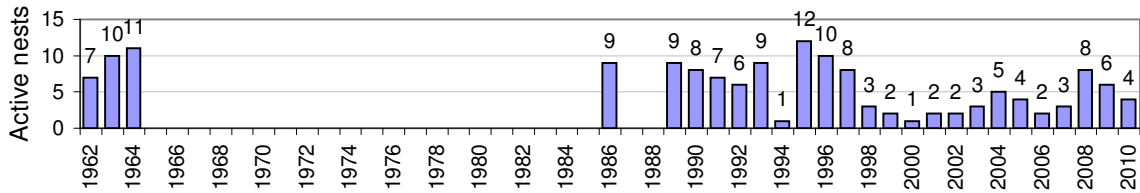
01 Dattuck

Eastern Big Desert



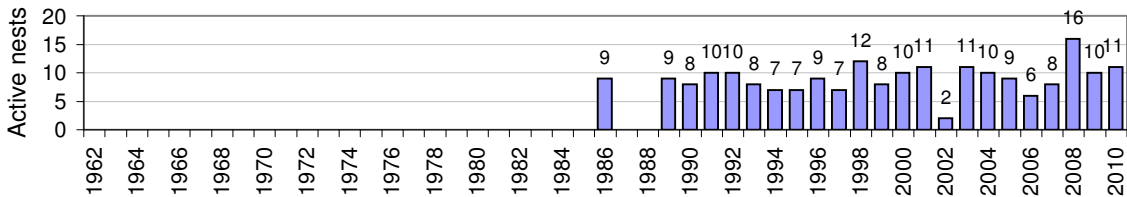
02 Torpey's

Eastern Big Desert



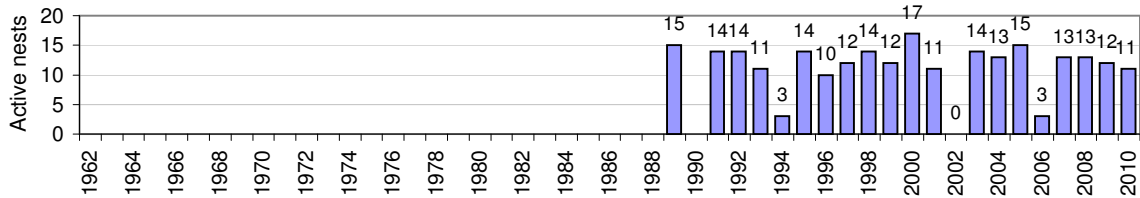
03 Wathe SW

Eastern Big Desert



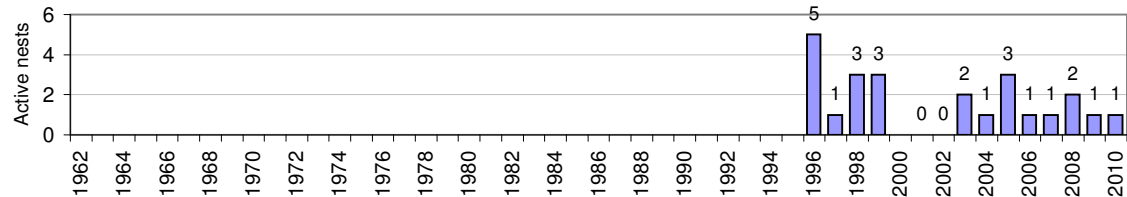
04 Bronzewing

Eastern Big Desert

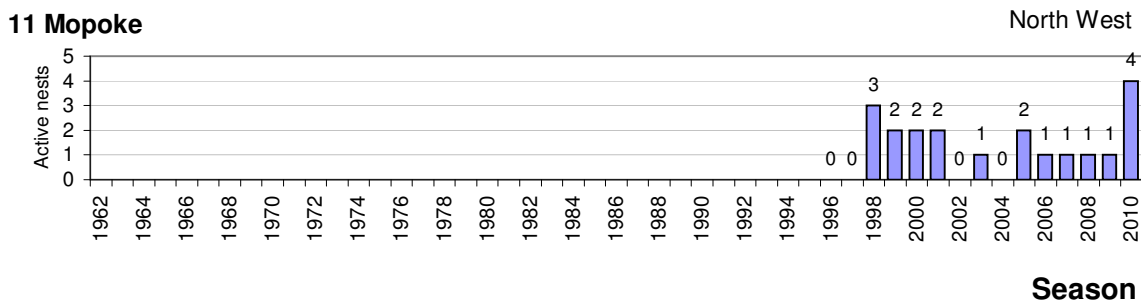
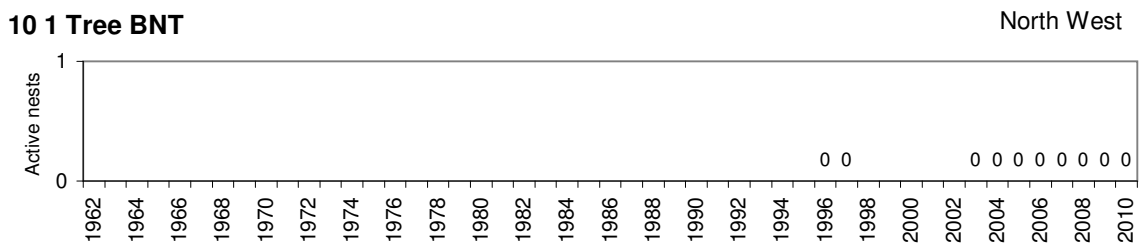
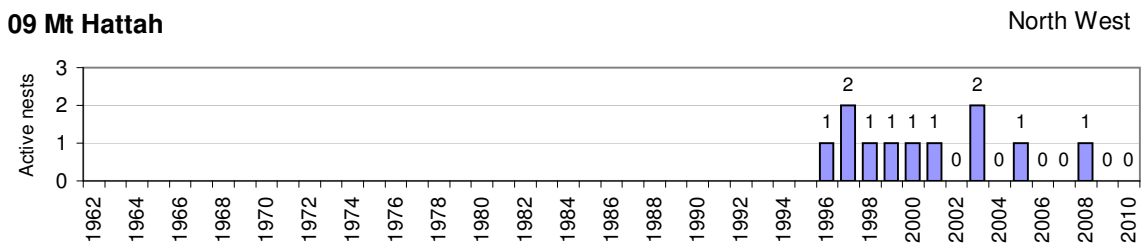
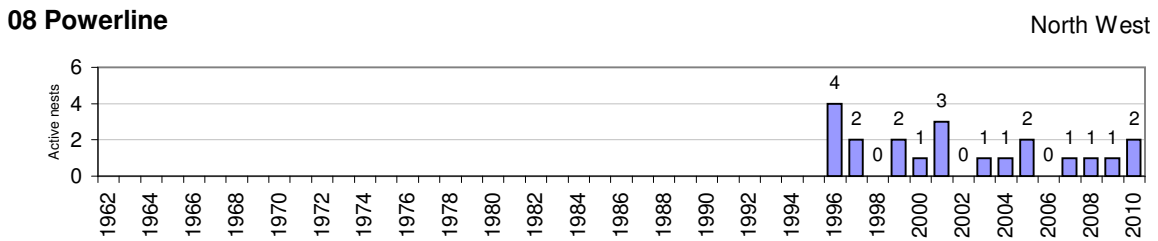
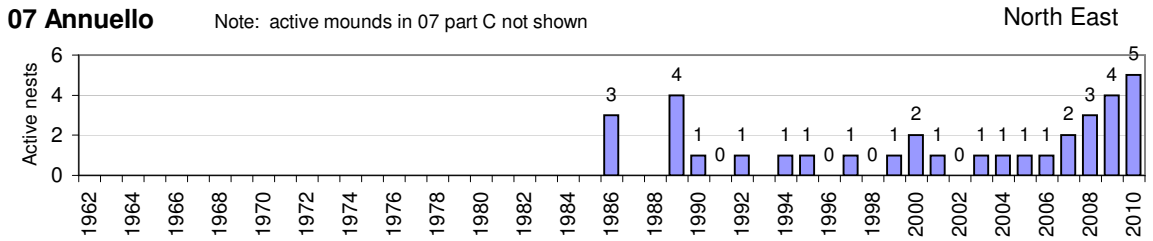


05 Coligan

North West

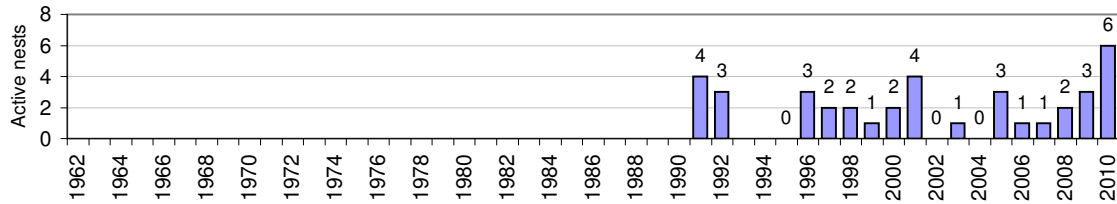


Season



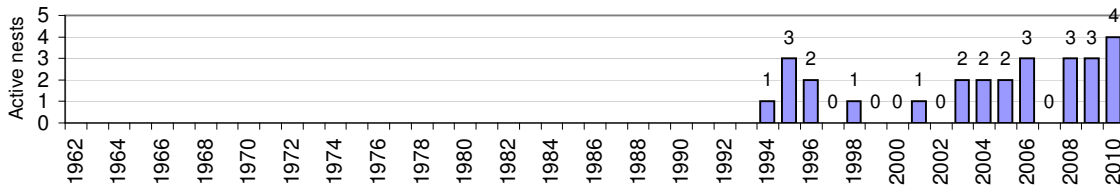
12 Pheeneys

North West



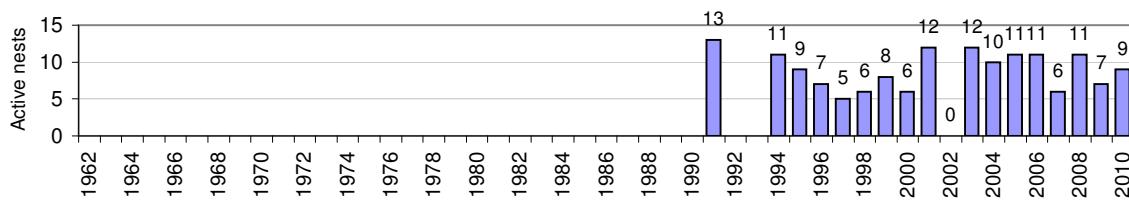
13 Bambill

North West



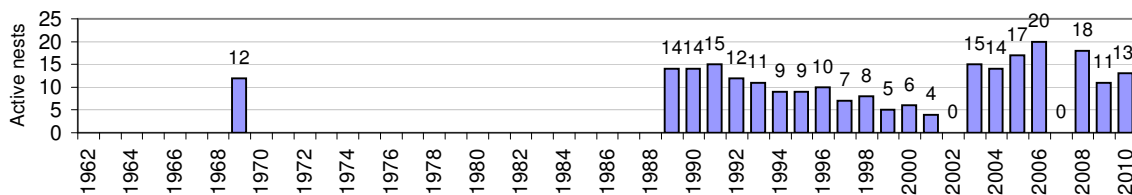
14 Menzies

North East



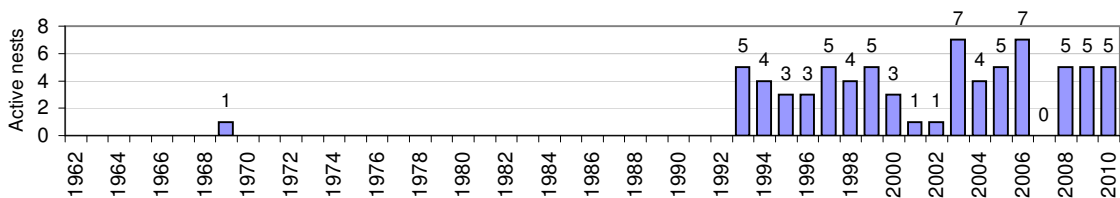
15 Wandown Part A

North East



15 Wandown Part B

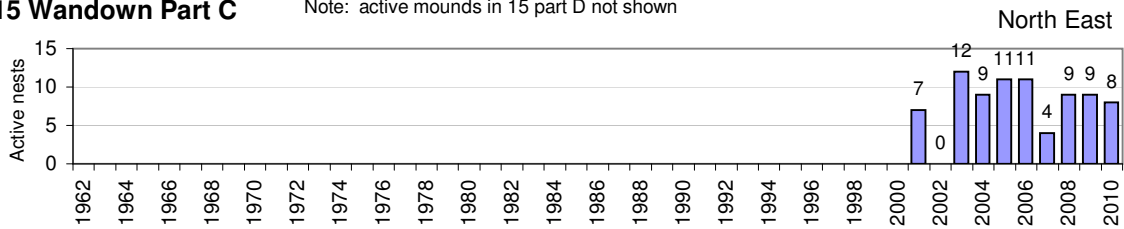
North East



Season

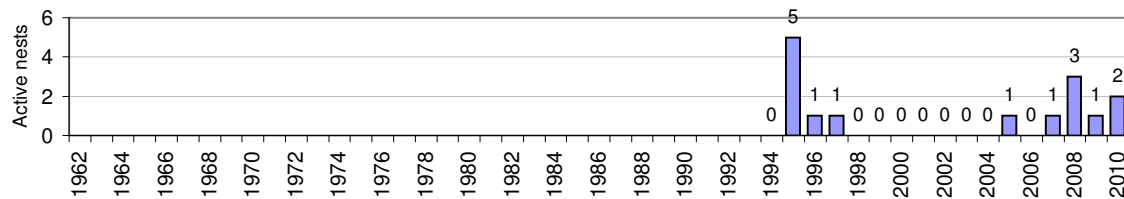
15 Wandown Part C

Note: active mounds in 15 part D not shown



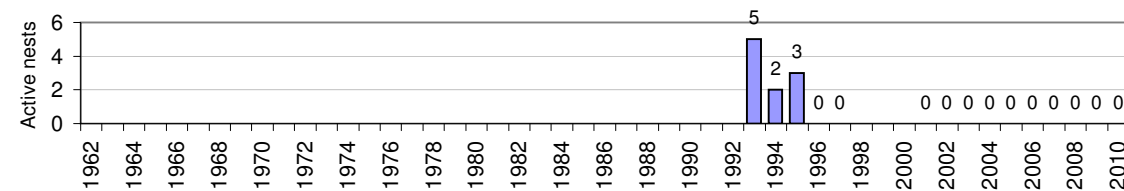
16 South Bore

North West



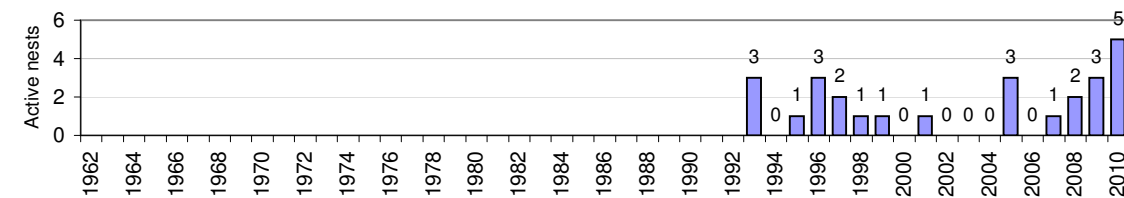
17 One Tree Plain

North West



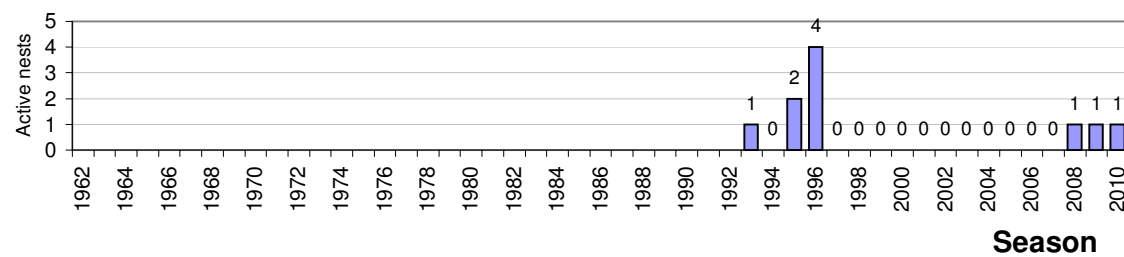
18 Washing Machine

North West



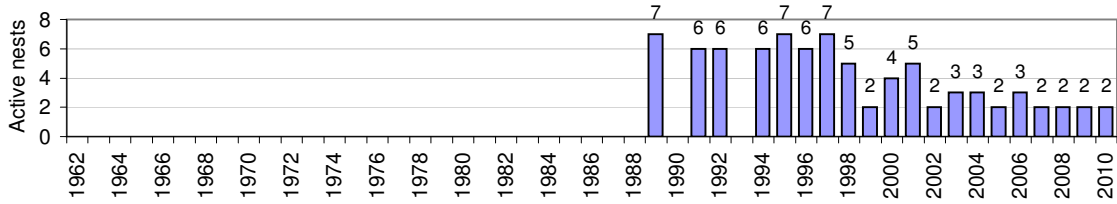
19 Cowangie/Underbool

North West



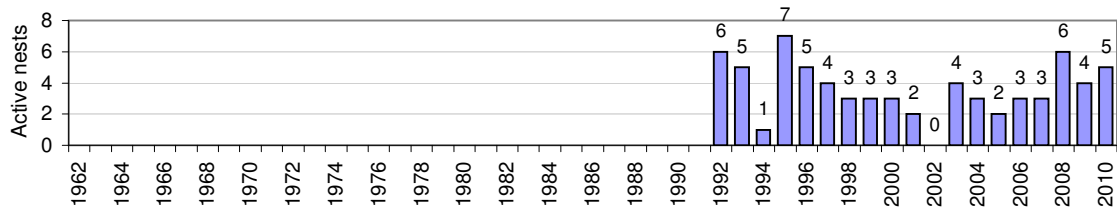
20 Lowan

Eastern Big Desert



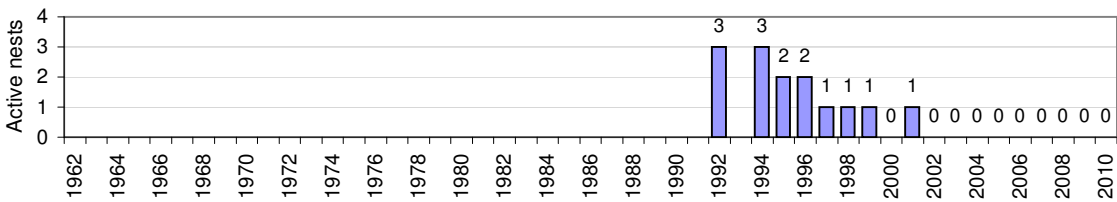
21 Dumosa

North West



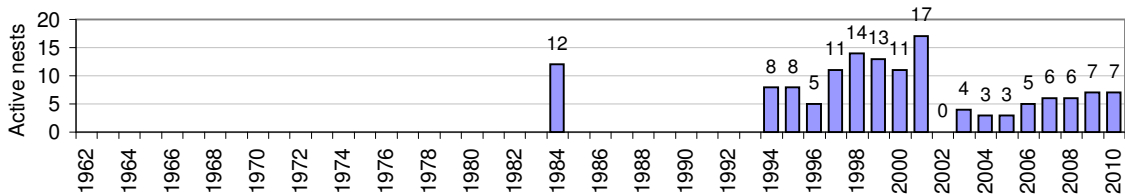
22 Denning

North West



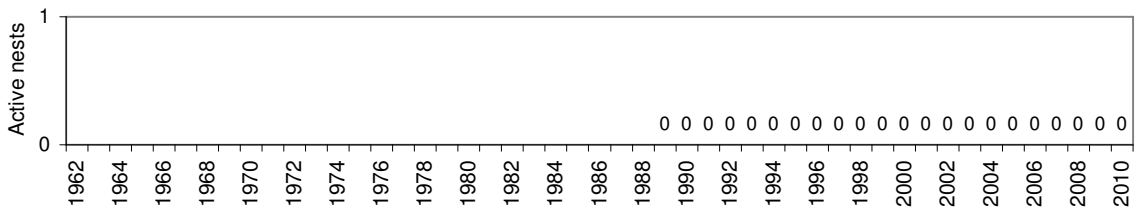
23 Moonah

Eastern Big Desert



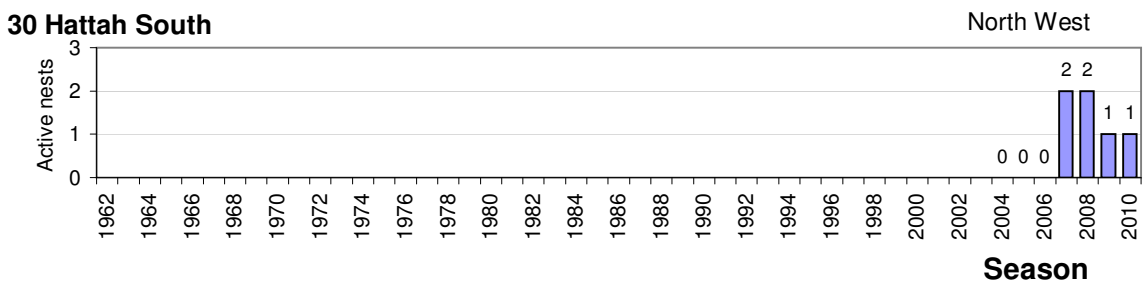
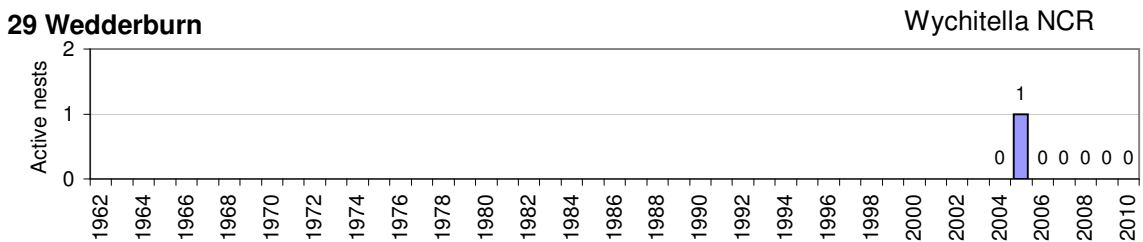
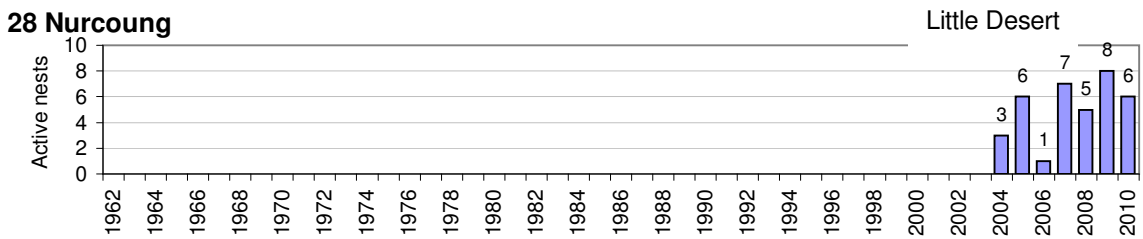
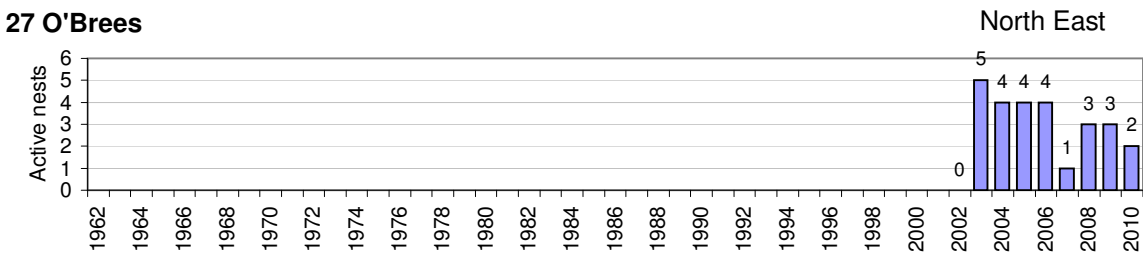
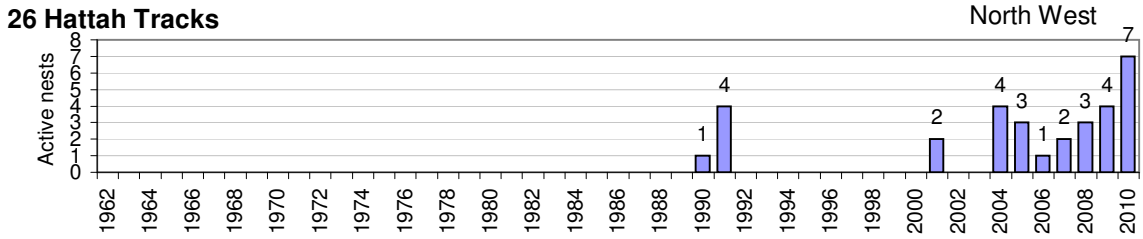
24 Kiata

North East



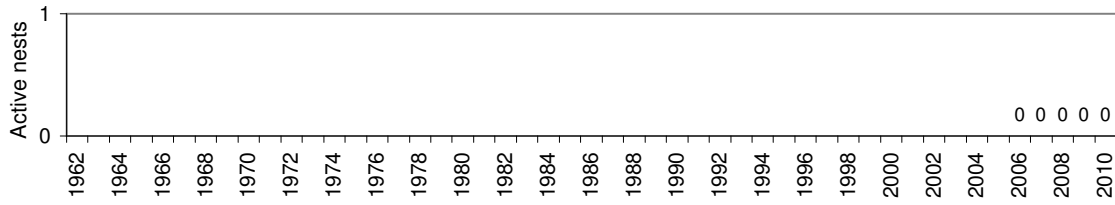
v25 does not exist

Season



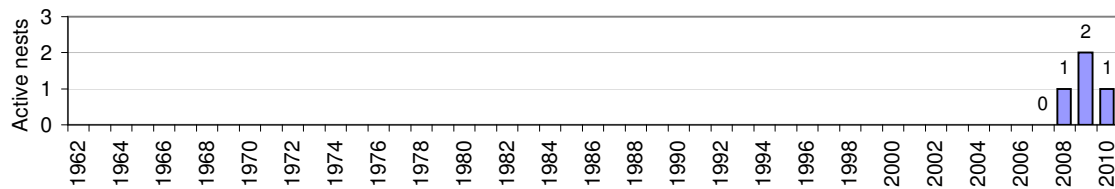
31 Skinners Flat

Wychitella NCR



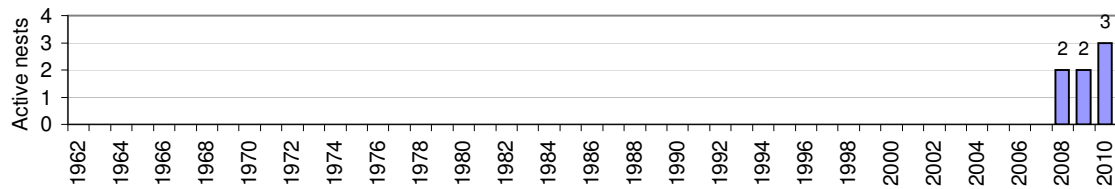
32 Wychitella

Wychitella NCR



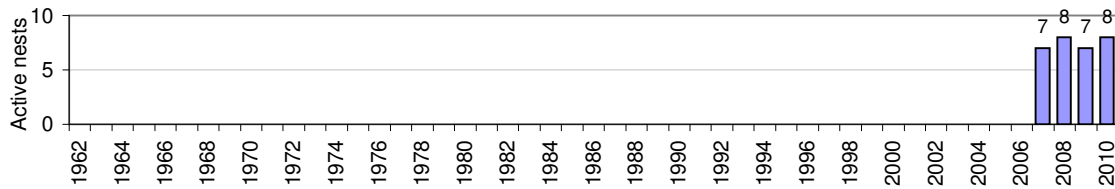
33 Korong Vale

Wychitella NCR



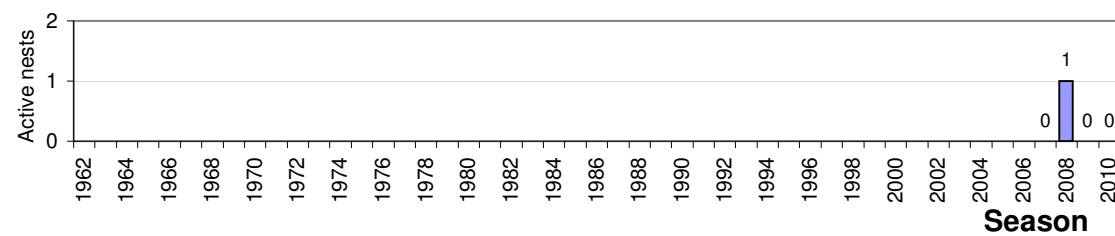
34 Paradise

Eastern Big Desert



35 Broken Bucket

Western Big Desert



Season

Appendix B Site Trends

36 Boughtons WH

Little Desert

