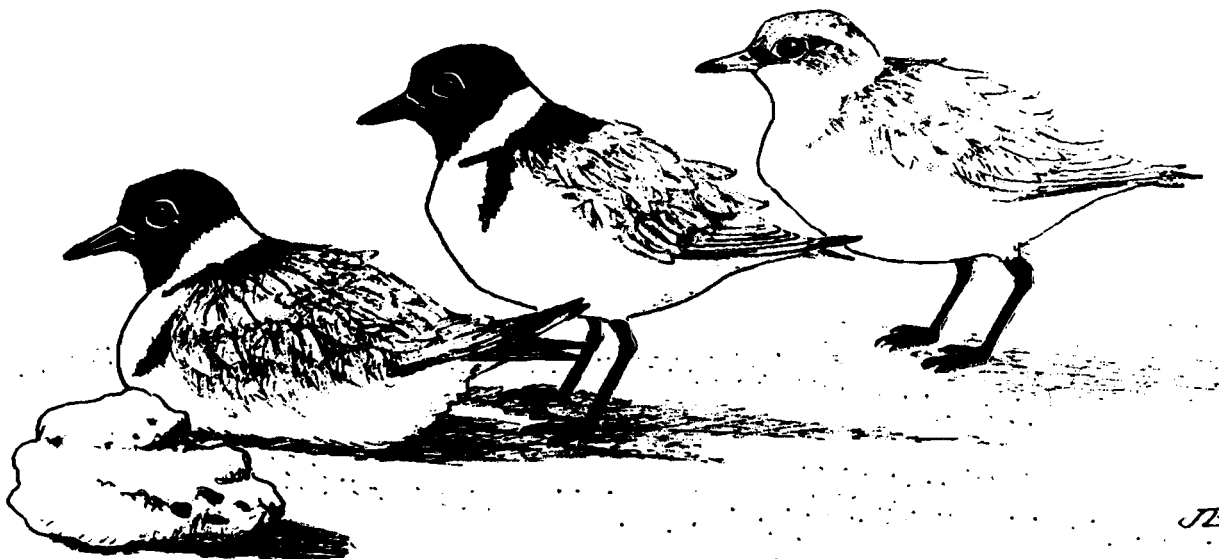


REPORT ON HOODED PLOVER PROJECT

June 1994 to March 1996 RAOU (WA Group)

B J Newbey



Funded by
GORDON REID FOUNDATION

Produced by
RAOU (WA GROUP)

Supplement to *Western Australian Bird Notes* No. 79, September 1996

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Thanks are due to the following people, both members and non-members, for their support of the project by assisting with surveys. We apologise to anyone who has been inadvertently omitted.

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Dr Mike Bamford and Michael Weston assisted with the design of the project. Advice on preparation of the report was given by Dr Allan Burbidge and John Blyth. The location maps were prepared by Dr Allan Burbidge.

Judy Blyth supplied the Hooded Plover drawings, and Pam Agar the sketch of Hooded Plover habitat.

Production was guided and executed by Pleasant Print Perth.

The project was steered throughout by the Hooded Plover Project Sub-committee whose members gave freely of time and expertise to organise the surveys, funding, publicity and handling of data sheets. Phyllis Bentley was the Chairman; Allan Jones, Max Bailey and Brenda Newbey were committee members.

The RAOU (WA Group) supplied some funding and office support. The majority of funding was a \$5 000 grant from the Gordon Reid Foundation. (Brenda Newbey was employed to design the expanded form of the project, to collate the data and prepare the report.)

GORDON REID FOUNDATION FOR CONSERVATION

The Gordon Reid Foundation for Conservation was established in 1990 by the Lotteries Commission. The basic function of the Foundation is to stimulate and sustain community action to conserve indigenous plants, animals and micro-organisms, and their natural environments, in Western Australia.

FOREWORD

Hooded Plovers are endemic to southern Australia and to our shame we, in Western Australia, have carried out little serious study into their ecology. Even now the information gleaned from the Hooded Plover Project has posed more questions than it answers. We know far more about waders which nest in Siberia than we do about this species which lives its whole life within our shores.

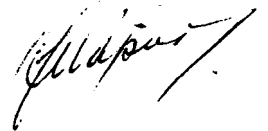
The Project and Report are exceptional in many ways, not least in that the skills, endeavours and generosity of over 160 volunteers were utilized. They drove huge distances either in blistering summer heat or bleak August weather, often camping out in atrocious conditions. We talk glibly in Australia of a 'concentrated search effort from Geraldton to Cape Arid-1750 km,' which is the equivalent of London to Russia across five countries. We casually talk of the South West land division of WA. It is roughly the size of the United Kingdom.

The dedicated band of volunteers came from many areas of WA with great contributions from country people, particularly the Esperance group. The small committee of Phyllis Bentley, Allan Jones, Max Bailey with coordinator Brenda Newbey organized this large group with great skill and while not reducing their enthusiasm encouraged them to herculean feats. Our sincere thanks and congratulations on a job well done.

Despite the strong voluntary input and the use of the RAOU infrastructure, such projects require funding and for this we are most grateful to the Gordon Reid Foundation.

The Hooded Plover Project has not solved all the mysteries surrounding the species but an indisputable fact has emerged. Lake Gore has been shown to be by far the major summer habitat of the species and it is only rarely that ONE area can be pin-pointed as being so vital to a world population.

The immediate protection of Lake Gore is shown to be of paramount importance to the Hooded Plover and this among many other factors highlights the value of the Project.



C. J. Napier

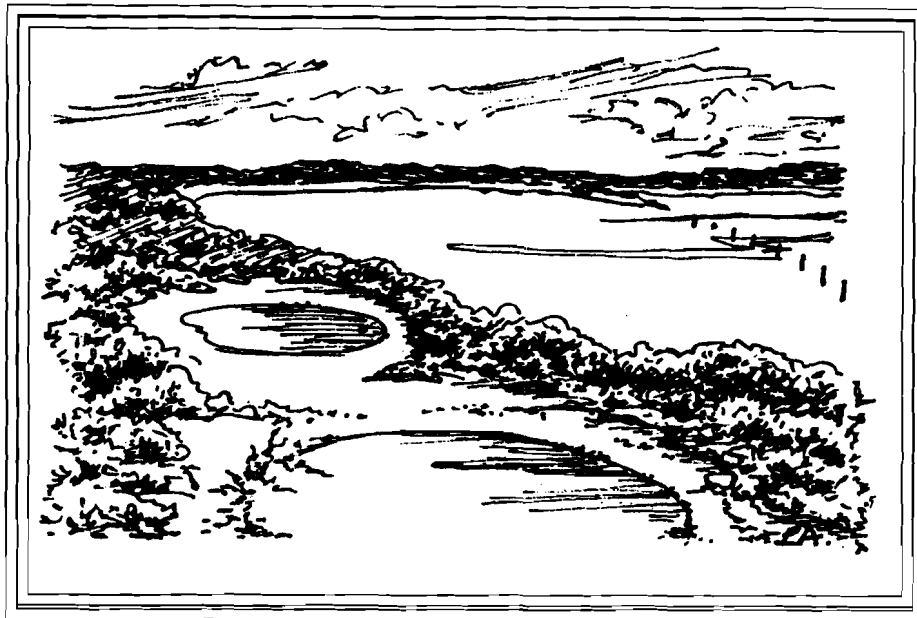
Chairman RAOU (WA Group)



Searching for Hooded Plover at Lake Gore, RAOU (WA Group) campout January 1996. Photo: Judy Blyth

HIGHLIGHTS OF THE HOODED PLOVER PROJECT

- ◆ *The two highest counts on record*
- ◆ *Several flocks inland much larger than previously recorded away from the coast*
- ◆ *Birds found inland in summer*
- ◆ *Birds found on dry lakes*
- ◆ *Twentyfour breeding records at 18 locations, seven of them new*
- ◆ *For the first time in WA, enough data to make some form of seasonal and annual comparison*
- ◆ *Four additional areas with flocks of 50 or more—the cut-off number for areas of international importance (Watkins 1993)*
- ◆ *Hooded Plovers are much more likely to be found in flocks in summer than in winter and early spring*
- ◆ *Lake Gore was found to be the single most important wetland yet known for numbers of Hooded Plover throughout their entire range*



Claypans beside a large salt lake—a typical Hooded Plover breeding site. Pam Agar

HOODED PLOVER PROJECT (RAOU WA GROUP)

The Hooded Plover (*Thinornis rubricollis*), a small endemic wader of southern Australia, is classed as rare (Garnett, 1992). The Hooded Plover Project specifically focussed attention on this species for the first time in Western Australia.

It had been recognized that the Hooded Plover was insufficiently studied in Western Australia though there were some particularly interesting records. These included the three largest flocks ever recorded, all at lakes near Esperance (Watkins 1993). Also, WA is the only State in which the Hooded Plover had been recorded hundreds of kilometres from the coast on inland salt lakes (Blakers *et al.* 1984). A few inland breeding records indicated that in WA at least some of the Hooded Plover population was behaving very differently from those in the eastern states (Schulz and Bamford 1987).

The Project was initially planned to last for only one year from 1 June 1994 and to depend on opportunistic records except for a concentrated effort in January 1995. It was to contribute to the National Hooded Plover Count, which is coordinated by Michael Weston for the Australian Wader Studies Group, and also to provide additional data on this species which was clearly under-studied in Western Australia (Schulz and Bamford 1987).

In February 1995, Michael Weston, with help from local RAOU members, banded 100 Hooded Plovers at Lake Gore as part of a University of Melbourne project.

The January 1995 survey proved so interesting and the volunteer response was so enthusiastic that it was decided to expand and lengthen the survey.

METHOD

A sub-committee was appointed to organize the project. A record form was designed and publicity for the project arranged.

January 1995. Local coordinators were appointed to organize the search in their area. The search was on the coast from Carnarvon to Eyre including lakes and inlets to 20 km from the coastline. The major concentration of effort was from Geraldton to Cape Arid, a distance of approximately 1750 km. The RAOU made an excursion to Esperance to assist with the count there. Additionally there was coverage of some inland sites at which Hooded Plovers had been

recorded occasionally in the past.

August/September 1995. This search was designed to cover the coastal area especially from Perth to Cape Arid. As well, five inland areas were searched: Northern Goldfields, Northern Agricultural and Pastoral, Southern Agricultural, Eastern Agricultural and Southern Goldfields, and Esperance Shire. Specific areas were selected with reference to historic records.

January/February 1996. This was a repeat of the August/September program.

Because searching was never really intense due to distances, inaccessibility of much suitable habitat and daunting numbers of salt lakes, it was not possible to count all sites in a brief time span. Maximum records from each location surveyed within the specified time periods were added together so that comparisons can be made (Table 1).

One area not covered at all in this survey and the twelfth of twenty areas of international importance for Hooded Plover (Watkins 1993) is the beach between Israelite Bay and Wattle Camp. There are extensive salt lakes behind this beach which have never been specifically surveyed for Hooded Plover though the late Jack Ewart had seen some there and thought it would be a useful area to survey (K. Dawson, pers. comm.).

Background information (Birds from SE Australia)

Hooded Plover eggs take 28 days to hatch; chicks fledge after a further three to five weeks; juvenile plumage lasts for about four months, then is replaced by immature plumage which is very similar to adult plumage (Marchant and Higgins 1993). It was assumed for this survey that juvenile birds could be discerned but not immatures.

RESULTS

The results are tabulated in Appendix 1 and in part summarised in Tables 1 and 2. Figures 1 and 2 show coverage and positive sites—overall (Figure 1), and in August/September 1995 and January/February 1996 (Figure 2). Figure 3 shows the distribution of breeding sites recorded during the Hooded Plover Project.

Table 1. Total numbers of Hooded Plovers for the specific time periods

REGION	JAN 1995	AUG/SEP 1995	JAN/FEB 1996
Inland	25 + 4	85 + 18	227 + 5
West Coast	22 + 10	7 + 0	61 + 21
South Coast	2012 + 20	45 + 14	1265 + 107
Total (Adults, Juv.)	2059 + 34	137 + 32	1553 + 133
Total (Adults + Juv.)	2093	169	1686
% from Esperance Shire	95	47	80
No. of positive locations	30	43	43

None of the 100 banded birds was sighted.

Figure 1. Areas that were visited during the Hooded Plover Project. Solid symbols represent positive sites and open symbols represent negative sites. The positive sites were all south of the Greenough River mouth and west of Sandy Bight in the Cape Arid National Park. Hooded Plovers need only to have been recorded on only one of several visits to a site (see Appendix 1) for it to be recorded here as positive.

Figure 1. All Areas Visited and All Positive Sites

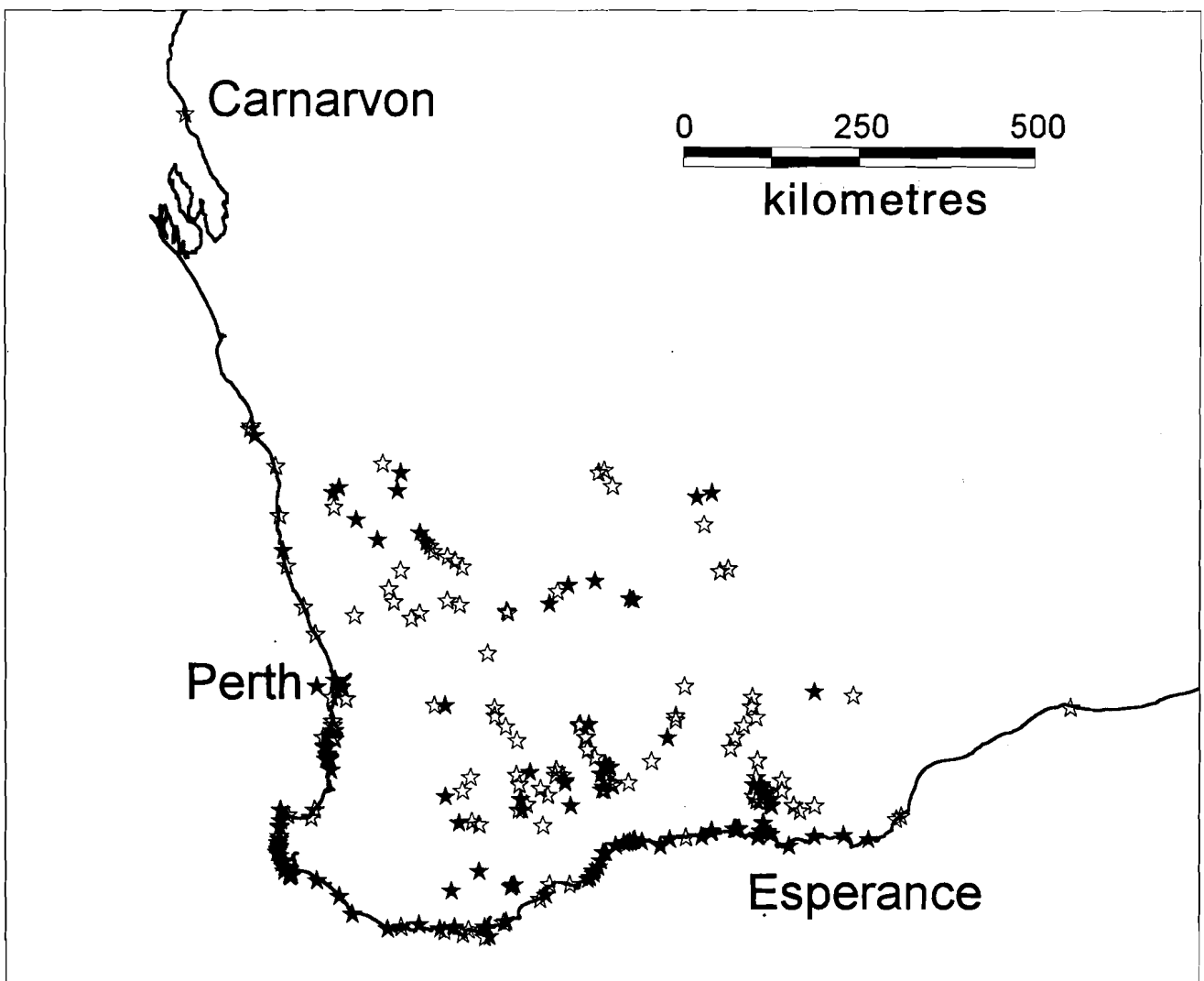
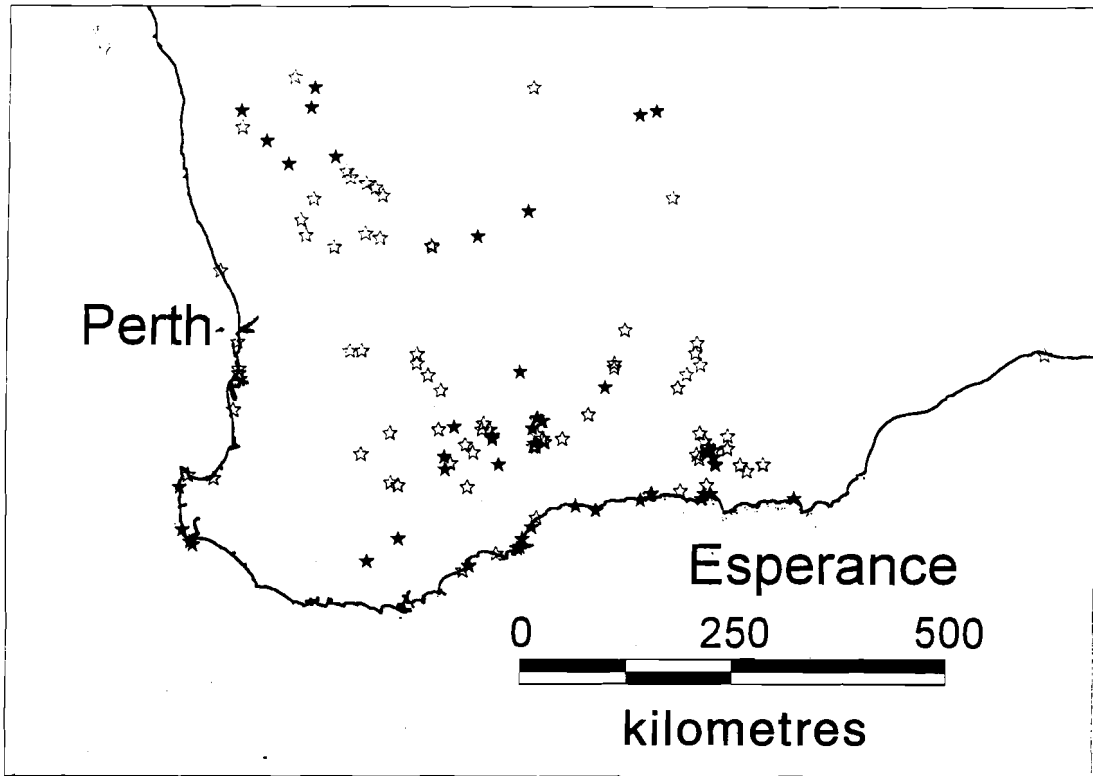


Figure 2. Comparison between the August/September 1995 and the January/February 1996 counts. Coverage was similar but birds were much more difficult to find inland in the summer. Closed symbols are positive records; open symbols are negative records.

Figure 2.

(a) August/September 1995 Records



(b) January/February 1996 Records

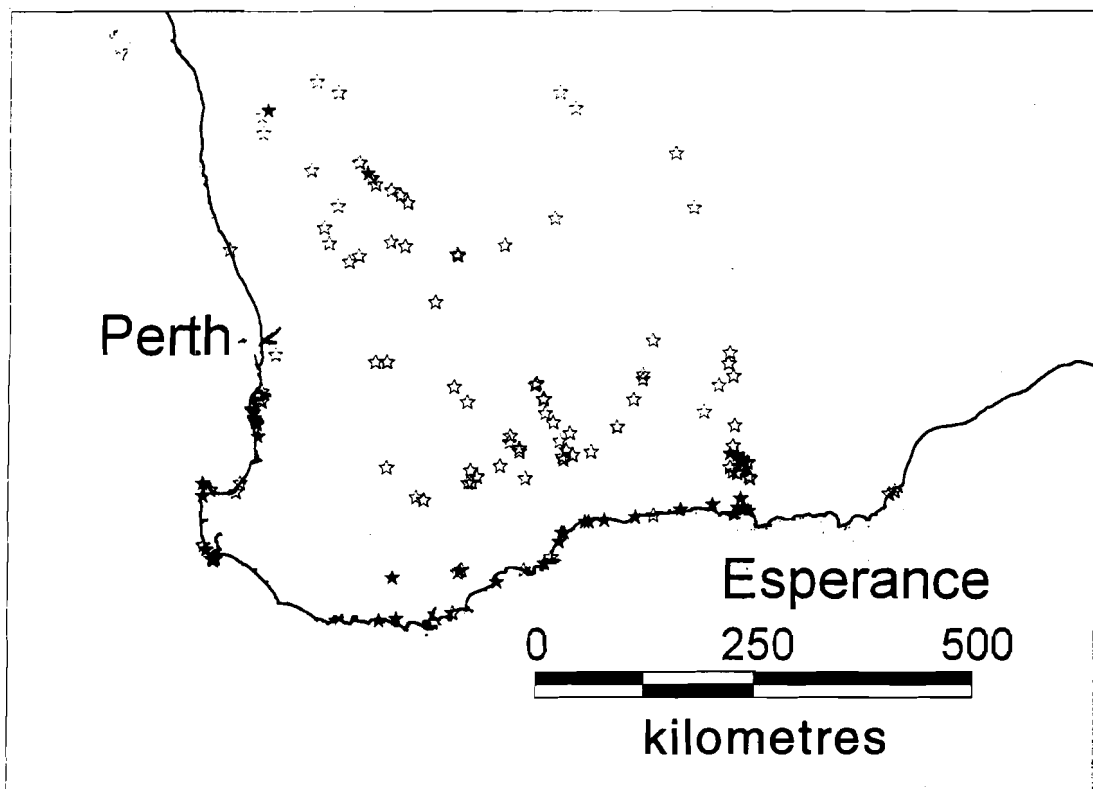


Table 2. Breeding Summary Including Historic Records

The historic records date from 1901 to 31 May 1994. These records are summarised in *Western Australian Bird Notes* March 1996. The breeding records in that report however are not differentiated into eggs and runners, and the time is by month rather than season. Another historic record, from Yeelirrie, has come to light since then and is included.

- E = eggs, Hooded Plover Project
- e = eggs, historic records prior to Project
- R = runners, Hooded Plover Project
- r = runners, historic records prior to Project
- b = breeding. Information unavailable as to eggs or runners

The table is ordered as for Appendix 1, with inland sites from north to south and from west to east, and coastal sites from north to south and from west to east.

Shire and other abbreviations as for Appendix 1. Additionally CRA = Cranbrook ; LEO = Leonora.

(a) INLAND

LOCATION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Yeelirrie LEO				e								
Lake Deborah YIL				E			r					
'Koobabbie' COO			e						e			
Gunyidi Rd, Wubin DAL							e					
Emu Rock KON									R			
Norseman district DUN								er	e			
Lake Ace LAK								E				
Beenong, Milton Rd LAK						Ee						
Lake Grace North LAK										e		
Cairlocup NR KEN									e			
Dempster Rd ESP									R			
Lake Halbert ESP							r					
Salt Lake NR 25812 CRA										e		
Breeding recorded	0	0	X	X	0	X	X	X	X	X	0	0

(b) WEST COAST

LOCATION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Yalgorup NP Martins Tank	R		R									
Yalgorup NP Preston Lake			r									
Cape Naturaliste									e			
Yallingup Smith Beach										e		
Ellensbrook										e		r
Cape Mentelle												E
Cape Freycinet								r				
LNNP Foul Bay		R										R
LNNP N of Skippy Rock										E		R
Breeding recorded	X	X	X	0	0	0	0	X	X	X	0	X

c) SOUTH COAST

LOCATION	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Broke Inlet										e		
Mandalay Beach										E	E	
Gull Rock Beach, Albany									e			
Nanarup, Taylor Inlet								e	e			
Normans Beach								e			e	
Wellstead Estuary, Bremer Bay	EeR							E	E	Rr		
FRNP Gordon Inlet												R
FRNP Trigelow Beach		R										
FRNP Fitzgerald Inlet	R											R
FRNP Quoin Head											e	
FRNP Hamersley Inlet		R										
FRNP West Beach	R											
Hopetoun										b		R
Lake Gore				r								
Lake Benjebenjenup	E						b					
Mullet Lake NR Station Lake	r		r	r						r	e	
Breeding recorded	X	X	X	X	0	0	X	X	X	X	X	X

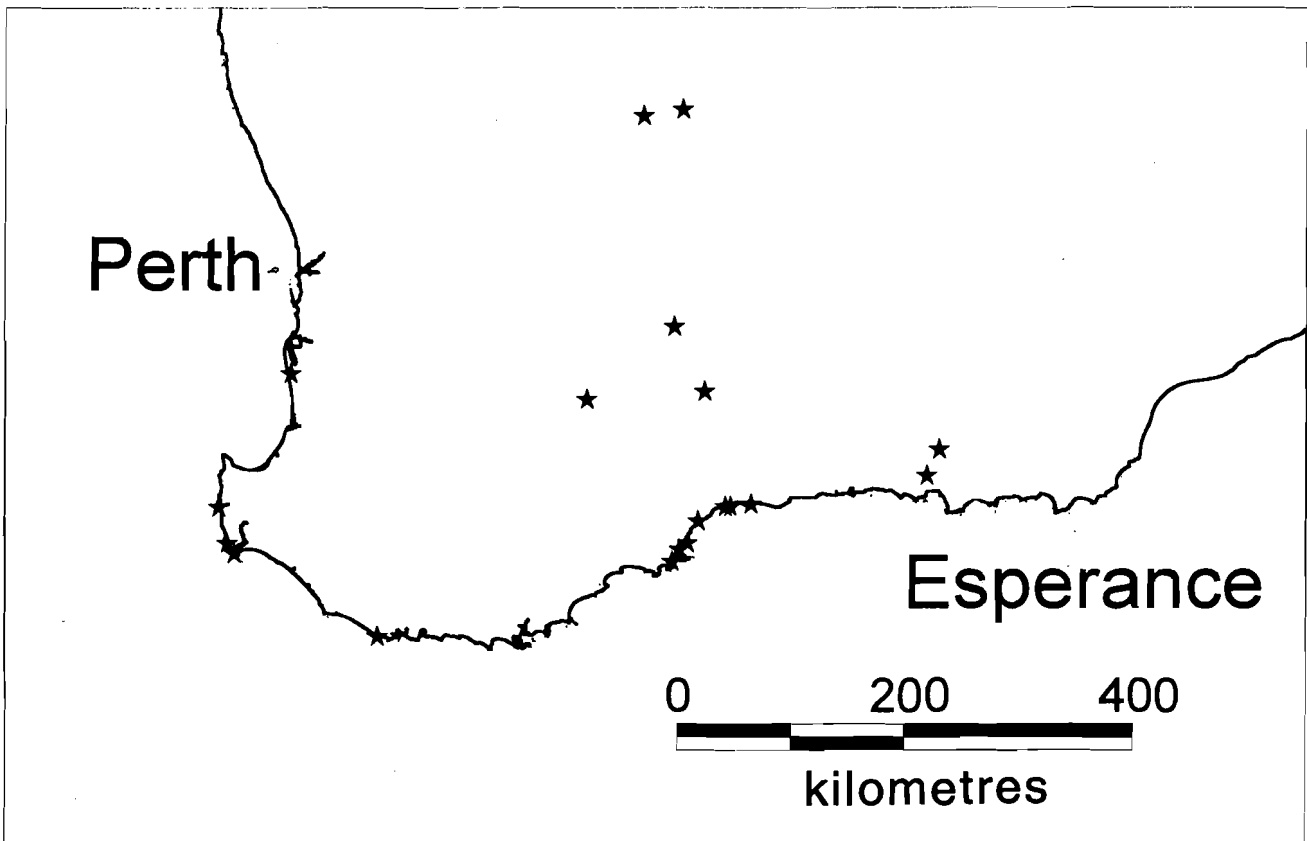
It should be noted that the table makes use of all the available records. These total less than seventy. Some records however were of more than one brood.

Inland breeding has been recorded from March to October though with eggs in October, breeding is likely to continue into November. Only at some locations north of 31 degrees S were eggs recorded in autumn, and in two locations south of 33 degrees S eggs were recorded in October.

On the west coast breeding appears to occur from July (runner in August) to March with a predominance of egg-laying in spring.

On the south coast breeding has been recorded from July to April with most egg-laying in spring and early summer.

Figure 3. All Breeding Locations Recorded During the Hooded Plover Project



DISCUSSION

NUMBERS AND DISTRIBUTION

JANUARY 1995

Most surprising was the count from Lake Gore of 1570 Hooded Plover, far exceeding the previous largest flock (539, April 1988, Lake Warden).

The current estimate for the total Hooded Plover population is 5000 (Garnett 1992). Given the gaps in coverage of this survey, the January 1995 total of 2093 indicates that the WA population may be larger than previously estimated from very incomplete data. The January 1995 count was the most compact in time, with most counting taking place on the long weekend associated with Australia Day.

Eighteen inland sites were checked; four proved positive. Two were sightings of single adult birds, and two were small flocks including juveniles (14% of inland total). On the west coast little evidence was seen of flocking but juvenile birds made a high 31% of the total. Several flocks were seen on the south coast and only 1% were recorded as juvenile though this is probably less than the actual number (K. Dawson pers. comm.).

AUGUST/SEPTEMBER 1995

By comparison with the summer searches, very few birds were found in this period.

The west coast was poorly covered at this time but there was sufficient coverage of the south coast to show a very dramatic decline in the number of Hooded Plovers present. Of the 169 found, 103 (61%) were inland. This is in marked contrast to the January/February 1996 situation where much the same ground was covered, when of 1686 birds found, 232 (14%) were inland.

Most of the August/September 1995 records were of small numbers of birds, the highest number being 30 at Pink Lake, Esperance. Although the number of positive locations both then and in January/February 1996 was the same (43), the August/September count represented only 10% of that summer total.

Juvenile birds represented 19% of the August/September total with none (of only seven) on the west coast.

It is clear that there was a failure to find the bulk of the population in the August/September period though searches and positive locations were over a wide area (Figure 2a).

The answer could lie in the tendency of Hooded Plovers to be in solitary pairs and family groups at this time combined with the huge number of salt lakes and vast size of salt lake systems in southern Western Australia.

JANUARY/FEBRUARY 1996

Many of the inland lakes were dry. However the search in the Northern Agricultural and pastoral area yielded three adult birds at two locations 30 and 60 km from positive winter locations. The goldfields survey was undertaken a bit late: most lakes were dry and no water could be found near the sites that had been positive in winter. It was a dry season in the southern agricultural area so many lakes there were also dry by January. Hooded Plovers were observed at a lake

which was nearly dry on 25 January. A return visit to that site on 28 January yielded 58 adults and two juveniles although by then there was no surface water. Subsequently a search was made on another dry lake further north in Ridley Road. Here a group of 24 was found. In each of the lakes there were occasional gaps in the crusted salt.

In the Plantagenet Shire, much larger flocks than had ever been recorded in that area were found in two sites.

Few juvenile birds were found—only 2% of the inland total.

On the west coast coverage was better than in the winter/spring survey and more birds were found than in the previous summer. Most were in the Yalgorup National Park. As in the previous summer there was a high proportion of juveniles (26%) and little evidence of flocking.

Most south coast birds were in the Esperance Shire as in summer 1995 with 8% of juvenile birds being more accurate than the 1% estimated in 1995. There was much evidence of flocking.

OPPORTUNISTIC RECORDS

The opportunistic records were consistent with the trends indicated in the specific time periods.

INFLUENCE OF RAINFALL

Figure 3 shows the decile range distribution of annual rainfall in 1994 and 1995. The Esperance area for example was overall in the deciles 1 to 3 (low) in 1994, and 4 to 9 (average to well above) in 1995. It is likely that the widespread low annual rainfall in 1994 contributed to the higher number of birds found on south coastal lakes and inlets in January 1995. There would have been few inland lakes with water at that time.

BREEDING

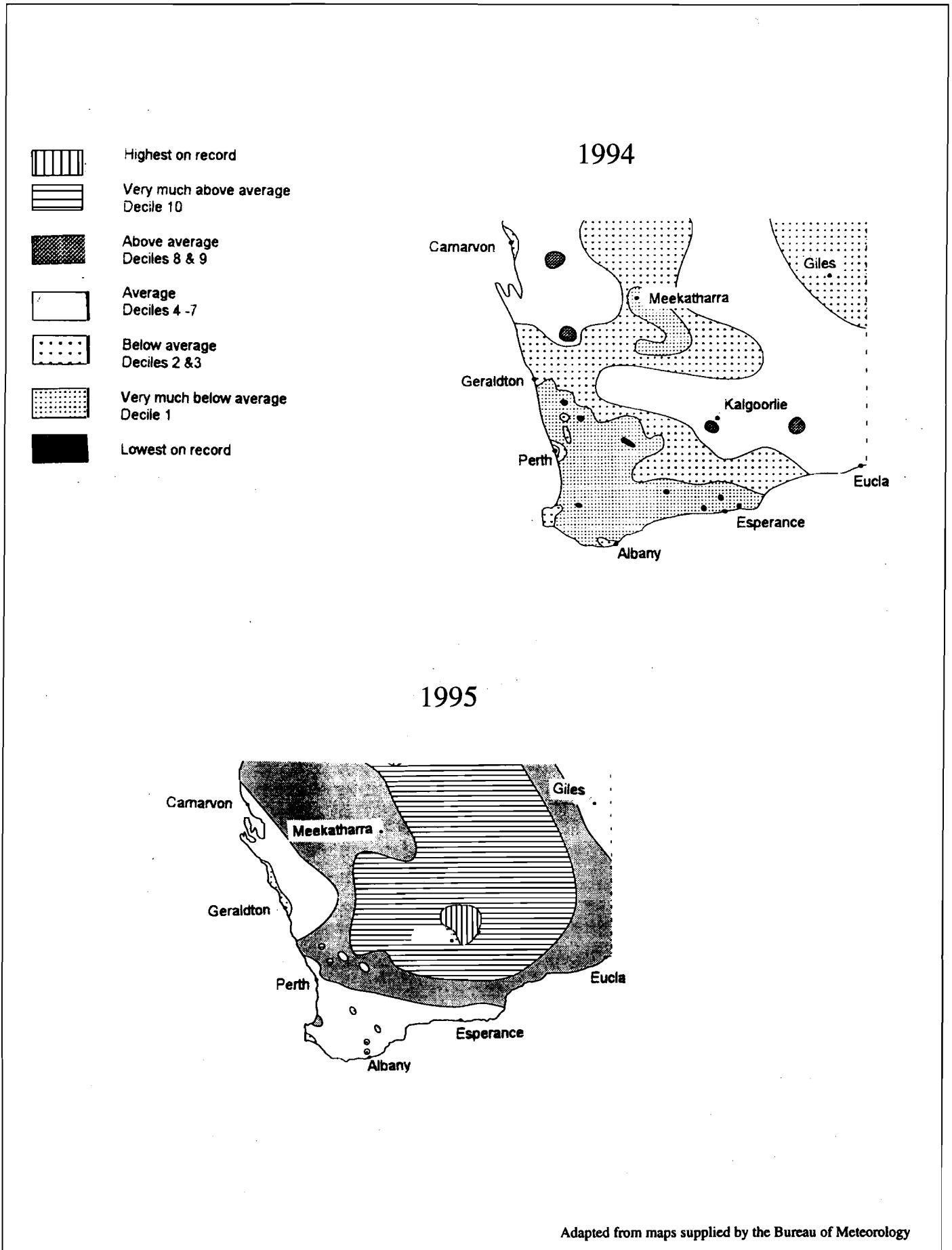
The Project's breeding records were widespread geographically (Figure 3) and seasonally (Table 2, Appendix 1). It appears likely that many birds leave coastal areas in autumn, scatter in pairs to inland salt lakes where they breed from autumn towards the north of their range, to spring. Breeding is also occurring in spring and summer in coastal areas. It is not yet known if the same birds are nesting both inland and coastally.

CONSERVATION

The record forms asked for information that would help identify threats to Hooded Plover in the sites at which they were located. This information is not analysed in this report. However, three facts are very clear:

- ◆ *Hooded Plovers breed coastally during the summer when most intense use of the beaches by people is occurring*
- ◆ *Esperance Shire is the major international centre for the Hooded Plover*
- ◆ *Lake Gore is a most important summer feeding ground for the Hooded Plover.*

Figure 4. Decile Range Distribution of Rainfall, Annual 1994 and 1995



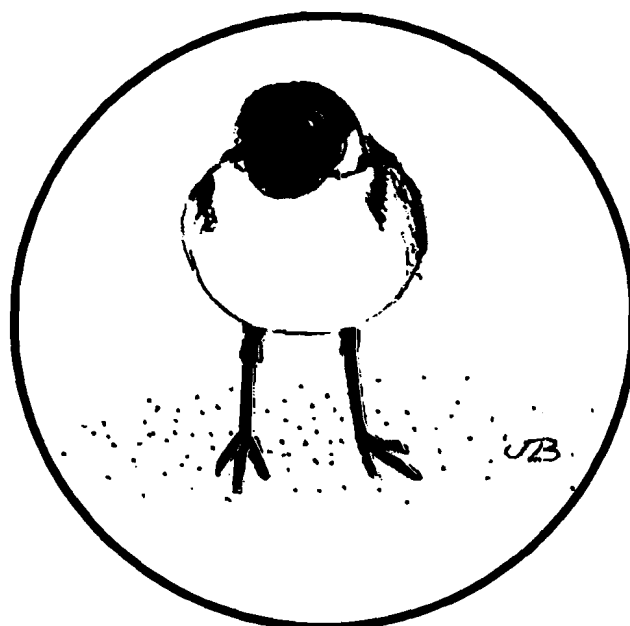
Many Questions Remain

For example:

- ❖ What are the lengths of time for the life stages of WA Hooded Plovers?
- ❖ What makes Lake Gore so attractive to Hooded Plovers?
- ❖ Where do Hooded Plovers go in winter—is there a favoured location not yet discovered?
- ❖ Do the same Hooded Plovers that breed inland also breed coastally?

Recommendations

- ◆ Lake Gore should be managed for the benefit of Hooded Plovers and other waterbirds. This is a high priority action.
- ◆ An assessment should be made of conservation risks to Hooded Plovers at other sites of particular importance and solutions developed for management problems which may exist.
- ◆ Monitoring of particularly important sites such as Lake Gore, Lake Warden and Station Lake should be carried out monthly (when possible) for two years, then reviewed.
- ◆ An assessment should be made of the status of the Hooded Plover in WA, based mainly on the present survey.
- ◆ An assessment should be made of the biology and requirements of the Hooded Plover in WA. This would require additional research including banding.



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APPENDIX 1

RESULTS OF HOODED PLOVER PROJECT, RAOU (WA GROUP)

1 JUNE 1994 TO 31 MARCH 1996

Below are results site by site of the Hooded Plover Project conducted by the RAOU (WA Group).

A special effort was made in January 1995, August/ September 1995 and January/ February 1996 to survey a wide area and these are each listed in separate columns so that a comparison may be made. Other sightings recorded during the time span of the project are listed chronologically as 'opportunistic'.

If a search site is known to be in a National Park or Nature Reserve this is stated.

The search sites are divided into two groups: INLAND and COASTAL. INLAND refers to areas further than 20 km from the coast.

INLAND records are listed by shire from north to south and from west to east, and alphabetically within shires. The shire names are abbreviated as follows: BEV = Beverley; BRO = Brookton; CAR = Carnamah; COO = Coorow; COOL = Coolgardie; COR = Corrigin; DAL = Dalwallinu; DOW = Dowerin; DUN = Dundas; ESP = Esperance; GIN = Gingin; GOO = Goomalling; KAL = City of Kalgoorlie-Boulder; KAT = Katanning; KEL = Kellerberrin; KEN = Kent; KON = Kondinin; KOO = Koorda; LAK = Lake Grace; MEN = Menzies; NUN = Nungarin; PER = Perenjori; PLA = Plantagenet; RAV = Ravensthorpe; THR = Three Springs; WAG = Wagin; WYA = Wyalcatchem; YIL = Yilgarn.

COASTAL records are listed sequentially around the coast from north to east.

Other Abbreviations:

B = breeding; C = cape; e = eggs; FRNP = Fitzgerald River National Park; L = Lake; LNNP = Leeuwin-Naturaliste National Park; NP = National Park; NR = Nature Reserve; r = runner; R = river; SRNP = Stirling Range National Park; y = number not stated.

Usually only the highest record for each month is used unless there is a big change in numbers or there is a breeding record—then all records are included.

Breeding:

Indicated by B. It is used when a nest with eggs, or dependent (non-flying) chicks (runners) are observed. 2e indicates one nest with two eggs; 2e x2 indicates two nests with two eggs.

A record from August 1995 is presented with Hooded Plover information only whereas one from September 1995 is shown 9/ followed by Hooded Plover numbers. If there are identical records from August and September, it is presented as 8,9/. The same pattern applies to January and February 1996.

Example of opportunistic record

9/94 8B(3e) + 2 In September 1994 a sighting of eight adults and two juveniles. There was one nest containing three eggs.

LOCATION		JAN '95	AUG/ SEPT '95	JAN/FEB '96	OPPORTUNISTIC
INLAND					
Mongers Lake N	PER		9/ 2 + 2		
Mongers Lake	PER		2	0	
Weelhamby Lake	PER		0	0	
Baladjie Lake NR	MEN		0 + 1	2/ 0	
Lake Ballard	MEN		4 + 1		
Lake Barlee & claypans (50 km)			0	2/ 0	4/95 0
Mt Elvire	MEN				
Goongarrie Station claypan				2/ 0	
	MEN				
Perenjori-Three Springs Rd				1	
	THR				
Yarra Yarra Lake NR	CAR		3 + 1	0	
'Koobabbie'	COO		2		6/95 2
Damboring Lakes	DAL		0	0	
Lake de Courcy	DAL		0	0	

