

SURVEYS OF CAPE BARREN GEESE *Cereopsis novaehollandiae* IN WESTERN AUSTRALIA, 1987–1992

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Cape Barren Geese were counted on islands along the south coast of Western Australia between the summers of 1987–88 and 1991–92. Four surveys were conducted in summer and one in winter. They covered islands from the Recherche Archipelago westward to Eclipse Island. Geese were found on 50 islands, of which 48 were in the Recherche Archipelago. The largest number of geese was recorded during the most detailed survey, in February 1992, when 200 live and 19 dead birds were seen on 36 islands of the Recherche Group. Another 32 live geese were seen on the mainland near Esperance, making a total of 251 birds in February 1992. Three geese were seen in the 1989–90 summer west of the Recherche Archipelago, on West Island and Hauloff Rock. The winter survey (June 1990) revealed 150 birds on 19 islands of the Archipelago. Sixteen nests distributed over 12 of the islands contained an average of 4.0 eggs (s.e. 0.39, range 0–6). It is likely that higher numbers would be recorded if surveys were conducted during their breeding season (April–November), because some Cape Barren Geese disperse to the mainland after breeding on islands in the Recherche Archipelago.

INTRODUCTION

Cape Barren Geese *Cereopsis novaehollandiae* are found on islands and the adjacent mainland of southern Australia. They breed on small islands with low vegetation (Marchant and Higgins 1990). The population has been estimated at approximately 11 500 (Dorward 1977) and 17 000 birds (Blakers *et al.* 1984; Marchant and Higgins 1990), with most birds in Tasmania and South Australia.

Storr (1980) described the Western Australian population as the subspecies *grisea*. Blakers *et al.* (1984) and Storr (1987) indicated that its range is restricted to the Recherche Archipelago and the adjacent mainland, although it had a more extensive range in the past (Serventy and Whittell 1976). The subspecies is classed as vulnerable by ANZECC (1991) and referred to as the Recherche Cape Barren Goose.

A complete census of the Western Australian population has not been attempted, although counts have been made on several islands (e.g. Lane 1982). Dorward (1977) guessed there were 1 000 geese in the Recherche Archipelago. Storr (1987, p. 22) considered that Cape Barren Geese in Western Australia 'hardly number more than 1 000', but were more numerous in the past.

In February 1992 B. Haberley participated in a survey of seals and birds in the Recherche Archipelago (Fig. 1), and made a particular effort to count Cape Barren Geese (Haberley 1992). Another four surveys of islands conducted between the summers of 1987–88 and 1990–91 on the southern coast of Western Australia were directed primarily at seals (Gales *et al.* 1994; Shaughnessy *et al.* in prep.). Sightings of Cape Barren Geese recorded during all five surveys are presented here.

METHODS

Four surveys were conducted in the Recherche Archipelago in summer and one in winter (Table 1). Some islands were visited more than once. Two of the summer surveys also included islands west of the Archipelago, the most westerly of which was Eclipse Island. The operating procedure on each survey was to circumnavigate each island and to record the number of geese seen. Landings were made on some islands by dinghy or by swimming (as indicated in Table 2). During the winter survey (June 1990), ground searches were made for nests and eggs on 26 of the 27 islands inspected.

The wary nature of Cape Barren Geese and the low vegetation favoured by the birds made the task of recording them from a vessel straightforward. Most of the birds recorded walked and some flew up as the vessel or people approached. This should have led to complete counting on most of the islands. In addition to island visits, Cape Barren Geese were counted at a freshwater soak at Six Mile Hill, 10 km north of Esperance on 5 February 1992.

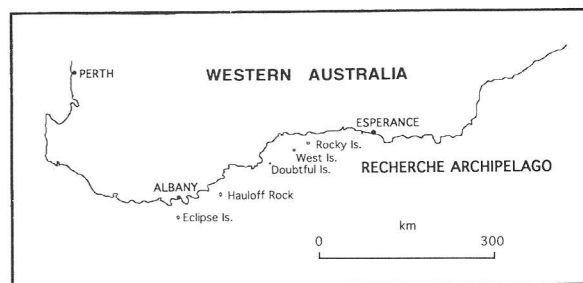


Figure 1. Location of islands and island groups.

We refer to islands beginning with those in the east and moving towards those in the west. Place names and geographical co-ordinates shown in Appendix 1 follow those on the series of topographic maps of 1:100 000 scale, or in *Australia 1:250 000 Map Series Gazetteer* published by the Division of National Mapping in 1975.

TABLE 1

Surveys for Cape Barren Geese on the south coast of Western Australia, 1987 to 1992.

Date	Vessel	No. of islands	Group	Counter ¹
23–31 Dec. 87, 6 Jan. 88	5 m cabin cruiser	1	Doubtful Is	PS
2–4 Jan. 88	14 m yacht	16	Western Recherche Archipelago	PS
31 Dec. 89– 2 Jan. 90	Rescue launch, inflatable dinghy	9	Doubtful Is– Eclipse Is	PS
4–19 Jan. 90	14 m yacht	79	Recherche Archipelago	PS
17–28 June 90	14 m yacht	27	Recherche Archipelago	BH
2–12 Feb. 91	14 m yacht	16	Recherche Archipelago	AC
6–26 Feb. 92	8 m motorised catamaran	56	Recherche Archipelago	BH

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TABLE 2

Numbers of Cape Barren Geese recorded in four summer surveys on the south coast of Western Australia. Islands are listed from east to west.

Island ¹	1988			1990			1991			1992		
	Date	Method ²	No. of geese	Date	Method ²	No. of geese	Date	Method ²	No. of geese	Date	Method ²	No. of geese ³
Spindle				9 Jan.	L	4						
Pointer				8 Jan.	B	2				25 Feb.	L	4
Anvil				8 Jan.	L	8	7 Feb.	L	4	25 Feb.	L	5
Daw				7 Jan.	L	1				25 Feb.	B	21
New Year				8 Jan.	L	16	6 Feb.	L	3	25 Feb.	L	3+1
Cranny				8 Jan.	L	1						
Ford				11 Jan.	L	2				25 Feb.	L	4
Round				11 Jan.	L	26				25 Feb.	L	14
Bellinger				6 Jan.	B	2	5 Feb.	L	7	25 Feb.	L	2
Pasley				6 Jan.	B	4	5 Feb.	L	12			
Wickham							5 Feb.	L	14	10 Feb.	L	4+2
Gulch										10 Feb.	B	2
Miles										10 Feb.	L	2
Barrier										10 Feb.	B	7
Arid										10 Feb.	L	0+1
Glennie				5 Jan.	B	4				10 Feb.	L	4+1
Westall				5 Jan.	L	8				10 Feb.	L	14+1
Taylor							5 Feb.	L	4	9 Feb.	L	2
Kermadec										10 Feb.	L	2
Unnamed, nw of												
Twin Peaks										9 Feb.	B	2
Slipper				13 Jan.	B	4						
Forrest										9 Feb.	B	4
Beaumont							10 Feb.	L	2			
Station										9 Feb.	L	7
Barely										9 Feb.	L	8+1
Draper							10 Feb.	L	1			
Kimberley										9 Feb.	L	11+1
Broughton										9 Feb.	L	1+1
Finger				4 Jan.	B	2						
Unnamed, se of												
Rossiter										9 Feb.	L	9
Hope				4 Jan.	B	2						
Ram										8 Feb.	B	2
Hastings				4 Jan.	B	4				8 Feb.	B	9
Cliff										8 Feb.	L	1+1
Free										9 Feb.	L	2
MacKenzie										6 Feb.	L	2
Hood	4 Jan.	L	8							6 Feb.	L	7+1
Lion										6 Feb.	L	2
Frederick										6 Feb.	L	10
Howe										6 Feb.	L	10+4
Termination				15 Jan.	L	7						
Corbett										6 Feb.	L	9
Boxer	2 Jan.	L	4									
Capps	3 Jan.	L	4							7 Feb.	L	3
Fur Rock	3 Jan.	L	2									
Fig. of Eight	3 Jan.	L	3	16 Jan.	L	3				7 Feb.	L	6+1
Red										7 Feb.	L	5+3
West				19 Jan.	B	2						
Hauloff				1 Jan.	L	1						
Islands (inspected/with geese)		16/5			88/20			16/8			56/36	
Geese			21			103			47			200 (+19)

¹Geographical positions are listed in Appendix 1. ²L indicates that a landing was made; B indicates the island was inspected solely from the vessel. ³Dead birds in italics.

RESULTS

During the four summer surveys, Cape Barren Geese were seen on 49 islands, all but two of which (West and Hauloff) are in the Recherche Archipelago (Table 2). The total number of birds recorded on each survey were (with the number of islands they occupied in brackets): 21 (5 islands), 103 (20), 47 (8) and 219 (36). The total for the Recherche Archipelago in February 1992 (200 live birds and 19 dead ones) exceeds previous censuses. In addition, another 32 live birds were seen ashore at Six Mile Hill immediately before the 1992 survey began, making a total of 251 birds.

During the winter survey (June 1990), a total of 150 geese was seen on 19 islands (Table 3), including one island where geese were not seen in the summer surveys (Six Mile Island). Nests were found on 12 islands; a total of 16 nests contained an average of 4.0 eggs (s.e. 0.39). No chicks were seen. Nests were composed of twigs and down and located on the ground at the base of bushes. The exception was a single nest in tussock grass on Station Island.

TABLE 3

Numbers of Cape Barren Geese recorded from ground searches in the Recherche Archipelago in June 1990. Islands are listed from east to west.

Island ¹	Date (June)	No. of geese	No. of nests	No. of eggs
Spindle	26	12	0	0
Anvil	26	6	4	3,4,5,6
Daw	25	27	1	5
New Year	25	3	0	0
Six Mile	24	4	0	0
Bellinger	23	7	1	2
Wickham	22	3	1	5
Barrier	21	3	1	5
Glennie	20	6	1	5
Westall	20	7	0	0
Taylor	21	7	2	3,5
Kermadec	23	1	1	5
Beaumont	19	4	1	5
Station	20	4	1	3
Kimberley	20	4	0	0
Broughton	19	6	0	0
Boxer	17	4	0	0
Figure of Eight	17	2	1	0
Red	17	40	1	3
Islands inspected	27			
Islands with geese	19			
Totals		150	16	64

¹Geographical positions are listed in Appendix 1.

The westernmost island with Cape Barren Geese was Hauloff Rock, where a single bird was seen. The Doubtful Islands, which are east of Hauloff Rock, were visited during the first and second surveys but no geese were seen.

No geese were seen on many of the islands. Of those with geese, the number ranged from 1 on several islands to 40 on Red Island (during winter) and 26 on Round Island (summer). Geese have not been recorded previously on Round Island (Storr 1987). Numbers of geese on some islands differed considerably between summer surveys: for example, 16, 3 and 3 on New Year Island; 26 and 14 on Round Island; 4 and 12 on Pasley Island. This variation is not surprising during the non-breeding season when some geese disperse to the mainland (Dorward 1977; Storr 1987) and some presumably move between islands.

Many geese were in groups of four during the summer. There were several instances of such groupings on islands where eight and 16 geese were recorded. At both Hood and Capps Islands in early January 1988 two of four birds in groups were about three-quarters the size of others in the groups. At the former island, one of the smaller birds remained grounded as the others flew up. These observations are consistent with breeding pairs fledging two chicks.

DISCUSSION

Cape Barren Geese have been reported from several islands in the Recherche Archipelago that were not included in these surveys. Examples are Cull (approximately 40 birds), Mondrain, Middle (except for its northern coast) and islands near Esperance (Storr 1987).

Storr (1987) indicated that Cape Barren Geese congregate on islands of the Recherche Archipelago during their breeding season (April to November). Some geese disperse to the mainland in summer (summarized by Marchant and Higgins 1990). Consequently the maximum count of geese in the Recherche Archipelago and the nearby mainland (251 in February 1992) provides no more than a minimum estimate of the number that occupies the area, and does not preclude the possibility that the population is as large as or larger than Dorward (1977) guessed.

Counts made in the Archipelago during summer are unlikely to be a useful index of abundance for comparative purposes because the birds disperse then. In this context it should be noted that Dorward's estimate of 1 000 birds for the Recherche Archipelago was not confirmed, despite its repetition in the literature (e.g. Blakers *et al.* 1984; Marchant and Higgins 1990). To obtain more accurate counts of Cape Barren Geese, censuses should be conducted when the birds congregate on the islands for breeding between April and November. Even then it is possible that some non-breeding birds would be on the mainland and overlooked.

A survey conducted in April 1993 by staff of the Department of Conservation and Land Management, Western Australia resulted in a count of 631 birds and a population estimate of 'no more than 650 birds' (Burbidge *et al.* 1993). As predicted, a survey in April produced a higher count than that made during summer.

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APPENDIX 1

Geographical position of islands inspected for Cape Barren Geese. Alternate names are in brackets. Cape Barren Geese not seen on islands in italics. *Unofficial name.

ISLAND	LATITUDE °S	LONGITUDE °E	ISLAND	LATITUDE °S	LONGITUDE °E
Anvil	33 44	124 06	<i>Marts Group</i>	34 01	122 38
Arid	34 01	123 09	<i>Middle</i>	34 06	123 11
<i>Bald</i>	34 56	118 28	<i>Middle Rock</i>	34 19	121 51
Barely	33 57	122 30	Miles	34 04	123 14
Barrier	33 59	123 08	<i>Murray Rock</i>	34 00	122 05
Beaumont	34 06	122 33	<i>New</i>	34 01	122 09
Bellinger	33 53	123 38	New Year	33 52	124 06
<i>Ben</i>	33 54	122 45	<i>New Year Rock*</i>	33 52	124 06
<i>Bird Rock</i>	34 55	118 29	<i>Owen</i>	34 03	123 14
Boxer	34 00	121 40	<i>Pasco</i>	34 04	122 06
Broughton (Passage)	33 59	122 26	Pasley	34 01	123 34
Capps	33 59	121 41	<i>Pasley Rocks (3)</i>	34 00	123 35
Cliff	34 01	122 05	<i>Pearson</i>	34 13	122 21
<i>Cloud</i>	34 03	122 06	Pointer	33 43	124 06
<i>Coffin</i>	35 00	118 13	<i>Poison Creek</i>	33 55	123 20
<i>Cooper</i>	34 14	123 37	Ram	34 02	122 09
Corbett	34 07	121 59	Red	33 52	121 22
<i>Cornwall</i>	34 01	122 32	<i>Remark</i>	34 04	122 00
Cranny*	33 43	124 05	<i>Rocky</i>	34 05	120 55
Daw	33 51	124 06	<i>Rodona</i>	33 49	123 59
<i>Doubtful (3)</i>	34 22	119 35	<i>Rossiter Group*</i>	33 59	122 18
Draper	34 12	122 30	Round	34 06	123 53
<i>Eclipse</i>	35 11	117 53	<i>Round Rock*</i>	34 06	123 54
Figure of Eight	34 02	121 37	<i>Rug Rock</i>	34 01	121 39
Finger	34 07	122 21	<i>Salisbury</i>	34 22	123 33
<i>Foam Rocks</i>	34 08	122 51	<i>Seal Creek</i>	33 55	123 20
Ford (Halfway)	33 46	124 02	<i>Seal Rock</i>		
Forrest	33 55	122 43	(<i>Doubtful Is. Bay</i>)	34 21	119 34
Frederick	34 04	122 01	<i>Seal Rock</i>		
Free	34 04	122 06	(<i>Recherche Archipelago</i>)	34 01	121 40
Fur Rock	34 01	121 39	Six Mile	33 39	123 59
<i>George</i>	34 03	123 15	Slipper	34 03	122 45
Glennie	34 06	123 06	<i>Smith Rock</i>	34 00	121 52
Gulch	34 02	123 15	Spindle*	33 44	124 10
<i>Gunton</i>	34 00	121 59	<i>Square Rock</i>	34 01	121 39
Hastings	34 06	122 07	Station	33 58	122 31
Hauloff Rock	34 42	118 40	<i>Tadpole*</i>	33 44	124 02
<i>Hector Rock</i>	34 00	121 43	Taylor	33 55	122 52
<i>Helby</i>	34 07	123 04	Termination	34 29	122 00
<i>Hendy</i>	34 03	121 54	<i>Tizard</i>	34 01	122 41
Hood	34 09	122 03	<i>Twin Peaks (2)</i>	34 00	122 51
Hope	34 05	122 10	Unnamed		
Howe	34 09	122 01	NW Twin Peak Is.*	34 00	122 49
<i>Hugo</i>	34 09	122 19	Unnamed		
<i>Inshore</i>	33 55	122 50	SE Rossiter Group*	33 59	122 18
<i>John</i>	33 55	122 36	<i>Wee Rock*</i>	34 05	123 54
Kermadec (Wedge)	34 05	122 50	West	34 06	120 29
Kimberley	33 57	122 28	Westall	34 05	122 58
<i>Libke</i>	34 13	122 04	<i>Whale Rock</i>	34 02	121 40
Lion	33 53	122 01	<i>Wharton</i>	33 59	122 43
<i>Little</i>	34 28	122 00	Wickham (Stanley)	34 01	123 17
<i>Long</i>	34 03	121 58	<i>Wilson</i>	34 07	122 00
MacKenzie	34 12	122 06	<i>York Group</i>	34 01	122 35
<i>Manicom</i>	34 07	123 02			