

MONITORING OF CAPE BARREN GOOSE POPULATIONS IN SOUTH AUSTRALIA

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INTRODUCTION

The Cape Barren Goose is found only along the southern coast of Australia. By the 1950's its populations were substantially reduced right along the southern Australian coastline and it was feared that this distinctive Australian bird might become extinct. Conservation agencies in Western Australia, South Australia, Victoria and Tasmania acted to create reserves for the birds and conduct studies aimed at developing an effective wildlife management programme for the species.

Much of the fundamental research was carried out on the Bass Strait populations which are considerably larger than the South Australian or Western Australian populations.

The South Australian National Parks and Wildlife Service conducted ecological studies of the South Australian Cape Barren Goose *Cereopsis novaehollandiae* population in 1974 and then in more detail in 1979/80. Details of this work have been reported in Robinson *et al.* (1982). It showed that by the summer of 1980 the South Australian population stood at a minimum of 3000 birds, concentrated around the lakes at the mouth of the River Murray, on the southern tip of Eyre Peninsula, at Elliston and an introduced population on Kangaroo Island. The major breeding area was the islands of the Sir Joseph Banks Group. One of the major recommendations of this report was that

a systematic programme of population monitoring should be carried out at 5 year intervals with the next monitoring being due in the 1984/85 breeding season.

Unfortunately the follow up monitoring was carried out in the 1985/86 season and at a reduced level from that recommended in Robinson *et al.* (1982). This paper reports the results of the 1985/86 survey.

METHODS

The Cape Barren Goose monitoring was divided into two sections, work on the breeding areas and work on the summering areas.

i) *Breeding Areas*

Between 22-25 July 1985 four observers landed on all islands in the Sir Joseph Banks Group (with the exception of Spilsby and English) and systematic counts of Cape Barren Goose adults, chicks and eggs on each island were made by several people walking abreast at a distance apart that ensured the whole area could be seen. On islands with only low grass or very small shrubs the distance could be extended to 10-12 metres while on islands with dense tall vegetation the distance had to be reduced to 3-4 metres. Adults were recorded by one person who attempted to ensure that the same group was not counted again in another location. The line moved across the island in successive sweeps until the whole area had been covered. As the line moved across the island all nests sighted were inspected for eggs (and to ensure that it contained down and was not a nest from the previous year) and chicks were recorded as they were seen. On many islands chicks tended to be concentrated at the island edge (Fig. 1). The position of all nests and chicks was marked on a map of the island. Some nests and chicks are undoubtedly missed using this technique so estimates are somewhat lower than the actual population. Only the southern and northern ends of Reevesby Island were searched and, because of the vegetation density, particularly on the southern end, nests may have been missed. Spilsby Island was not visited as Cape Barren Geese have not been recorded breeding there in recent times, although the South Australian Museum holds a clutch of eggs collected there in 1899 (B9807) (Parker *et al.* 1985). Spilsby Island does however support large flocks of non-breeding adults over the breeding season. A

strip approximately 200 metres wide around the perimeter of Partney Island was searched again on 8 September 1985.

ii) *Summering Areas*

The major Cape Barren Goose summering areas around Lakes Alexandrina and Albert were surveyed on 14 December 1985 at an altitude of 200-300 feet, from a Bell Jet-Ranger Helicopter. The route taken by the helicopter is shown in Figure 3. Total flying time from Adelaide and return was 5.9 hours. The geese tended to be disturbed by the helicopter before most of the other birds in the area and were mostly sighted flying. As the helicopter moved on the birds quickly settled and there was little chance of recounting the same birds. A small but unknown proportion of the population was not sighted using this method so, as with the nest, egg and chick counts on the Sir Joseph Banks Group the figures from the aerial survey are a minimum population only.

RESULTS

i) *Breeding Areas*

The distribution of Cape Barren Goose nests and groups of chicks on all the islands in the Sir Joseph Banks Group in July 1985 is shown in Figure 1. This can be compared with Figure 8 in Robinson *et al.* (1982) which shows the distribution in June 1979. Details of the absolute numbers of adults, chicks, eggs and nests counted in 1985 are shown in Table 1 where it is compared with the 1974 and 1979 data from Robinson *et al.* (1982). It should be noted that there were very few chicks present in 1985 but that the number of nests, particularly on Langton, Partney and Stickney Islands was approximately twice the numbers recorded in 1974 and 1979. The total number of adult birds on the islands of the Sir Joseph Banks Group in July 1985 was also approximately half the numbers recorded in 1974 and 1979. The re-survey of the coastal 200 metres of Partney Island in September 1985 is compared with an equivalent width strip from the July 1985 survey in Table 2. The 36 chicks recorded in July are represented in September by the 43 juveniles while there appear to have been a significant number of eggs laid subsequent to the July survey to produce 43 chicks when only 25 eggs were recorded in July.

Reevesby Island was held as a pastoral lease before becoming a Conservation Park in

ISLAND	Eggs			Chicks			Eggs & Chicks			Nests			Adults		
	1974	1979	1985	1974	1979	1985	1974	1979	1985	1974	1979	1985	1974	1979	1985
Blyth	2	4	0	2	4	0	4	8	0	1	1	1	20	4	2
Boucaut	27	5	15	30	69	0	57	74	15	9	14	12	80	88	4
Dalby	21	4	6	21	16	0	42	20	6	5	7	5	25	12	8
Duffield	14	7	19	14	51	0	28	58	19	5	7	9	110	232	8
English	0	-	-	0	-	-	0	-	-	0	-	-	2	-	-
Hareby	68	9	0	73	129	0	141	138	0	19	24	27	70	32	24
Kirkby	45	0	16	45	128	3	90	128	19	12	10	12	45	60	36
Langton	70	29	52	73	69	3	143	98	25	21	23	44	65	72	39
Lusby	6	19	2	6	29	3	12	48	2	2	8	10	40	40	42
Marum	45	17	16	45	54	0	90	71	16	13	19	17	90	53	26
Partney	4	2	50	4	19	36	8	21	86	1	6	36	130	121	150
Reevesby	0	0	18	0	0	16	0	0	34	0	0	5	160	138	100
Roxby	194	45	28	245	293	1	439	338	29	58	51	48	300	144	40
Sibsey	78	54	37	80	79	9	158	133	46	23	25	31	80	122	69
Stickney	58	63	95	58	113	22	116	176	117	15	23	67	140	215	78
Winceby	64	50	30	64	121	0	128	171	30	16	30	28	35	129	36
TOTALS	696	308	384	760	1174	90	1456	1482	374	200	248	312	1392	1513	663

TABLE 1. Counts of adult birds, chicks and eggs of Cape Barren Geese on the islands of the Sir Joseph Banks Group 1974, 1979 and 1985.

	July	Sept.
Nests	21	19
Eggs	25	0
Chicks	36	43
Juveniles	0	95
Eggs + Chicks + Juveniles	61	138

TABLE 2. A comparison of the numbers of nests, eggs, chicks and non-flying juvenile Cape Barren Geese on a 200 m wide strip around the coast of Partney Island in July and September 1985

AREA	1979	1985
Mundoo Island – Tauwitchere	95	233
Hindmarsh Island	0	181
“Campbell Park”	615	900
Lake Albert & Waltowa Swamp	508	230
“Yalkuri”	540	514
“Mulgundawa”	197	166
Mosquito Point	234	0
Dog Lake	35	0
Point Sturt	22	164
“Poltalloch”	0	53
Narrung	0	101
TOTALS	2246	2542

TABLE 3. A comparison of the number of Cape Barren Geese sighted around Lakes Alexandrina and Albert during helicopter surveys in December 1979 and December 1985.

1972 and none of the former island residents still living can remember geese breeding on Reevesby Island itself. Nesting of Cape Barren Geese on Reevesby Island for the first time in living memory was therefore recorded during this survey and the details are shown in Figure 2 and Table 1. It can be seen that less than half the island was searched for nests and so it is possible that there were more breeding pairs occupying the central part of the island. The first nest found on the southern end of the island had a collar next to it which was used in the August 1979 banding programme, indicating that one of this pair was breeding at seven years of age.

ii) Summering Areas

The route flown by the helicopter and the overall distribution of Cape Barren Geese around Lakes Alexandrina in December 1985 is shown in Figure 3. The vast majority of geese were sighted on green lake edge vegetation, some, particularly in the “Mulgundawa” and “Campbell Park” areas were flushed from irrigated lucerne crops. The Hindmarsh Island birds were flushed from recently harvested wheat stubble and were presumably feeding on fallen grain. The numbers of geese seen in 1985 are compared with counts from 1979 in Table 3. Both the counts and the distribution of summering geese were virtually the same in both years in the “Campbell Park”, “Yalkuri” and

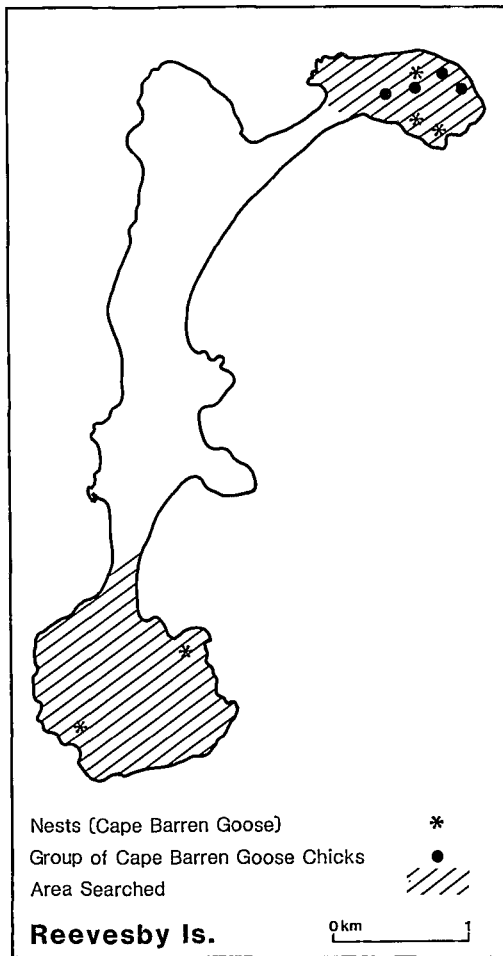


Figure 2. The distribution of Cape Barren Goose nests and groups of chicks on Reevesby Island and an indication of the area searched in July 1985.

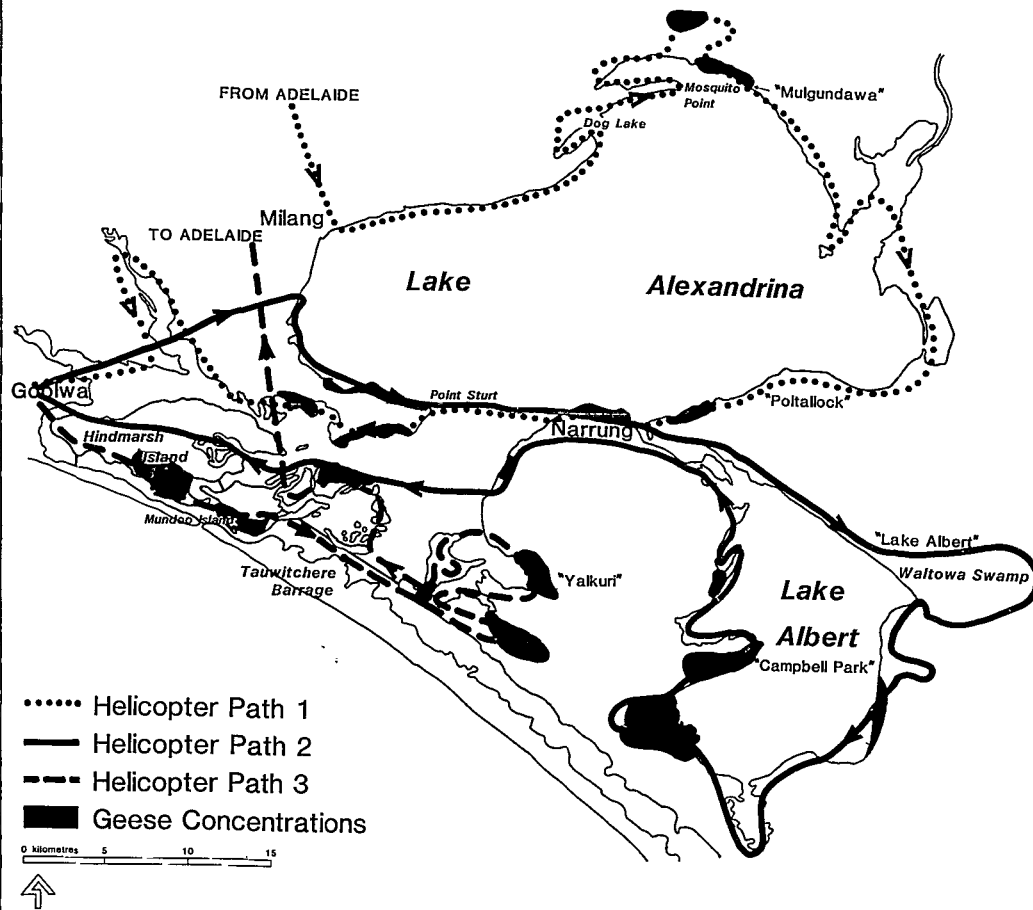


Figure 3. Helicopter flight paths and general distribution of summering flocks of Cape Barren Geese around Lakes Alexandrina and Albert in December 1985.

"Mulgundawa" areas, while geese were absent from Mosquito Point and Dog Lake in 1985. These birds may have been feeding inland on wheat stubble and thus missed. The birds were concentrated south of "Lake Albert" on the eastern shore of the lake in 1985 whereas in 1979 they were predominantly to the north and on Waltowa Swamp.

DISCUSSION

i) Breeding Areas

It would appear from a comparison of the counts of eggs and chicks on the islands of the Sir Joseph Banks Group that 1985 was a poor breeding season in comparison with 1974 and 1979. The rainfall figures at Port Lincoln, the nearest recording station to the Sir Joseph Banks Group, for the three years are shown in Table 4. It can be seen that in both April and May of 1974 and 1979 above average rainfall was received. In 1985, however, although about average rainfall was received in April to begin germination of grass and herbs on the islands, half the average rainfall was received in May. These autumn rains are of critical importance to the timing of the beginning of the breeding season (Robinson *et al.* 1982). In 1985 it appears that the geese returned to the islands and began nesting in April but then, with the drying of the new growth through the dry month of April, nests were abandoned. This is reflected in the number of nests found during the 1985 survey (Table 1). In July 1985 many birds appeared to be building new nests and laying eggs, a very late start to the breeding season and it was impossible to distinguish nests abandoned earlier in the year from new nests. The return survey of Partney Island in September 1985 showed that both unfledged juveniles from the early breeding attempts and chicks from later

nesting were present which is unusual as, in a more normal year, breeding appears to be much more synchronised. The effect of the dry May in 1985 makes it very difficult to compare the counts on the islands of the Sir Joseph Banks Group with the previous figures from 1974 and 1979 and it is proposed to repeat this count in July 1986 in the hope of a better break to the season.

The beginning of breeding on Reevesby Island is of great significance. There may have been a pair breeding in the 1984 breeding season as small chicks were sighted although no nest was found (Vickery pers. comm.) but the discovery of five nests producing a total of 34 eggs and chicks in July 1985 provides clear confirmation that Reevesby Island is once again suitable as a breeding area. There is a population of feral cats of unknown size on Reevesby Island and it is not known if they will effect the chances of chicks fledging on this island. If breeding pairs of Cape Barren Geese continue to establish territories on Reevesby Island and successfully manage to rear young this 344 ha island has the potential to significantly increase the size of the South Australian summering population of these relatively uncommon birds.

ii) Summering Areas

The helicopter survey of lakes Alexandrina and Albert in 1985 showed that Cape Barren Geese are tied to particular traditional summering areas in spite of the presence of apparently suitable habitat elsewhere. At the same time they are sufficiently flexible to utilise concentrations of high quality food such as irrigated lucerne and fallen grain. Within the accuracy limits of this type of survey it can be said that the summering population around the lakes has not changed significantly since the last count in 1979. As

	J	F	M	A	M	J	J	A	S	O	N	D
1974	31	1	4	62	87	34	115	66	55	71	13	7
1979	3	23	22	95	66	24	61	70	111	43	32	14
1985	2	11	20	42	31	69	35	155	51	41	11	18
MEAN	13	15	20	38	58	75	78	67	49	35	22	18

TABLE 4. Monthly rainfall (mm) for Port Lincoln in 1974, 1979 and 1985 and the mean monthly rainfall for that station.

most of the geese which breed on the Sir Joseph Banks Group spend the summer around the lakes it will be interesting to follow the effect that a breeding population on Reevesby Island may have on the summering populations when the next monitoring survey is carried out in 1990.

CONCLUSIONS

It would appear from the 1985 Cape Barren Goose monitoring that, in spite of a poor start to the breeding season on the islands of the Sir Joseph Banks Group, the summering population of Cape Barren Geese around Lakes Alexandrina and Albert has remained stable since it was last monitored in 1979. The smaller summering populations around Port Lincoln, Elliston, on the Sir Joseph Banks Group and Kangaroo Island were not monitored in 1985 but if they have followed a similar trend to the main population then the 1979 estimates of a minimum South Australian population of 3500-4000 Cape Barren Geese (Robinson *et al.* 1982) would appear to still be valid for 1985. These magnificent birds are therefore a relatively uncommon species in this State and every effort should be made to ensure their conservation both on their breeding and summering areas.

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REFERENCES

- Parker, S.A., Eckert, H.J., Ragless, G.B., Cox, J.B. and Reid, N.C.H. 1979. *An Annotated Checklist of the Birds of South Australia. Part 2A: Waterfowl.* South Australian Ornithological Association: Adelaide.
- Robinson, A.C., Delroy, L.B. and Jenkins, R.B. 1982. The Conservation and Management of the Cape Barren Goose *Cereopsis novaehollandiae* Latham, in South Australia. Department of Environment & Planning. South Australia. Spec. Publ. 1: 1-54.
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