

BIRD SPECIES RECORDED AT CAPE BIRD, ROSS ISLAND, ANTARCTICA

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ABSTRACT

The Adélie Penguin and Antarctic Skua breed at Cape Bird, and nine other species have been recorded as visitors (Emperor Penguin, Chinstrap Penguin, Southern Giant Petrel, Antarctic Fulmar, Antarctic Petrel, Snow Petrel, Wilson's Storm Petrel, Southern Great Skua, and Southern Black-backed Gull). Fewer birds were recorded as visitors at Cape Bird than have been recorded at Capes Crozier and Royds, possibly because Cape Bird gets less wind.

INTRODUCTION

Cape Bird, at the northern tip of Ross Island, Antarctica, is a breeding area for the Adélie Penguin (*Pygoscelis adeliae*) and the Antarctic Skua (*Stercorarius maccormicki*). The breeding area extends from about 5 km to about 14 km south-west of the cape (77°13'S, 166°28'E to 77°18'S, 166°20'E). The skuas nest over much of the area, whereas the penguins nest in three discrete areas (the Northern, Middle, and Southern Rookeries).

Throughout winter, the breeding area of the birds is covered with snow and closed in by the McMurdo Sound sea-ice. The break-up of this sea-ice in spring is vitally important for the birds (Stonehouse 1967). Most of the area is free of snow before (or very soon after) the birds arrive in mid-late October.

We visited Cape Bird each summer from 1967/68 to 1981/82 (except 1976/77) and again in 1987/88, for periods of 3 – 14 weeks between 22 October and 15 February (Appendix 1). Many aspects of the biology of the two breeding species (Adélie Penguin and Antarctic Skua) have been described elsewhere (see review by Young 1981; also Davis 1988, Davis *et al.* 1988, van Heezik 1988). Here, we summarise the numbers, arrival, and departure of these species and report on other species visiting Cape Bird. In most years, we made our observations while doing other work and made no special effort to search for birds (cf. Ainley *et al.* 1978). However, from 1977 to 1981, one of us spent at least an hour on most days scanning the sea with a 20X telescope and recording all birds other than Adélie Penguins and Antarctic Skuas. All observations were made at the Northern Rookery, unless otherwise stated.

BREEDING BIRDS

ADELIE PENGUIN *Pygoscelis adeliae*

The Adélie Penguin population at Cape Bird consisted of about 35 000 breeding pairs (Harper *et al.* 1984) and an unknown number of non-breeders. The first few penguins were already present on the earliest dates we visited the rookeries; less than 100 were at the Northern Rookery on 22 October 1974 and 152 were there on 23 October 1968. Numbers built up rapidly to reach a peak about the end of the first week in November (Spurr 1975a, 1977).

The first chicks were seen about 7-12 December in all years. Chick numbers were greatest in early January. In the 1967/68 season, the first chicks departed on 28 January when about 7 weeks old; most chicks departed in the first two weeks of February (Spurr 1975b). In other years, we left too early to observe chick departure.

Juvenile (1-year-old) Adélie Penguins (distinguished by their white throats) visited Cape Bird in late December and January in all years. No banded juveniles have been seen, but 2-year-olds banded as chicks at Cape Crozier (90 km east by the shortest sea route) were seen in some years in late December-January. Penguins banded as chicks at Cape Crozier and at Cape Royds (40 km south) were found breeding at Cape Bird, proving that there is some interchange of birds between rookeries.

Moulting penguins were seen only in the 1967/68 season, the only season we were there late enough. More than 500 penguins were ashore moulting in February 1968.

Numbers ashore declined after the end of December (Spurr 1975a, 1977), but some penguins were still present when we left Cape Bird in all years.

ANTARCTIC SKUA *Stercorarius maccormicki*

The Antarctic Skua population at Cape Bird consisted of about 300 breeding pairs (Harper *et al.* 1984) and 300 non-breeders.

No skuas were on the ground at Cape Bird on the earliest dates we visited the area (22 October 1974 and 23 October 1968), although one bird flew overhead on 23 October 1974 and two on 23 October 1968. Breeding birds began settling on to territories at the end of October – beginning of November in both years (and also in 1972 when a few skuas were present on 31 October, and in 1969 on 1 November).

The first skua chicks were seen in late December in all years. Fledglings were seen in early February 1968; in all other years we left before chicks fledged.

An albino skua was seen on 25 December 1969 (see also Young 1970).

Skuas banded as adults at Cape Crozier and Cape Royds were recorded breeding at Cape Bird. Skuas banded as chicks at Cape Bird have also been found at Cape Crozier and Cape Evans (Ainley *et al.* 1986).

VISITING BIRDS

EMPEROR PENGUIN *Aptenodytes forsteri*

Adult Emperor Penguins visited Cape Bird in all years and were the most common visitors in most years. The earliest sighting was on 24 October (1974) and the latest on 24 January (1969). Most were seen when the sea-ice broke up, usually in November, but not until early December in 1978 and 1981. They were rarely seen ashore after mid-December, although some may have been not far offshore; e.g. Wilson saw lone birds from a ship close to Cape Bird on 26 January 1981 and 31 January 1986.

Emperor Penguins were usually seen on pack-ice or in leads between flows, most often when the ice cover was more than 50%. They were seen

close to shore and out to the limits of visibility (estimated at 2.5 km). Occasionally, birds would come ashore and wander among nesting Adélie Penguins.

The numbers seen varied from year to year; the largest numbers were seen in 1968/69, 1970/71, 1974/75, 1978/79, and 1981/82. In 1968/69, 1978/79, and 1981/82 the McMurdo Sound fast-ice extended north to Cape Bird. In 1977/78 and 1980/81, when fewest Emperor Penguins were seen, Cape Bird was almost ice-free by November.

Emperor Penguins were usually seen singly or in small groups. Of 303 sightings between 1977 and 1981, 49.6% were of lone birds and 91% were of five or fewer birds. The largest number seen in one group was 76 on 16 November 1970, standing on the fast-ice just offshore.

An Emperor Penguin fledgling was seen ashore on 1 January 1970 (Young 1970). One was also seen on south-moving pack-ice on 27 November 1973 and another on 2 December 1973 (Sagar 1974). A yearling was ashore on 9 and 10 January 1978.

CHINSTRAP PENGUIN *Pygoscelis antarctica*

An adult Chinstrap Penguin was seen at the Southern Rookery on 19 January 1970 (Spurr 1985). Another Chinstrap Penguin was seen at the Northern Rookery late in the 1987/88 season, and a dead bird was also found buried in snow (G. Miller, pers. comm.).

SOUTHERN GIANT PETREL *Macronectes giganteus*

Southern Giant Petrels were seen at Cape Bird on six occasions, all in January and February when there was much open water offshore.

Single birds were seen five times between 28 January and 13 February 1968. The first known sighting of a Giant Petrel at Cape Bird was on 28 January 1968, when one was seen feeding on the remains of an Adélie Penguin killed by a leopard seal (*Hydrurga leptonyx*). Two sightings were made 4 hours apart on 3 February and one on 6 February 1968. Each time the bird flew past without landing. One was chased by an Antarctic Skua. On 13 February 1968, a Giant Petrel attacked an Adélie Penguin chick swimming in the sea 150 m offshore. All five were dark birds, possibly young, and perhaps the same bird.

On 10 January 1972, an all-white bird was seen from a small boat about 1 km offshore.

ANTARCTIC FULMAR *Fulmarus glacialis*

A single Antarctic Fulmar was seen twice (probably the same bird) on 23 January 1978. These are the first and only reports of this species at Cape Bird.

ANTARCTIC PETREL *Thalassoica antarctica*

One Antarctic Petrel flew high over the Northern Rookery on 11 December 1968. A second was seen on 10 December 1987. These are the only reports of this species at Cape Bird.

SNOW PETREL *Pagodroma nivea*

Snow Petrels were seen at Cape Bird every year. The earliest sighting was on 6 November (1968) and the latest was on 10 February (1968). However, nearly all sightings were made between mid-November and mid-December.

Numbers varied greatly from year to year. Birds were seen on most days between mid-November and mid-December in 1968/69, 1974/75, and 1977/78. In other years, they were seen on only a few days. Large numbers (20-50) were seen in 1971/72, but only on 4 days (Sagar 1974). The birds were mainly alone or in small groups (67% of 165 sightings between 1977 and 1981 were of single birds and 90% were of three or fewer birds). Flocks of up to 14 birds were occasionally seen. The largest number seen on any one day was 183 (on 10 December 1987, a day of gale-force southerly winds).

Most Snow Petrels were seen flying along the shoreline, flitting among the broken sea-ice lining the coast. However, some flew fast in a direct line overhead, at heights of up to 500 m. On fine days in 1977/78, many were seen circling high over the coastal moraines. This behaviour was not seen in other years. None was ever seen to land, either ashore or on the water (cf. Ainley *et al.* 1978).

WILSON'S STORM PETREL *Oceanites oceanicus*

Wilson's Storm Petrels were seen in most (but not all) years at Cape Bird, in December and January. The earliest sighting was 7 December (1977) and the latest was 19 January (1981) (C. Vincent, pers. comm.).

Numbers varied from 0 to 8 per year; in most years two or three were seen. Most observations were of single birds flying along the shore. None was seen to land.

SOUTHERN BLACK-BACKED GULL *Larus dominicanus*

A Southern Black-backed Gull was seen at Cape Bird on 27 and 30 December 1975 (Sagar 1976). These are the first and only reports of this species at Cape Bird.

DISCUSSION

Cape Bird lies well within the pack-ice zone of the southern Ross Sea, and most birds seen there are characteristic of this zone. The most common non-breeding bird to visit Cape Bird was the Emperor Penguin. This is a high-latitude Antarctic species, the nearest breeding colony to Cape Bird being on Beaufort Island, only 35 km north (Harper *et al.* 1984). It breeds also at Cape Crozier, about 90 km away on the eastern side of Ross Island. Emperor Penguins disperse from their breeding colonies by late December-January and have been recorded at Cape Royds and even as far south as Hut Point in McMurdo Sound (Spellerberg 1971a, 1971b, pers. obs.).

In contrast, the Chinstrap Penguin has been reported only rarely in the Ross Sea region (Spurr 1985). The nearest known breeding location (only a very small one) is on the Balleny Islands (Harper *et al.* 1984), about 1200 km north of Cape Bird.

In descending order of abundance, the petrels seen at Cape Bird were the Snow Petrel, Wilson's Storm Petrel, Southern Giant Petrel, Antarctic Fulmar, and Antarctic Petrel. Except for the Antarctic Petrel, this corresponds well with the order of abundance of petrels in the Ross Sea.

The Antarctic Petrel is the most abundant petrel in the Ross Sea. Ainley *et al.* (1984) estimated a population of about 5 million birds in the Ross Sea region. The species is strongly associated with the pack-ice zone. It was the second most common petrel at Cape Royds, where groups of up to 11 birds were seen in December, January, and February (Spellerberg 1971a), and the third most common petrel at Cape Crozier, where flocks of up to 45 birds (average about 9 birds) were seen in November, December, and January – in total, 177 birds were seen in 12 summers (Ainley *et al.* 1978). It is surprising that we did not see more birds at Cape Bird (but see below). The nearest known breeding area is in Marie Byrd Land, about 800 km east of Cape Bird.

The Snow Petrel is the second most abundant petrel in the Ross Sea (and the most abundant petrel at Cape Bird). Ainley *et al.* (1984) estimated a population of about 2 million birds in the Ross Sea region. The Snow Petrel is associated with the pack-ice zone (Dell 1960, Darby 1970, Hicks 1973, Zink 1981, Ainley *et al.* 1984). It was the most common petrel at Cape Royds, where “one or two were seen each week throughout each summer” (Spellerberg 1971a), and also at Cape Crozier, where “Snow Petrels were seen almost daily from late November until late December” – 991 birds were seen in 12 summers (Ainley *et al.* 1978). Not so many were seen at Cape Bird, but still it was by far the most common petrel seen. The nearest breeding area is on Franklin Island, 140 km north; it also breeds in Northern Victoria Land and Marie Byrd Land (Ainley *et al.* 1984, Harper *et al.* 1984).

Wilson's Storm Petrel is the third most abundant petrel in the Ross Sea (and the second most abundant at Cape Bird). Ainley *et al.* (1984) estimated a population of about 400 000 birds in the Ross Sea region. It is associated with open water and open leads in the pack-ice (Dell 1960, Darby 1970, Hicks 1973, Zink 1981, Ainley *et al.* 1984), which may explain why few were seen as far south as Cape Bird and also why it was seen mainly later in the season after the break-up of the pack-ice. Wilson's Storm Petrels were the third most common petrel at Cape Royds, where “they were recorded once or more every fortnight” in January and February (Spellerberg 1971a), but they were only the fourth most common at Cape Crozier, where 21 birds were seen in 12 summers (Ainley *et al.* 1978). The nearest major breeding area is in Northern Victoria Land, 500 km north (Ainley *et al.* 1984, Harper *et al.* 1984), although a few have been reported breeding on Franklin Island, 140 km north (P.C. Harper pers. comm.) and in Southern Victoria Land, 100 km west (Spellerberg 1971a).

The fourth most abundant petrel in the Ross Sea is either the Southern Giant Petrel or the Antarctic Fulmar. Ainley *et al.* (1984) estimated a population of 3000-5000 Southern Giant Petrels and 2000-2900 Antarctic Fulmars in the Ross Sea region. However, other observers (e.g. Dell 1960, Darby 1970, Fowler 1973, Hicks 1973, Wilson, pers. obs.) encountered more Antarctic Fulmars than Southern Giant Petrels. More Southern Giant Petrels than Antarctic Fulmars have been seen on Ross Island. One or two Southern Giant Petrels were seen during December and January each summer at Cape Royds (Spellerberg 1971a), and several birds (average 8.5) were usually present on any day in January and February at Cape Crozier – a total of 460 were seen in 12 summers (Ainley *et al.* 1978). The Antarctic Fulmar has

not been recorded at Cape Royds and was recorded in only three of 12 summers (a total of five birds) at Cape Crozier (Ainley *et al.* 1978). Southern Giant Petrels have been recorded six times and Antarctic Fulmars twice at Cape Bird. Both species are associated with open water, which probably explains why they were seen mainly later in the season after the break-up of the pack-ice. The nearest breeding area for Antarctic Fulmars is at the Balleny Islands, 1200 km north (Ainley *et al.* 1984, Harper *et al.* 1984), and for Southern Giant Petrels the Adélie Land coast, 2000 km north-west, and Macquarie Island, 2500 km north-west (Watson 1975).

The Southern Black-backed Gull is a rare visitor to the Ross Sea region, having been seen once in three summers at Cape Royds (Spellerberg 1971a), twice in 12 summers at Cape Crozier (Ainley *et al.* 1978), and twice in 15 summers at Cape Bird. It is a bird of the open water (Bernstein 1983). The nearest breeding area is Macquarie Island (Watson 1975).

The only species not recorded by us but whose range includes the southern Ross Sea and which has been recorded recently at Cape Bird (Court & Davis 1989) is the Southern Great Skua (*Stercorarius skua lonnbergi*), otherwise known as the Brown Skua. It has been reported from Cape Royds (one bird in three years; Spellerberg 1971a) and Cape Crozier (five birds in 12 years; Ainley *et al.* 1978). The species possibly breeds on the Balleny Islands, but otherwise the closest known breeding area is Macquarie Island (Watson 1975).

One reason for the low numbers of birds seen at Cape Bird may be the scarcity of strong winds in the area (cf. Cape Royds and Cape Crozier). Ainley *et al.* (1978) recorded more Snow Petrels and Antarctic Petrels at Cape Crozier when winds exceeded 38 km/h and 50 km/h respectively.

Winds over 38 km/h (and also over 32 km/h) were recorded at Cape Bird on 2 (2%) of the days in 1968/69 and 13 (16%) of the days in 1969/70 (cf. 5 (7%) of the days and 27 (39%) of the days respectively at Cape Crozier; Ainley & LeResche 1973). No data are available for Cape Royds for these years, but winds there exceeded 32 km/h on 18 (20%) of the days in 1959/60, 26 (29%) of the days in 1964/65, and 20 (22%) of the days in 1965/66 (Yeates 1968). Cape Bird, being in the lee of Mt Bird, is protected from strong southerly winds. It often experienced light northerly winds when a southerly gale was blowing a few kilometres offshore in McMurdo Sound. Wind-preferring bird species such as the Antarctic Petrel and Snow Petrel therefore may not be attracted to Cape Bird as much as to Cape Royds and Cape Crozier.

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APPENDIX 1 - Dates of observations by authors at Cape Bird

Season	Dates of Observations	Observer
1967-68	10 Nov - 15 Feb	Spurr
1968-69	23 Oct - 28 Jan	Spurr
1969-70	1 Nov - 21 Jan	Spurr
1970-71	11 Nov - 25 Jan	Spurr
1971-72	11 Nov - 30 Jan	Sagar
1972-73	31 Oct - 6 Dec	Sagar
1973-74	23 Nov - 2 Feb	Sagar
1974-75	22 Oct - 13 Jan	Sagar
1975-76	22 Nov - 11 Dec	Sagar
1976-77		
1977-78	9 Nov - 26 Jan	Wilson
1978-79	17 Nov - 26 Jan	Wilson
1979-80	21 Nov - 12 Dec	Wilson
1980-81	21 Nov - 13 Dec	Wilson
	and 6 Jan - 17 Jan	
1981-82	21 Nov - 13 Dec	Wilson
1987-88	23 Nov - 11 Dec	Wilson