

# THE EFFECT OF STORMS ON THE BREEDING SUCCESS OF SOUTH POLAR SKUAS AT CAPE BIRD, ANTARCTICA

By PAUL H. ENSOR

During the 1977-78 summer, while I was at Cape Bird, Ross Island, Antarctica, with the University of Canterbury Antarctic Research Unit, to study marine plankton, there was a succession of storms during the start of the breeding season of South Polar Skuas (*Catharacta maccormicki*). As many pairs were losing their eggs, I became interested in observing what effect the storms might have on their breeding success. There were snowfalls and high winds during early December which left snow drifts up to one metre deep for many days. Smaller drifts were still present in mid-January, a time when the area is usually free of snow.

I inspected 79 nesting territories, where at least one bird of each pair wore the bands of previous investigators, every few days over most of the breeding season. The changes in numbers of eggs and chicks are shown in Figure 1. The mean laying date observed was 20 December with a range 2 December - 8 January. Almost equal numbers of single and two-egg clutches were found (Table 1).

TABLE 1 — Breeding Success of South Polar Skuas at Cape Bird, Antarctica, 1977-78.

Number of pairs	79
Number of eggs laid	119
Number of one-egg clutches	39
Number of chicks hatched from one-egg clutches	17
Number of two-egg clutches	40
Number of chicks hatched from two-egg clutches	11
Total number of chicks hatched	28
Number of chicks alive on 24 January	24
Breeding success to 24 January (chicks per breeding per)	0.30

75.2% of eggs were lost (Table 1). Several nests with eggs were flooded by water from melted snow but the accumulation of broken eggshells on some territories suggested that most eggs had been predated by other skuas.

By 24 January (the last date of observation), four chicks had died (14.3% of those hatched). We left Cape Bird on 26 January,

before the chicks had fledged, but because hatching had been late it is unlikely that all the chicks alive at that time did fledge. Therefore, the final breeding success was probably less than the 0.3 chicks per breeding pair alive on 24 January (Table 1).

### Discussion

The breeding biology of the South Polar Skua in the McMurdo Sound region has been well documented (Young 1963, Spellerberg

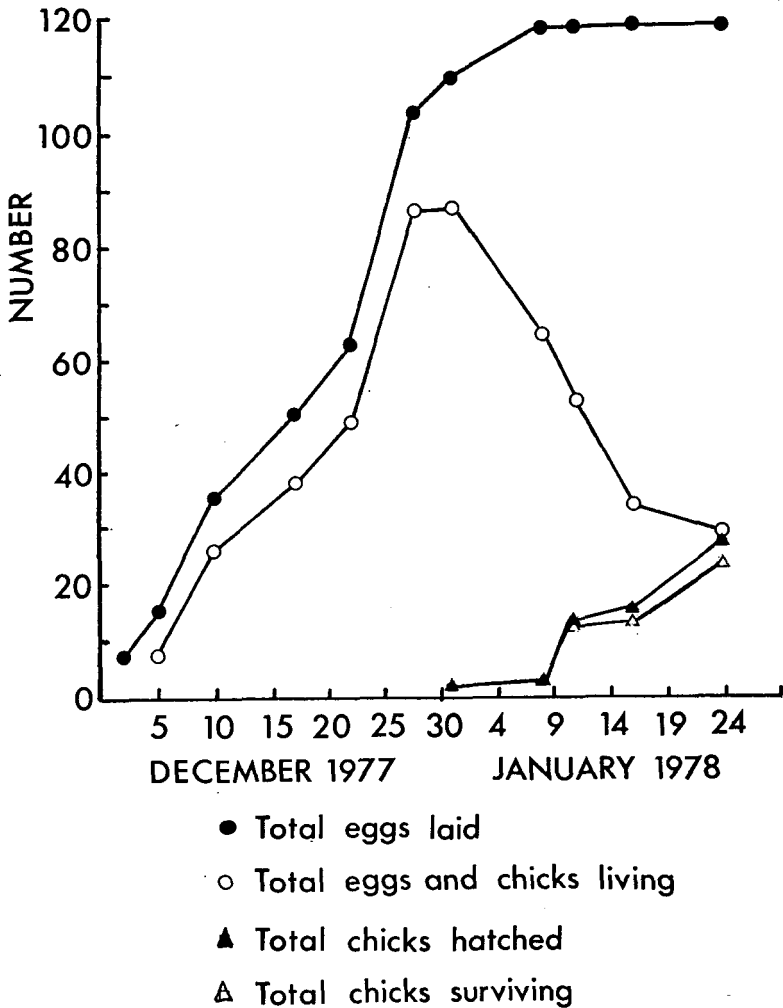


FIGURE 1 — The breeding of South Polar Skuas at Cape Bird 1977/78.

1971). Young (1977) concluded from his observations and from published records that the first laying dates of South Polar Skuas were remarkably consistent from year to year. The mean laying date is usually in late November or early December.

Although the skua nesting areas at Cape Bird were frequently inspected during November 1977, careful records of the nests were not begun until 2 December. Therefore, it is possible that eggs laid early in the season had been covered with snow and not found. Renesting after loss of eggs has been recorded in South Polar Skuas (Eklund 1961, Spellerberg 1971) and it is possible that many of the late laying dates of the present study were those of second or subsequent clutches. The unexpectedly high proportion of single-egg clutches I recorded could indicate that they were relayings, since Spellerberg (1971) found that most pairs laid only one egg after losing a clutch.

The 75.2% egg loss which I recorded is much higher even than the 41.7% lost at Cape Royds (Spellerberg 1971) in the 1965-66 season of unfavourable weather. Spellerberg reported egg losses at Cape Royds of 26% and 18.9% during the 1963-64 and 1964-65 seasons when the weather was favourable.

Fine weather and low wind speeds late in the season probably helped chicks survive. Spellerberg (1971) found that in fine weather fewer chicks were taken by other skuas than in bad weather.

Wood (1971) at Cape Crozier during the eight seasons from 1961-62 to 1968-69 recorded breeding successes of 0.41, 0.60, 0.41, 0.31, 0.17, 0.12, 0.13 and 0.48 chicks per pair. The very low breeding success in some of these seasons was caused by loss of chicks in blizzards in late January. At Cape Royds in 1965-66, periods of snowfalls and high winds caused a breeding success of 0.29 chicks per pair (Spellerberg 1971).

In good weather, breeding success has been recorded at Cape Royds as 0.46 (Young 1963), 0.69 and 0.79 (Spellerberg 1971) and at Cape Hallet as 0.83 (to 22 January) (Trillmich 1978).

The low breeding success that I observed was probably a result of the severe weather during the early part of the breeding season causing a high loss of first and possibly second clutch eggs and reflected in the late hatching of chicks. Wood (1971) showed that storms late in the breeding season are particularly devastating but the information provided by Spellerberg and this study show that storms at any time in the season can greatly reduce the breeding success of South Polar Skuas.

#### *Acknowledgements*

I was fortunate in being a member of the University of Canterbury Antarctic Research Unit with Professor G. A. Knox as its director. Thanks are due to Dr J. Warham, to G. J. Wilson and P. M. Sagar

for help during the preparation of this paper. I acknowledge Antarctic Division, DSIR, New Zealand, for their support at Cape Bird and the US Navy UXE-6 squadron for air transport.

#### LITERATURE CITED

- EKLUND, C. R. 1961. Distribution and life-history studies of the South Polar Skua. *Bird banding* 32: 187-223.  
 SPELLERBERG, IAN F. 1971. Aspects of McCormick Skua breeding. *Ibis* 113: 357-363.  
 TRILLMICH, - 1978. Feeding territories and breeding success of South Polar Skuas. *Auk* 95: 23-33.  
 WOOD, R. C. 1971. Population dynamics of breeding South Polar Skuas of unknown age. *Auk* 88: 805-814.  
 YOUNG, E. C. 1963. The breeding behaviour of the South Polar Skua *Catharacta maccormicki*. *Ibis* 105: 203-233.  
 YOUNG, E. C. 1977. Egg-laying in relation to latitude in Southern Hemisphere skuas. *Ibis* 119: 191-195.

PAUL H. ENSOR, *Department of Zoology, University of Canterbury, Christchurch.*



## SHORT NOTE

### BLACK-WINGED PETRELS IN THE FAR NORTH

Several sightings have been made recently of Black-winged Petrels (*Pterodroma nigripennis*) flying around headlands in the Far North in broad daylight.

On 2 February 1978, Mrs Gillian Eller counted 13 of these birds flying around Hoopers Point, Spirits Bay, very early in the afternoon and she also saw 8 of them actually flying further inland over the camping ground. The birds were usually in pairs in tandem, wheeling and diving very low over the ground and then soaring high into the air and calling frequently.

Mr Vic Hensley had also noted similar behaviour of Black-winged Petrels around North Cape the previous summer.

On 27 January 1979, Miss Helen Boutell, Vic Hensley and I saw some of these petrels in the air continuously during an afternoon walk out to Cape Maria van Dieman. They were first sighted overhead while still well over a kilometre from the coast behind Twilight Beach. A most spectacular display occurred out at the Cape with several pairs of birds chasing each other up and down the steep slope of a sand dune to within a few feet of us.

Is this behaviour a simulation of courtship display by young adults? Is the same behaviour to be observed at the known breeding grounds at this time of the year or are these birds possibly seeking new breeding areas?

R. N. THOMAS, 25 Ravenwood Drive, Auckland 10.