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## THE FAREWELL SPIT GANNETRY - A NEW SEA LEVEL COLONY

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### ABSTRACT

A new breeding colony of Australasian Gannets (*Sula bassana serrator*) is recorded from Farewell Spit, Nelson. From small beginnings in 1981 and a major roost of c. 300 in 1983, the colony has increased steadily from c. 75 breeding pairs in the 1983/84 season to c. 600 in 1987/88. Two birds breeding at the site had been banded as chicks at White Island, Bay of Plenty.

### INTRODUCTION

Until 1981 the only records of Australasian Gannets (*Sula bassana serrator*) at Farewell Spit were of birds feeding offshore and the occasional beach wreck. When in November 1981 about 9 gannets were seen on a slightly raised area of vegetated sand on the Bay Flats east of Mullet Creek (Fig. 1), there was considerable interest, especially as the birds were displaying and at least two had scrapes. However, there was no sign of any breeding and gannets were not recorded there or anywhere else on the Spit in November 1982.

In January 1983, members of an Ornithological Society field course saw about 300 roosting on the Shellbanks at the eastern end of the Spit (Fig. 1). They noted much activity and display but once again the gannets did not build nests.

The Shellbanks are raised banks, up to 2 m high in places, of shell, sand and driftwood, sparsely vegetated with marram (*Ammophila arenaria*), sea rocket (*Cakile edentula*), velvety nightshade (*Solanum chenopodioides*),

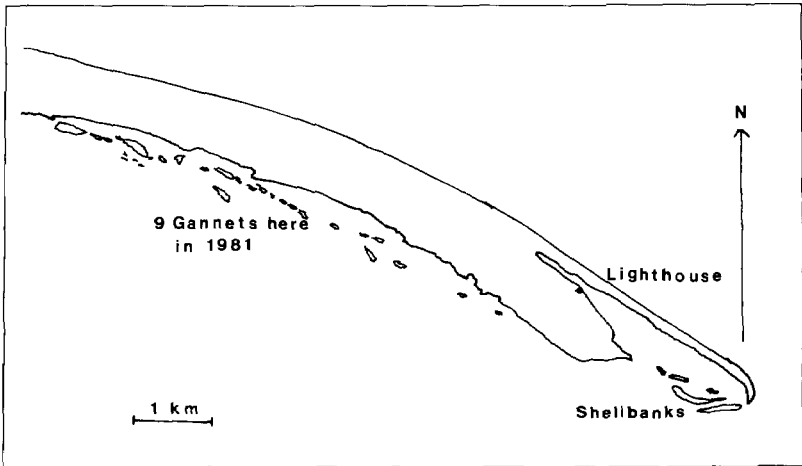


FIGURE 1 — The eastern end of Farewell Spit

and sowthistle (*Sonchus oleraceus*). At high spring tides, water separates the Banks from the 25 km Spit proper and from one another, but foot access is possible at low and some neap tides. They are traditional nesting sites for Southern Black-backed Gulls (*Larus dominicanus*), Red-billed Gulls (*Larus novaehollandiae*), Caspian Terns (*Hydroprogne caspia*), White-fronted Terns (*Sterna striata*), and occasionally a few pairs of Black-billed Gulls (*Larus bulleri*). The Caspian Tern colony of some 150 pairs is the largest in the South Island.

### METHODS

The establishment of this colony was watched by JMH and various OSNZ members on visits to Farewell Spit. Notes were taken by JMH for all visits except for those made by Patrick Riddett while he was ranger at the lighthouse. As this was a new colony the former Lands and Survey Department, the former Wildlife Service and the Ornithological Society of New Zealand stated clearly that the colony was to be visited only to note whether the gannets were nesting and raising chicks. Also a further reason for not disturbing the area was the Caspian Tern colony alongside.

At the laying and young chick stages of each season we checked the colony only enough to make sure that the gannets were laying eggs and later hatching chicks. Therefore the early counts were estimates only, made quickly and often from only one side of the colony. The number of birds on each colony cannot be seen from any one vantage point and so for a good count one has to circle each colony.

Some of the later counts are more accurate because we could approach each colony and count from several points. The numbers given, which are means of counts by two or three observers, usually did not vary by more than 5 birds.

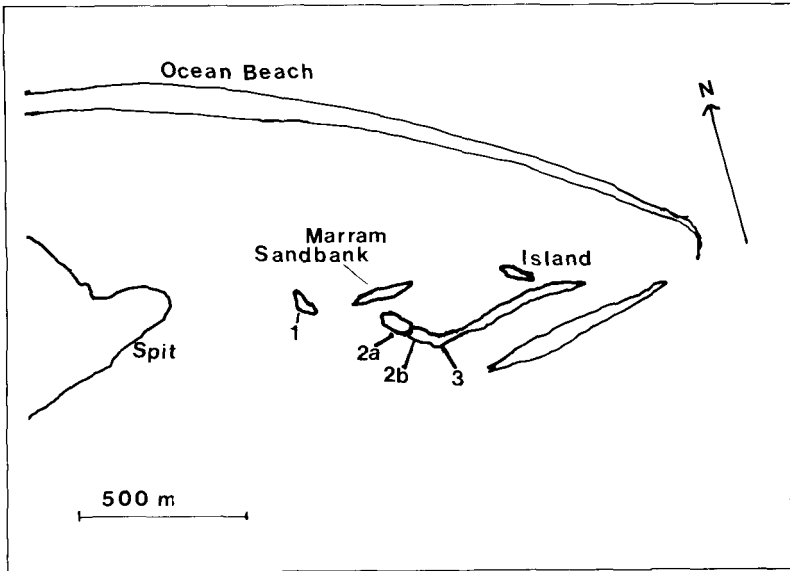


FIGURE 2 — The gannet colonies on the Shellbanks. Colonies 2a and 2b were called colony 2 until divided by the sea in 1987

## OBSERVATIONS ON BREEDING

### 1983/84

This was the first season of actual breeding. At the roosting site of 1982/83's c. 300 gannets, two colonies formed totalling 70-80 nests. Some 400 non-breeding birds were also present. Thus, the colony apparently had begun with birds roosting there in 1982/83, a summer of strong winds when take-off and landing were easy, even though the site was a sea-level shellbank.

On 23 November 1983, about 600 gannets were on the Shellbanks in two colonies (colonies 1 & 2; Fig. 2) with a total of 70-80 occupied nests, some of which had eggs. On 19 January 1984, the nesting gannets had chicks and a roosting flock of adult birds was on an outer bank.

### 1984/85

This season the number of breeding pairs increased to c. 126 and a third colony was formed to the east.

On 10 August, gannets were seen visiting the colonies. On 27 September, 50+ gannets and about 30 occupied nests (at least one with an egg) were in colony 1, and about 80 gannets were in colony 2. A further 500 were fishing offshore on both sides of the Spit.

On 13 October 1984, 200-300 gannets and about 50 nests were on the Shellbanks. A fortnight later about 400 gannets were in three separate colonies.

On 11 January 1985, 16 chicks and c. 40 occupied nests were counted in colony 1, 14 chicks and 30 occupied nests in colony 2, and three chicks and 23 occupied nests in colony 3.

On 8 March 1985, 28 chicks were counted in colony 1, one chick in colony 2 and two chicks in colony 3. Presumably many of the chicks had fledged because dead chicks were not found on the colonies or the nearby coast. Few adult birds were at colonies 2 and 3, which had been washed over by high tides. A normal 4 m spring tide affects the nesting colonies only if accompanied by strong winds or an ocean swell.

### 1985/86

Once again there was a further increase in breeding pairs to about 240. Twenty-two dead chicks were found in the colonies in January, which is the only occasion when more than the odd dead chick was seen.

On 28 September 1985, all three colonies had occupied nests, and eggs were seen in colonies 1 and 2. On 12 November, colonies 1 and 2 each had about 100 occupied nests, and about 200 adult birds were counted in colony 1 and about 220 in colony 2. Colony 3, which was still the smallest, had about 80 occupied nests and 150 adult birds. On 12 December, 1 chick was seen among gannets but no effort was made to see any more.

On 29 January 1986, the chicks were counted as follows:  
Colony 1: 70-80 live chicks plus 12 dead. This colony had roughly equal numbers of downy and fully feathered chicks.  
Colony 2: 70+ chicks plus three dead. Most chicks in this colony were fully feathered.  
Colony 3: 90+ chicks plus seven dead. This colony had become the largest and had more downy than feathered chicks.

Colony 1 still had the most adult birds, many of them roosting at the western end. Some of the dead chicks may have been killed by a storm on 25-26 January. Dead chicks have been seen only after storms or particularly high tides.

### 1986/87

This season there was another encouraging increase in breeding pairs to about 360. A banded adult (band M9253) gave the first indication of where these gannets originated. It was a breeding bird with a chick. This bird had been banded as a chick on White Island in 1981.

On 3 November 1986, there were over 300 gannet nests on the Shellbanks, an increase in nesting from the previous season. On 2 December 1986, although the number of adult birds was much the same as in early November, more birds seemed to be breeding. Chicks in full down were in all three colonies.

On 30 January 1987 the chicks were counted without causing undue disturbance, and so some chicks in the middle of the colonies or under adults may have been missed. Colonies 1 and 2 each had 130 chicks and colony 3 had 100. Some birds were still on eggs. Colony 3 was extending to the southeast and gannets were roosting on the outer shellbank. The number of adult gannets was estimated at 900.

On 27 February 1987, colony 1 had about 120 feathered chicks and 10 downy chicks.

Colony 2 had only 65 feathered chicks. Some may have already left for sea because there was no obvious mortality in the colony or along the nearby coast.

Colony 3 had about 100 feathered chicks and three downy chicks. One naked chick was also seen and one adult was still sitting on an egg.

On 6 March 1987 Patrick Riddett, the Department of Lands & Survey ranger at the lighthouse, reported that the tide had washed over colony 1, which had 100 chicks. Colony 2 had 40 chicks and the bank on the south side of the colony had been cut back by the sea. Colony 3 had 112 chicks, one newly hatched chick, and an adult still sitting on an egg.

On 29 March 1987, colony 1 had 13 feathered chicks, two downy chicks, and about 100 adult gannets, colony 2 had only two downy chicks and about 100 adults, and colony 3 had five feathered chicks and two downy chicks. The adult birds were very flighty and those at colony 3 lifted off before they could be counted.

On 10 April, three chicks were in colony 1, no chicks in colony 2, and two chicks in colony 3.

On 18 May 1987, only one feathered chick was in colony 3 and about six adult birds were hovering around. The other two colonies were empty. The single chick appeared to be well fed but unable to fly.

### 1987/88

This season the numbers of adult gannets increased to about 1800 while the number of breeding pairs almost doubled to about 600.

Banded birds seen included the banded bird of the 1986/87 year and three whose bands could not be read.

On 27 October 1987, colony 2 was seen to have been cut in half by the tide and had become 2a and 2b (Fig. 2). About 1050 adult gannets were on the colonies as follows: colony 1 about 300, colony 2a about 100, colony 2b about 250, and colony 3 about 400. Eggs were seen under the birds.

In early January 1988, during an OSNZ study course on Farewell Spit, the gannets were observed from a marram sandbank some 30 m from colony 2b. It was estimated there were some 1600 to 2000 adult birds and well over 300 chicks. On 12 January, Patrick Riddett counted 536 chicks in the three colonies.

On 2 February 1988, a further count was made by OSNZ members: Colony 1: 187 feathered chicks, 14 downy chicks, one naked chick and two birds on eggs.

Colony 2a: 36 feathered chicks, five downy chicks, and two birds on eggs.  
Colony 2b: 108 feathered chicks, 17 downy chicks, and one or two birds on eggs.

Colony 3: 208 feathered chicks, 14 downy chicks, and three or four birds on eggs.



FIGURE 3 — Colony 1 (foreground), looking eastward towards Marram Sandbank (left), Island (centre distance), and colonies 2 and 3 (right distance)

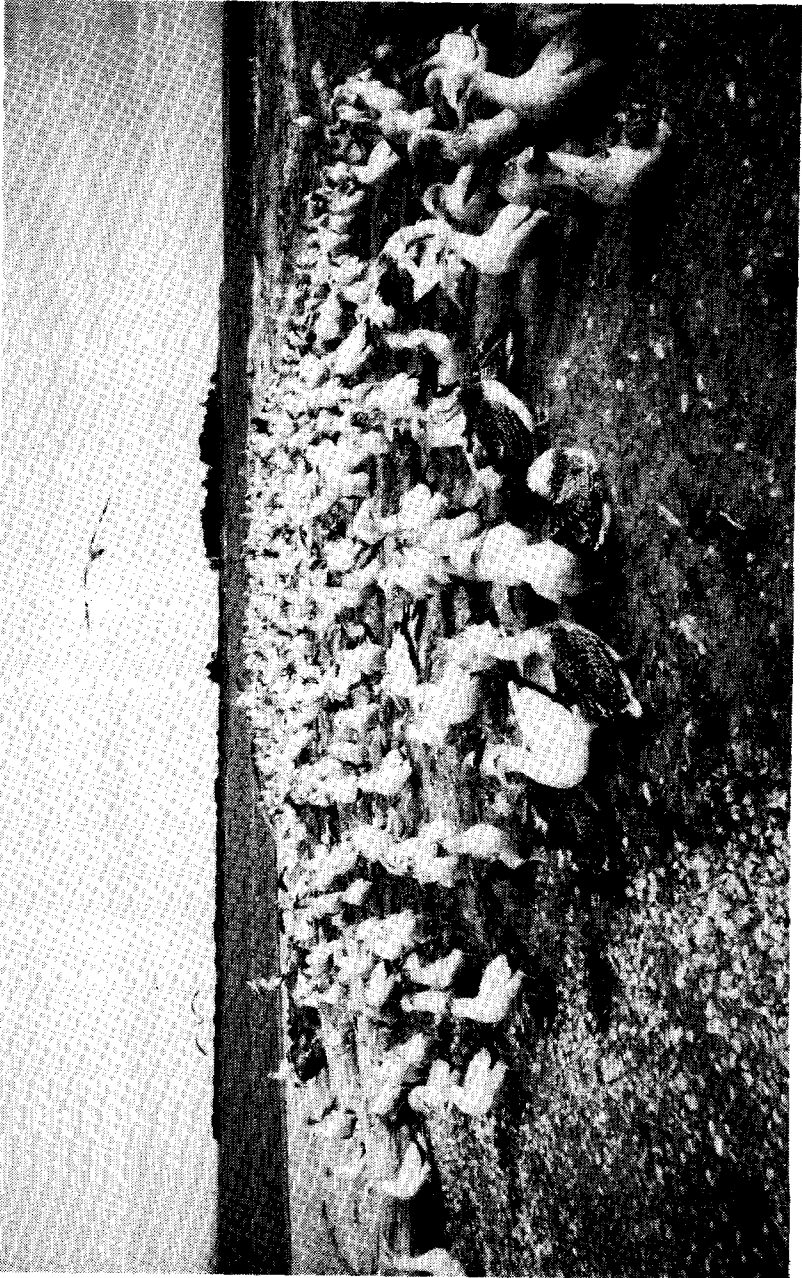


FIGURE 4 — Colony 1, looking westward towards lighthouse



FIGURE 5 — Colonies 2a and 2b (foreground); colony 3 beyond



Altogether there were some 600 occupied nests, a similar total to that of 12 January. The only dead chick seen was a feathered one in colony 2b. At least two of the adult birds were very speckled on the wing, and the tail feathers of adults varied greatly from totally white through to totally black. See Sibson, this issue, pages 261-264.

On 17 February, chick numbers were as follows:

Colony 1: About 180 feathered chicks, two downy chicks and one dead downy chick.

Colony 2a: 38 feathered chicks and two downy chicks.

Colony 2b: About 120 feathered chicks, three downy chicks and one adult on an egg.

Colony 3: About 180 feathered chicks, two downy chicks and two adults on eggs.

The last two nests, which were a little apart at the west end of the colony, were the same two as seen on 2 February.

On 18 February, a 4.1 m tide and a moderate southeast wind pushed the water over many parts of the Shellbanks. Colony 1 was very exposed to the waves at the east end, and the chicks kept trying to stay on their nest sites even when repeatedly bowled over and over by the breaking seas. At the top of the tide the chicks were finally pushed into a tight mass. Many of the adults had left the colony and were sitting on the water close by.

Although slightly higher ground was near the west end of the colony, none of the gannets moved to it, whereas the Black Swans (*Cygnus atratus*) had moved in with the tide and many were roosting on the banks.

The other three colonies were all washed over in parts by the tide but the chicks there could keep to their sites.

Four banded adult gannets were seen. One on colony 2b, banded on the left leg, could only be read partly as M39???. This series had been used only at White Island (C.J.R. Robertson, pers. comm.). Of three banded birds in colony 1, only one band, M39253, could be read. This was the same White Island bird seen in February 1987, and it was occupying the same site.

On a brief visit on 14 March, after high tides and strong winds had partly washed over the colonies, the colonies were found to have survived intact, most chicks being old enough to float on the water. The adult birds were not counted. Colony 1 had 35 feathered chicks, colony 2a had 12 feathered and one downy chicks, colony 2b had 14 feathered chicks, and colony 3 had 14 feathered and two downy chicks. The two separated nests at the west end of colony 3 were empty.

On 27 March Patrick Riddett counted c. 550 adult gannets, 12 feathered chicks and three young flying overhead at colony 1, c. 50 adults, two feathered chicks and one downy chick at colony 2a, c. 250 adults and four feathered chicks at colony 2b, and c. 500 adults but no chicks at colony 3. The colonies were very noisy with the birds displaying – head shaking and wing opening. Some gannets were carrying nest material (*Zostera*). A further 200 birds were flying offshore.

No further visit was possible until 15 May. As the colonies were approached 5 or 6 adults flew off them, but between 1600 and 1745 hours no birds were seen to actually land on any of the colonies though up to 12 adults and one juvenile were flying above them. Gannets were feeding offshore on both sides of the Spit.

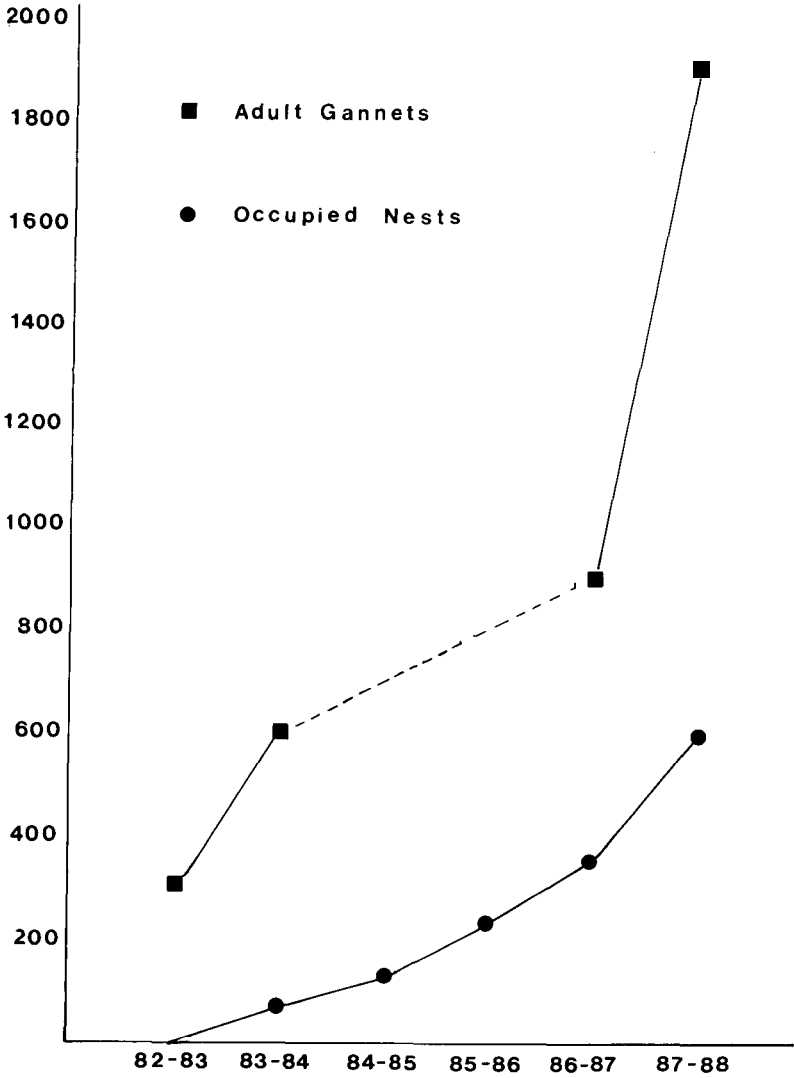


FIGURE 6 — Increase in numbers of adult gannets and occupied nests from 1982 to 1988

No gannets were present on the Shellbanks before sunrise on the 16th, but between 0830 and 1145 hours, up to six gannets were continually flying over the three colonies but not landing. High water was at 1003 and there were gulls, waders and swans roosting on the Shellbanks.

### DISCUSSION

After five breeding seasons with increasing success each year (Fig. 6) the colony seems well established. It should continue to thrive, provided storms or high tides cause no major structural damage to the Shellbanks, the food supply is maintained, and human interference is minimal.

The decrease in the pelagic fishery in Golden and Tasman Bays may have led to an increase in the surface fish suited to the gannets' food requirements (P. Wilson, pers. comm.).

During the breeding season gannets have been seen returning to the colony from all directions, and feeding gannets are common along both shores of Farewell Spit and in Tasman and Golden Bays. Even in stormy weather there is usually some sheltered water where they can feed.

This is the only sea level colony in New Zealand and the largest gannet colony in the South Island. However, sea level colonies were attempted at Portland Island in the 1970s and there have been continuing attempts at Cape Kidnappers in the 1980s (C.J.R. Robertson, pers. comm.). With the usual strong winds at Farewell Spit, the gannets can lift off vertically from their nests without affecting their neighbours. On the infrequent occasions when there is little wind the gannets have to paddle along the ground, often regurgitating food and disrupting other incubating birds. People should therefore keep away from the colonies in calm weather. One gannet regurgitated nine pilchards (*Sardinops neopilchardus*), each 13-15 cm long. A second bird regurgitated eight similar fish.

Adult gannets are in Tasman and Golden Bays throughout the year, but immature birds are rarely seen. During the winter the gannets are not known to use the Shellbanks and all traces of their nests are usually blown or washed away.

The gannets have affected the numbers of other species nesting on the Shellbanks. The Red-billed Gulls have largely stopped breeding there, although 12-20 birds are always around the fringe of the colony. Occasionally one or two pairs do nest. The White-fronted Terns, always fickle nesters, have not nested there at all since the arrival of the gannets.

Over the last five years Caspian Tern breeding has increased gradually to about 150 nests. Their breeding seems to have benefited from the protective 'umbrella' of the gannets, which reduces harassment from Red-billed Gulls which still hang around.

About 80 pairs of Black-backed Gulls nest on the Shellbanks and at least one or two pairs are always patrolling the gannet colonies. These gulls prey on Caspian Tern chicks but have not been seen to prey on gannet eggs or chicks. However, they have been seen eating fish regurgitated by gannets taking off when disturbed.

## ACKNOWLEDGMENTS

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## SHORT NOTE

## A six-egg clutch of Yellow-breasted Tit

On 12 December 1987 I came across a nest of Yellow-breasted Tits (*Petroica m. macrocephala*) in the bank of a stream at Craigieburn, approximately 35 km east of Arthur's Pass. It was tucked in beside a tree stump with overhanging grasses concealing it. To fill in a Nest Record Card I carefully lifted out the chicks and to my surprise found there were six. They were a few days old but still naked. On 19 December I checked again and all six chicks were still alive. I spent some hours watching the nest on the 19th but at no time did I see more than one female.

In a search through the literature available to me the only other record of six that I can find is Stidolph's report in *The Birds Around Us* (1971) of a Pied Tit (*P. m. toitoti*) in the Wairarapa with 5 eggs and a newly hatched young. (He does mention a Robin's nest on Kapiti Island with 6 eggs.) The Nest Record Scheme has no cards for Yellow-breasted Tit with 6 eggs (H. A. Robertson, pers. comm.). The usual range of clutch size given is 3 or 4 (Oliver 1955) or 3 - 5 (C. A. Fleming in *Complete Book of New Zealand Birds - Readers Digest* - and Falla *et al.*, *New Guide to the Birds of New Zealand*).

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