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LONGEVITY OF THE CRESTED TERN *Sterna bergii* IN SOUTH AUSTRALIA

M. WATERMAN[1] and M. D. MURRAY[2,3]

[1]"Debmar Park", 28 Gordon Avenue, St. Agnes, South Australia 5097
[2]17 Ashmore Avenue, Pymble, New South Wales 2073
[3]Corresponding author

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Recoveries of alive and dead Crested Terns *Sterna bergii*, banded as chicks at the colonies on Stonywell, Halfway, Troubridge and Penguin Islands in South Australia, have shown that birds can survive as long as 32 years. Although most birds were breeding between 4–18 years old, several breeding birds of 19–29 years were also captured.

INTRODUCTION

Waterman *et al.* (2003) described two types of dispersal of Crested Tern *Sterna bergii* chicks from their natal islands in South Australia. Recoveries from the southern colonies were mainly eastwards around southeastern Australia to as far north as southern Queensland, whereas those from colonies around the Gulf St. Vincent and Spencer Gulf were mostly within these gulf regions. Chicks were banded regularly at two localities: Stonywell Island and Halfway Island in the south of the Coorong from 1962–1983, and Troubridge Island at the southern end of the Yorke Peninsula from 1966–1975 and 1985–2003. These colonies were also searched for banded breeding adults, and the data obtained from the retrapped birds, together with those from other recoveries of birds banded as chicks, from these and other colonies, have given information on the longevity of Crested Terns.

METHOD

Birds were banded with aluminium bands supplied by the Australian Bird and Bat Banding Scheme. Banded breeding adults were captured with a hand-net when sitting on eggs during late incubation or on young chicks before they dispersed around the colony.

At Stonywell and Halfway Islands searches for banded adults were made in 17 of the 22 years. However, intensive searches were not attempted because the islands were visited when it was best for banding chicks, and breeding birds were not accustomed to the presence of humans. At Troubridge Island searches commenced in 1999 and have been intensive since 2002. This was possible because the birds were accustomed to the presence of humans and the island was visited at an appropriate time. The Troubridge data in this paper includes that up to 2004. Data from Penguin Island, which was visited less frequently, are also given. The data from other South Australian colonies are that for birds recovered when 19 years or older.

The adult birds captured were either of known age because they had been banded as chicks, or of unknown age because they had been banded as breeding adults. All chicks were aged from the first of March for reasons given previously (Waterman *et al.* 2003). Thus, they were one-year, two-year, three-year etc., being within their first, second, third year etc. of the annual nonbreeding and breeding cycle. Data from chicks recovered before 1 March, i.e. 0-year old, are not included in the analysis.

Figure 1. *Satellite image of the Crested Tern study area along the South Australian coastline.*
Image courtesy of NASA 'Visible Earth'(http://visibleearth.nasa.gov/).

Recoveries were classified as breeding, alive or dead birds. Alive birds were captured away from a breeding colony. In this group are included the few that were shot, because at the time they were alive and healthy. A major effort has been made from the 1980s to read band numbers of birds in the wild with telescopes. Only data supported by recoveries from elsewhere have been accepted, as the small bands used on Crested Terns, with the band number around the band, are difficult to read. A full discussion on the care required when using binoculars or telescopes to read bands, which were larger and especially designed for this purpose, on Silver Gulls *Larus novaehollandiae* is given by Ottaway *et al.* (1984). Birds that were alive but injured or exhausted were classified as dead.

TABLE 1

Age-distributions of Crested Terns in South Australia

Locality	Banded as	Recovered	Age (years)																		Totals
			3-year groupings																		
			1-3	4-6	7-9	10-12	13-15	16-18	19	20	21	22	23	24	25	26	27	28	29	30+[#]	
Stonywell I./ Halfway I.	chicks	breeding	7	66	104	82	22	32	3	1	6*										323
Troubridge I.	chicks	breeding	4	45	116	61	4	50	12	3	4						1	1	2		303
Stonywell I./ Halfway I.	adults	breeding	20	25	6	3		1													55
Penguin I.	chicks	breeding	1	15	21	6	2	3													48
Other Is**	chicks	breeding***							2	2	1					1					6
Stonywell I./ Halfway I.	chicks	alive	72	13	6	7	18	8	1	1	1		1	1				1			130
	chicks	alive[†]	51	7	21	16														1[#]	96
Troubridge I.	chicks	alive	28	7	3	1															39
Penguin I.	chicks	alive	46	4	4	3	1	1	1	1[†]	2[†]										63
Stonywell I./ Halfway I.	chicks	dead	275	33	21	25	15	7	3	3	4	1	1	3	1	1	1				394
Troubridge I.	chicks	dead	155	32	8	8	5	5	1		1	3									218
Penguin I.	chicks	dead	113	29	9	8	4	9	1	1	6	1								1[##]	182
Other Is	chicks	dead									1	1									2
							Totals		24	12	26	6	2	4	1	2	2	2	2	2	

* two were captured on Penguin Island

** Other Islands = Bird I., Rocky Is., Goose I. and Baudin Rocks

*** breeding on Troubridge Island

† bands read with a telescope

\# 30 years 2 months

\#\# 32 years 2 months

RESULTS

The intermittent searches for banded breeding birds, even at the most frequently visited colonies, have greatly limited how these data can be presented.

The age-distributions of all birds of known age are given in Table 1. There was a rapid increase in the number breeding after five years and a decline after 16–18 years. The relatively fewer number of 13–15 year birds at Troubridge Island reflects a reduced banding of the chicks which would have produced these cohorts. Two birds from Stonywell Island were found breeding on Penguin Island when 21 years old. Three Troubridge birds were found breeding on Troubridge Island after 28 and 29 years. In addition, chicks from Bird Island and Rocky Islet were captured breeding on Troubridge Island, five from 19–21 years old and one at 26 years respectively.

On Stonywell Island, 866 birds were banded as breeding adults and the age distribution of the 55 that were recaptured is also shown in Table 1. There was a decline in the number retrapped after 4–6 years. Given that all were probably older than 4–6 years when banded, then, the bird captured after 16 years could well have been over 21 years.

Five birds were recovered alive after 19–24 years, and one after 28 years. The band of another was read with a telescope when the bird was 30 years and 2 months old. Dead birds were recovered after 19–32 years.

DISCUSSION

Breeding birds between 4–12 years were the most abundant and there were still many in the 16–18 and 19–21 year groups, after which numbers declined. A few were as old 27–29 years (Table 1). The only study of Crested Terns elsewhere with comparable data has been that of Crawford *et al.* (2002) in South Africa. Their extensive data shows movement between colonies, as reported by Carrick *et al.* (1957) in New South Wales, Dunlop and Storr (1981) in Western Australia, and Waterman *et al.* (2003) in South Australia, and full recruitment to breeding by six years extending to 21 years. The South Australian data are basically similar but extend the breeding life to 29 years. The true age distribution of older breeding birds will be determined in the next years, in a continuing study in South Australia with intensive searches for birds banded as chicks. It is to be hoped that intensive searches of other breeding colonies will continue while banded populations are available. The value of careful sight-reading of bands is demonstrated in Table 1.

Recoveries of alive and dead birds away from colonies support the pattern of longevity of breeding birds. The recent recovery of a bird banded on Penguin Island, SA in December 1975 and recovered dead at Point Ricardo, Vic. in February 2008 extends the known longevity for this species to 32 years, 2 months (Anon. 2008). These data are further supported by recoveries from colonies elsewhere in Australia: Broughton Island (21 years) and Five Islands (22 years) in New South Wales; Corner Inlet, Victoria (20 years); Green Island, Tasmania (23 years) (Anon. 1999, 2005, 2000, 2002 respectively). Clearly, the Crested Tern in Australia is a long-lived bird. These older birds may make a significant contribution to population stability.

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