

## SHORT COMMUNICATIONS

### CENSUS OF BIRDS AT CAREEL BAY, NSW

Careel Bay lies twenty-nine kilometres north of Sydney. It is bounded by Sand Point to the north and Stokes or Stripe Point to the south and opens to Pittwater, a natural harbour, which opens to Broken Bay and thence the sea. At high tide Careel Bay encloses approximately 155 hectares of water but as the tide recedes sixteen hectares of weed, mud and a little sand are generally uncovered twice daily at the southern end. At datum low tide this uncovered area increases to about twenty-nine hectares, most of this increase being weed submerged in up to 0.25 metre of water. In 1973, high tide varied between 1.0 and 2.0 metres and low tide between 0.0 and 0.7 metre with a maximum diurnal variation of 2.0 metres and minimum of 0.4 metre.

The shallows are divided into two areas by a small promontory of sand. The southern half is backed by over four hectares of mangroves, principally *Avicennia marina*, behind which are eighteen hectares of reclaimed land constituting a rubbish tip and playing fields. A small creek runs through the reclaimed land and the mangroves to the bay. The other shores are lined by suburban houses. Some people consider that the reclamation ought to be extended over the remaining mangroves and to fill in the shallows. Others consider that no more reclamation ought to be undertaken because the bay is an important area in which fish breed.

TABLE I  
Conditions and times\* of observations

Date	Low Tide		Sunset	60 minutes observation began
	Height(m)	Time		
9 Jan	0.2	17:35	19:10	16:15
11 Jan	0.3	18:53	19:10	16:30
14 Jan	0.5	10:13	19:10	10:25
21 Feb	0.3	16:56	18:42	16:35
10 Mar	0.4	17:55	18:20	16:55
21 Apr	0.5	16:13	17:25	15:25
5 May	0.3	15:46	17:11	15:40
2 Aug	0.3	16:48	17:15	16:00
19 Aug	0.4	17:46	17:27	16:15
1 Sep	0.3	17:15	17:37	16:15
1 Oct	0.4	17:38	17:58	16:05
22 Nov	0.3	12:53	18:43	14:50
29 Nov	0.4	17:29	18:49	16:40
13 Dec	0.0	17:09	19:01	15:50
29 Dec	0.3	17:32	19:09	16:35

\* Eastern Standard Time

With this uncertain political situation in mind, we censused the birds in the area bounded by the mangroves, the mouth of the creek, the small promontory of sand and a line from the promontory to the edge of the shallows at datum tide, along the edge of the shallows to the wharf on the western bank and back to the mangroves. This area encompasses ten hectares of mud, weed and water and is broken only by one sizable mangrove, two posts and several dead branches, which provide perches for kites, kingfishers and cormorants.

The salinity of the bay was slightly less than that of the open sea on 29 December 1973 when there had been no recent rain. Samples of water taken over the mud and from the edge of the bay both showed 35 parts per 1,000 weight for weight of total solids and 18.9 grams of chloride per litre whereas water from the open sea taken at the same time showed 40 parts per 1,000 total solids and 20.3 grams of chloride per litre.

#### METHOD AND RESULTS

In 1973, we observed the birds for a period of sixty minutes on each day of censusing. Except twice, we chose days when low tide occurred within two hours of sunset and began the census on a falling tide (Table I). We chose these conditions particularly to standardize results, but from observations on 14 January and 22 November, under different conditions, it appears that this was unnecessary. During the period of observation we waded across the mud to cover the whole area and each bird was inspected with standard 10 x 50 and wide-angle 7 x 35 binoculars. No observations were made in June or July because we were overseas and one of us alone made the census on 2 August and 29 November.

Details of the censuses and scientific names are given in Table II. The significant feature of the study seemed to be that flocks and small parties of White Ibis, White-faced Herons, Royal Spoonbills and a pair of Mangrove Herons were present more or less throughout the year. Up to four Eastern Curlews were also seen regularly, one remaining through the winter. The White Ibis, White-faced Herons and Eastern Curlews commonly fed together on the mud, but the Royal Spoonbills tended to keep to themselves searching the shallow pools and water's edge. The Mangrove Herons ranged over the whole area.

White Egrets, and once a Plumed Egret, were seen

TABLE II  
Bird censuses of Careel Bay, 1973

	Jan 9	Jan 11	Jan 14	Jan 21	Feb 10	Mar 21	Apr 5	May 2	Aug 19	Sep 1	Oct 1	Nov 22	Nov 29	Dec 13	Dec 29
Pelican <i>Pelecanus conspicillatus</i>															1
Gannet <i>Morus serrator</i>											1				
Black Cormorant <i>Phalacrocorax carbo</i>	2	1*	2		5		1						1		1
Little Black Cormorant <i>P. sulcirostris</i>	6*	1+1*			1	2	3							1	
Pied Cormorant <i>P. varius</i>					2				1	2			1		
Little Pied Cormorant <i>P. melanoleucos</i>	2*		1+3*	34*	2	3	2	1	2		1	1	2	2	3
Night-heron <i>Nycticorax caledonicus</i>	1			1*											
Mangrove Heron <i>Butorides striatus</i>	2	2	1	3	1				2	1		2	1	1	2
Plumed Egret <i>Egretta intermedia</i>						1									4
White Egret <i>E. alba</i>			1		2*	1			1	1					
White-faced Heron <i>Ardea novaehollandiae</i>	6	8	8		6	10	11	4	6	5					3
White Ibis <i>Threskiornis molucca</i>	24	26	27		4	28	17	4	11	5	10	1			5
Royal Spoonbill <i>Platalea regia</i>	2	1	1				1	6	11	3	9			2	
Black Duck <i>Anas superciliosa</i>	14	8	4*	5	13	15	9	6	2	2	3	4	3		
Whistling Kite <i>Haliastur sphenurus</i>							1		1*		1				
Dusky Moorhen <i>Gallinula tenebrosa</i>	1			2	1										
Spur-winged Plover <i>Vanellus miles</i>	1	1	4	3	3	3	3	2		2		2	2	3	5
Eastern Curlew <i>Numenius madagascarensis</i>	2	2	2	2	1	1	1	1	1	2	2	4	3	2	2
Silver Gull <i>Larus novaehollandiae</i>	41	63	69	42	56	44	67	4*	59		65	13	22	91	41
Crested Tern <i>Sterna bergii</i>			6	2*		1			2		15				
Domestic Pigeon <i>Columba livia</i>									2*	2*					
Spotted Turtle-dove <i>Streptopelia chinensis</i>				2	1*					2*					
Galah <i>Eolophus roseicapillus</i>	2*	2*		6*	1*	6*	2*	5*	4*		15*	1*		2*	5*
Crimson Rosella <i>Platycercus elegans</i>							2*								
Eastern Rosella <i>P. eximius</i>														1*	
Sacred Kingfisher <i>Halcyon sancta</i>				2		2	3			1					
Dollarbird <i>Eurystomus orientalis</i>															1*
Welcome Swallow <i>Hirundo neoxena</i>	12*	21*	2*	6*	15*	8*	11*	4*	2*	3*	2*	10*	8*	4*	6*
Blk-fcd Cuckoo-shrike <i>Coracina novaehollandiae</i>					2*										
Red-whiskered Bulbul <i>Pycnotus jocosus</i>															2*
Willie Wagtail <i>Rhipidura leucophrys</i>					2		1								
Eastern Silvereye <i>Zosterops lateralis</i>										2*				1*	
Indian Myna <i>Acridotheres tristis</i>				130	1					54*	1*	6*		2*	
Maggie Lark <i>Grallina cyanoleuca</i>			2	1	2*		2								
Black-backed Magpie <i>Gymnorhina tibicen</i>				1											
Pied Currawong <i>Strepera graculina</i>	6*			5*					6*	2					1*
Raven <i>Corvus coronoides</i>	2		2	4	1	1*	3*	1+2*	3*	2+1*					1

\* flying over only.

feeding at the water's edge. The Night-heron was observed only in the area of the creek. On several occasions White Egrets, White Ibis and White-faced Herons were noted just outside the census area; so they were not included in the count. All four cormorants of the Sydney area (Hindwood and McGill, The Birds of Sydney, 1958) were seen, the Little Pied Cormorant predominating.

Black Ducks occurred regularly in the creek or southern part of the area. They were always particularly wary and took to flight at the slightest disturbance. In the creek they were occasionally associated with Dusky Moorhens and on the mud were always near the Spur-winged Plovers, which were present throughout the year. In the northern part of the area nearer the open water Silver Gulls in flocks of up to ninety-one were occasionally associated with Crested Terns. Pelican and Gannet were each recorded once. Children, dogs and fishermen pumping bait, who were regularly on the mud at low tide,

frequently disturbed the birds but did not appear to discourage their presence or feeding.

#### CONCLUSION

By this census, Careel Bay is shown to be a regular feeding ground for ibis, heron, egret and spoonbill and a case for preservation of the mangroves and mud could be made out on this alone. The bay is easily accessible to the general public and is on a city bus-route. The area would make a good Individual Observation Point. If the part far up the creek was excluded and observations restricted to non-passerines it would not be necessary to wade in the mud. A Moorhen or Night-heron might occasionally be missed among the mangroves but this limitation would hardly matter as long as it was constant. The rest of the area can be clearly seen from the road on the west bank, even from a motor car.

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