

BIRDS OF ALDINGA REEF AND THE ADJACENT BEACH OF ALDINGA BAY

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SUMMARY

Analysis of bird observations made at the Aldinga Reef Aquatic Reserve from 1972 to 1996 has shown the presence of 56 non-passerine and five passerine species. Of this total, 13 species (including the five passerines) breed locally, 14 are migratory waders that breed in the Northern Hemisphere and one is a New Zealand breeding wader. A further 13 species were recorded as beach derelicts south of the Reef and 12 species were seen alive on or from the beach at Aldinga Bay but not on the Reef itself.

Aldinga Reef remains an important feeding ground and roosting area for a variety of marine and shore birds. A decline in species diversity during the period of observation is not accompanied by any diminution in the number of birds occupying the Reserve. Threats to the integrity of the Reserve include degradation from pollution of its waters and a steadily increasing human and canine presence.

INTRODUCTION

General

The Aldinga Reef Aquatic Reserve (35°16'S, 138°25'E) lies off Snapper Point, Port Willunga 40 km south of the centre of Adelaide. The 505 ha reserve was established in 1971 with the primary purpose of protecting organisms associated with the Reef and the surrounding sandy substrate from exploitation.

Habitats

To the land observer the most recognisable feature within the Reserve is an intertidal rocky platform extending approximately 800 m along the shore and some 500 m seawards at its greatest width. Southward further smaller, interrupted rocky areas occur, mostly close to shore. The reserve's northern and southern limits are opposite Seabourne Ave, Port Willunga and Thomas St, Aldinga Beach respectively, a distance of 3 km (see Figure 1). At its southern end it joins a further 7 km of sandy beach of Aldinga Bay. The intertidal platform is gradually exposed by the outgoing tide, its outermost edge being exposed only with the lowest monthly tides in calm seas. During this process the platform affords an ideal feeding ground for some shore birds like heron, lapwing and waders. Cormorants,

terns and gulls feed on fish and other marine life which occur along the outer edge of the reef and beyond. The reef acts as a barrier to the passage ashore of dead birds, consequently the predominant occurrence of shore derelicts is south of the reef (see Table 1).

The sandy beach immediately shoreward of the reef varies in width from 10 to 50 m at low tide; it has permanent seaweed cover in parts that affords wind shelter to small waders. The beach is backed by vegetated dunes that give shelter to larger birds, and by 10-30 m high cliffs composed of compacted tertiary sands and outcrops of limestone. There are few similar bird habitats in South Australia, e.g. Carpenter Rocks in the South East (37°55'S, 140°24'E). Birds occurring in the vegetated dune and cliffs are not discussed in this paper.

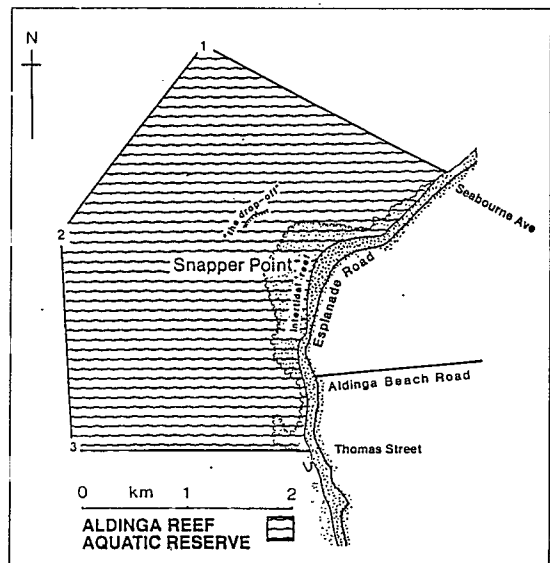


Figure 1. Map of Aldinga Reef Aquatic Reserve indicating the intertidal rocky platform and part of the sandy beach south of the Reserve (adapted from an S.A. Dept of Fisheries brochure).

Table 1. Species recorded not at Aldinga Reef, but as beach derelicts on the open beach of Aldinga Bay.

Species	Details
Little Penguin <i>Eudyptula minor</i>	1 in Oct. 1988 and Sep. 1993.
Southern Giant-Petrel <i>Macronectes giganteus</i>	3 in Sep. 1954 (Glover 1955).
Cape Petrel <i>Daption capense</i>	1 in July 1954 (Glover 1955), and Sep. 1974 (Cox 1976).
Kerguelen Petrel <i>Pterodroma brevirostris</i>	1 in Sep. 1974 (Cox 1976), and Sep. 1981 (Parker and May 1982).
White-headed Petrel <i>Pterodroma lessonii</i>	1 in Sep. 1954 (Glover 1955), and July 1989.
Soft-plumaged Petrel <i>Pterodroma mollis</i>	1 in Sep. 1981. (The first beach-washed specimen for South Australia; SA Museum specimen no. B34119, Parker and May 1982.)
Blue Petrel <i>Halobaena caerulea</i>	1 in April 1914 (SA Museum B19498), Sep. 1954 (SA Museum B24557, Glover 1955), Sep. 1981 (SA Museum B34089, Parker and May 1982), and July 1984 (Glover <i>in litt.</i>), and 2 in Aug. 1984.
Broad-billed Prion <i>Pachyptila vittata</i>	1 in July 1973 (Cox 1976).
Salvin's Prion <i>Pachyptila salvini</i>	1 in June 1935 (SA Museum B17880, Condon 1944), Sep. 1954 (Glover 1955); 1 in Aug. 1973 and 1974, and Sep. 1973 (Cox 1976).
Antarctic Prion <i>Pachyptila desolata</i>	2 in Aug. 1966 (Glover 1968), and 1 in Sep. 1973 (Cox 1976).
Slender-billed Prion <i>Pachyptila belcheri</i>	1 in Aug. and Sep. 1984 (Glover <i>in litt.</i>).
Fairy Prion <i>Pachyptila turtur</i>	1 in Aug. and Sep. 1974 (Cox 1976), Aug. 1980 (Bransbury 1982), July 1984 and in Aug. 1992 (Glover <i>in litt.</i>), and 1 in Aug. 1991.
Yellow-nosed Albatross <i>Diomedea chlororhynchos</i>	1 in Aug. 1984.

Vegetation

Seaward of the reef edge are kelp plants *Ecklonia radiata* and other brown algae such as *Cystophora* sp. and *Sargassum* sp. On the intertidal reef flat in the northern section sea grape *Hormosira banksii* occurs, while in the southern section, where there are more sandy and rock pool areas, there is a greater variety of brown algae, including sea grape and *Caulocystis uvifera*. The pools on the shoreward side of the reef support green sea lettuce *Ulva* sp. and patches of seagrass including eelgrass *Heterozostera* sp. or garweed *Zostera muelleri* (Department of Primary Industries nd).

Inspection of the intertidal platform over the last five years showed minimal vegetation or none at all and increasing sand cover.

Climate

The climate is one of hot dry summers subject to afternoon sea breezes and mild wet winters with occasional storms, usually from the southwest. The coastline in the Aldinga Reef area is characterised by moderate wave energy.

METHODS

This paper summarises observations made by the authors from September 1972 to December 1996. Unusual sightings published in the Bird

Report of the *South Australian Ornithologist*, covering the period 1964 to 1981, or in the SAOA Newsletter since that time, are also included, together with a number of Brian Glover's personal observations. The Appendix represents bird species recorded from the Reserve. Birds not recorded at Aldinga Reef, but found as beach derelicts on the open beach of Aldinga Bay, or seen to the south by the open shore of the Bay are listed in Tables 1 and 2 respectively.

The first author (CA) made 248 visits to the area from July 1977 to December 1996, with 64 being in summer, 70 in autumn, 64 in winter and 50 in spring. No visits were made from 1987 to 1990 and visits were most frequent in 1983 (34), 1984 (31), 1985 (21), 1992 (17), 1995 (20) and 1996 (51). Visit duration averaged 40 minutes. From 1977 to November 1995 visits were made more frequently at times of reef exposure; in December 1995-November 1996 they were made between 0650 and 0900 h. Also on most days from 1977 to 1996 twice-daily walks or bicycle rides of one to five kilometres were taken along the beach south of the Reef.

The second author (AB) made 104 visits from September 1972 to August 1995. Four to eight visits were made in each year during the periods 1972-1980 and 1985-1990; while 1-3 were made in other years. The majority (56) have been in the summer months, with 28 in autumn, eight in

Table 2. Live species recorded not at the reef, but to the south by the open shore of Aldinga Bay.

Species	Details
Australian Wood Duck <i>Chenonetta jubata</i>	4 on the shore in Dec. 1978.
Little Penguin <i>Eudyptula minor</i>	1 in April 1984 and Sep. 1990.
Southern Giant-Petrel <i>Macronectes giganteus</i>	In July 1978 an immature bird took food (chopped liver) from hand. It disappeared the next day when a strong wind arose. Another report, probably of the same bird, was made eight days later (F.N. Smeaton pers. comm.). 3 in Sep. 1954 (Glover 1955) and 2 Giant Petrel sp. in July 1988 (Glover <i>in litt.</i>).
Short-tailed Shearwater <i>Puffinus tenuirostris</i>	1 inshore in April 1960. Large rafts seen offshore in May of all years.
Black-browed Albatross <i>Diomedea melanophrys</i>	1 in March 1968 (Glover 1969).
Yellow-nosed Albatross <i>Diomedea chlororhynchos</i>	1 in Aug. and Sep. 1974 (Cox 1976).
Wedge-tailed Eagle <i>Aquila audax</i>	1 flying inshore and north towards the reef in Feb. 1988 was harassed by different groups of Australian Magpies.
Brown Falcon <i>Falco berigora</i>	1 in April 1994.
Whimbrel <i>Numenius phaeopus</i>	1 in Dec. 1986 (Glover <i>in litt.</i>).
Banded Stilt <i>Cladorhynchus leucocephalus</i>	9 in June 1978.
Gull-billed Tern <i>Sterna nilotica</i>	3, including 1 immature, in Sept. 1978, observer F.N. Smeaton (Bransbury 1984, p. 142; Reid 1980).
Little Raven <i>Corvus mellori</i>	2 in May 1984, Aug. 1985 and Sept. 1988 feeding on dead Plague Locusts <i>Chortoicetes terminifera</i> at tide line.

winter and 12 in spring. Almost all have been in the late afternoon, near high tide.

DISCUSSION

A wide range of marine and shore birds has been recorded at the Aldinga Reef Aquatic Reserve over the last 30 years (mostly on a casual basis) with the emphasis being on unusual sightings rather than the common species. The present survey indicates the importance of the Reserve to cormorants (including the Black-faced Cormorant *Phalacrocorax fuscescens* endemic to southern Australian seas), White-faced Heron *Egretta novaehollandiae*, Red-necked Stint *Calidris ruficollis* and Crested Tern *Sterna bergii*, which regularly use the area in the greatest numbers. Small numbers of Red-capped Plover *Charadrius ruficapillus* are resident and breed sparingly. The Reserve also has small numbers of the endemic Hooded Plover *Thinornis rubricollis* which is confined to southern Australia and now a vulnerable species (Paton *et al.* 1994). The Double-banded Plover *Charadrius bicinctus* regularly migrates here in small numbers from New Zealand. Other waders commoner to other Australian states are unusual sightings. Of these Pacific Golden Plover *Pluvialis fulva* was recorded in 10 years of the period 1968-1980, but not since, despite being

reported more frequently in north-eastern Gulf St Vincent in 1984-1985 than in 1974-1975 (Paton *et al.* 1994). Grey-tailed Tattler *Heteroscelus brevipes*, which was recorded in each year during 1968-1975, has not been recorded since then and there were only three reports of it in the Adelaide region in each of the atlas surveys undertaken by the SAOA in 1974-1975 and 1984-1985 (Paton *et al.* 1994). The Aldinga Reef sightings may have been of the same birds returning each year. Marsh Sandpiper *Tringa stagnatilis*, Red-necked Stint, Sharp-tailed Sandpiper *Calidris acuminata* and Curlew Sandpiper *Calidris ferruginea* were the only Northern Hemisphere migratory species recorded during winter at Aldinga Reef. The Reef has minimal value for land birds.

The declaration of Aldinga Reef as an Aquatic Reserve has lessened some of the threats to its conservation value, e.g. taking marine life is prohibited. However, other threats are escalating, e.g. the increasing human presence facilitated by a board walk from the cliff top to the shore at Snapper Point, increasing amounts of discharge from the Willunga Creek to the north and increasing amounts of soil and agricultural pollutants from the artificial outlet from the Washpool to the south.

Despite these potentially degrading influences, no recognisable decline has been shown in the numbers of birds using the reef for feeding or the beach for roosting. The numbers of Black-faced

Cormorants may have increased in the area. The numbers of White-faced Herons vary enormously but recent totals have been larger than those of twenty years ago. Red-capped Plover numbers decline after a summer peak, which is characteristic of Gulf St Vincent sites (Close and McCrie 1986). Summer maximum numbers were slightly higher in the decade 1979-1988 than before or since. The species continues to breed in the Reserve. Red-necked Stint numbers appear to be increasing with figures of over 200 only since 1986. Our first observation of more than 100 Crested Terns was in 1979, and such numbers may still be observed. There has been no consistent change in Silver Gull numbers.

There has been a decline in species diversity amongst waders. Five to seven species were regularly recorded in the summer months from 1972-3 to 1978-9; since then two to four species are usual. This change is largely a reflection of the absence of the Pacific Golden Plover and Grey-tailed Tattler and it is unknown whether either was a regular summer visitor previously or only over a limited number of years. Both species are reported infrequently in South Australia. The former is an uncommon summer visitor, the maximum total number recorded from the three major Gulf St Vincent roosts from 1976 to 1985 being 33. The latter is rarely observed, with a maximum total in the above surveys of only six birds (Close and McCrie 1986).

The number of winter-visiting Double-banded Plovers has shown a downward trend over the period of this study. Other less common waders continue to be observed from time to time, e.g. the Bar-tailed Godwit *Limosa lapponica*, Sanderling *Calidris alba* and Great Knot *Calidris tenuirostris*.

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APPENDIX

The following birds have been recorded at Aldinga Reef. Observations are those of the first author (CA) except where indicated. Where the number of birds seen during a specified period varied, the minimum and maximum number seen is indicated as a range, e.g. 1-3. 'Breeds nearby' = breeding recorded in Ashton 1987. * = a migratory wader that breeds in the Northern Hemisphere.

Non-passerines

- Musk Duck *Biziura lobata*. A female or immature in Feb. 1981.
- Black Swan *Cygnus atratus*. 1 in Sep. 1977, March and Oct. 1978 and April 1983, 2 in April 1985 (AB), 9 in Nov. 1985, 1 in April 1988 (AB) and March 1996. More frequently seen off shore south of the reef.
- Cape Barren Goose *Cereopsis novaehollandiae*. Recorded Sep.-Jan. only: 3-5 in Oct. 1977, 1979 and 1983, 1-12 in Sep. and Nov. 1980, 2 in Jan. 1984, 1 in Oct. 1996. More often seen on shore south of the reef, especially near a swamp outlet to the sea. However other observers have reported southern beach sightings in March-April 1976 (J. Reid 1976).
- Australian Shelduck *Tadorna tadornoides*. 6 seen inshore Jan. 1988 (AB) or resting on exposed reef, 2 in July 1992, 2-4 in Jan. and March 1996.
- Pacific Black Duck *Anas superciliosa*. On sea near reef: 3 in Aug. 1984. Breeds nearby.
- Grey Teal *Anas gracilis*. On sea near reef: 3 in Feb. 1977 (AB), 4 in Dec. 1978, 22 in Jan. 1979 (AB), 34 in Feb. 1982 (AB), 6-16 in July and Nov. 1983, 3-18 in April and Dec. 1984, 4 in June 1992, 3 in Dec. 1995.
- Hoary-headed Grebe *Polioccephalus poliocephalus*. 2 in Oct. 1977, 2-5 in April-May 1978, 1 in Aug. 1983, 8 in May 1991 (AB), and 2 in May-June 1992 and April 1996. 1 found dead and with head missing in the backing dune in Dec. 1979.
- Short-tailed Shearwater *Puffinus tenuirostris*. 1 on beach in Aug. 1984. Beach derelicts: 2 in Nov. 1980, 1 in May 1981 and 1982.
- Australasian Gannet *Morus serrator*. Occasional sightings flying at sea near the reef: 1 in Feb. and Oct. 1978, 2-3 in July-Sep. 1985. More often recorded south of the reef especially in winter's high winds - in numbers up to 10.
- Little Pied Cormorant *Phalacrocorax melanoleucos*. Regularly in numbers up to 10, increasing to up to 23 on outermost reef exposure.
- Black-faced Cormorant *Phalacrocorax fuscescens*. Seen mostly on the outermost part of the exposed reef, 1-80 frequently present, usually forming a group separate from other cormorant species. On the beach (reef covered) 14, including 4 immatures, in Nov. 1984. The nearby Gull Rock south of Maslin's Beach was reported to be a regular roost for about 30 birds (Glover 1968), but the numbers there appear to be higher in recent years, e.g. 80 in Jan. 1991 (AB).
- Pied Cormorant *Phalacrocorax varius*. In small numbers in all months yearly, with up to 14 on outer reef edge.
- Little Black Cormorant *Phalacrocorax sulcirostris*. In small numbers in Aug. and Oct. 1978, 1 in Oct.-Nov. 1996.
- Great Cormorant *Phalacrocorax carbo*. Flying over: 21 in April 1992, 1 in Aug. 1992.
- Australian Pelican *Pelecanus conspicillatus*. One in Nov. 1973, Feb.-March 1981, July 1982, Jan. 1983, Aug. 1985 and 1988 and May 1991, 1-2 in April, June, Sep.-Oct. 1992, 4 in June 1994, 2 in Dec. 1995, 1-3 in Jan.-March 1996.
- White-faced Heron *Egretta novaehollandiae*. Present throughout the year in numbers up to 100, but on average 20, with largest numbers in April-June. Often seen resting nearby waiting for water over the reef to become shallow enough to feed. A seasonal wetland 5 km to the south provides an alternative feeding area. Breeds nearby in eucalypts (10 nests in 1980-1984).
- Eastern Reef Egret *Egretta sacra*. 1 in Nov. 1972 (AB), March, April 1974 (AB), April 1978, Aug. 1978 (AB), July 1993 and July 1994 (B Glover *in litt.*).
- Great Egret *Ardea alba*. 1 flying low over sea near the shore in Sep. 1990 and Jan. 1994. 2 on rock near shore in March 1996.
- Osprey *Pandion haliaetus*. 1 in Dec. 1973 (AB) (Cox 1976), May 1974 (AB) and April 1987 (Glover *in litt.*)
- Black-shouldered Kite *Elanus axillaris*. 1 occasionally seen in any month hovering over cliff and shore. Breeds nearby.
- Whistling Kite *Haliastur sphenurus*. 1 in June 1983, quartering for 12 minutes approximately 10 m above the exposed reef until 6 Silver Gulls drove it higher and away.
- White-bellied Sea Eagle *Haliaeetus leucogaster*. 1 in July 1985 near the reef and 2 over the shore south of the reef in March 1994.
- Australian Hobby *Falco longipennis*. 1 in Jan. 1995 (AB).
- Nankeen Kestrel *Falco cenchroides*. 1 occasionally seen in any month hovering over cliff and shore. Breeds nearby.
- *Bar-tailed Godwit *Limosa lapponica*. 1 in Dec. 1995 to Jan. 1996 and 2 in Oct.-Nov. 1996.
- *Eastern Curlew *Numenius madagascariensis*. 1 seen eating a rock crab in Jan. 1996.
- *Marsh Sandpiper *Tringa stagnatilis*. 1 in Feb. 1971 (Glover 1973), and April and June 1992.
- *Common Greenshank *Tringa nebularia*. 2 in Nov. 1972 (AB), 1 in March 1983, 4 in Feb. 1986 (AB), 3 in Jan., April (AB) and Dec. 1995, 3-5 in Jan.-April 1996. Of these latter birds, 3 assumed partial breeding plumage from mid-March, 2 of these birds had left by 12 April and 1 remained in April in non-breeding plumage.
- *Grey-Tailed Tattler *Heteroscelus brevipes*. First confirmed South Australian record was of 1 banded by M. Waterman and others at ICI Saltworks, N of Adelaide, on 26 Oct. 1964 (Condon 1965). 2-4 at reef in Jan.-March 1968 (Glover 1969), 4 in Jan. 1969 (Glover 1971a), 1 in Feb. 1970 (Glover 1971b), 2 in Feb. and March 1971 (Glover 1973), 2 in Nov. and Dec. 1972 (AB), 3 in Jan. and 2 in May 1973 (AB), 2 in Dec. 1973 (AB), 3 in March and 2, showing partial breeding plumage, in April 1974 (AB), 3 in Jan. 1975 (AB). No reported sightings since.
- *Ruddy Turnstone *Arenaria interpres*. Recorded in most years in small numbers from Sep. to Feb. A maximum of 7 birds in Jan. 1992 (AB).
- *Great Knot *Calidris tenuirostris*. Possible sighting of 1 in Jan. 1975 (Black 1975). Further observations made in Sep. 1992-1994 (B Glover *in litt.*).

APPENDIX *continued*

- *Sanderling *Calidris alba*. 1-7 seen on 3 consecutive days in Dec. 1973 (AB & Cox 1976), and 1 in Sept. 1974 (Cox 1976), Jan. (AB) and Oct. 1975 (Reid 1976). 2 on Aldinga Bay Beach on 31 March 1983.
- *Red-necked Stint *Calidris ruficollis*. Individuals (mainly first year birds) over-winter in Australia and this includes the Aldinga region. Recorded every year in all months: 5-200 in Aug.-Oct., 30-350 in Nov.-April, 2-37 in May-July. Congregates in flocks on the beach, especially in the early morning, then spreads out to feed on the exposed reef. Within a flock of 350 birds, which appeared in Dec. 1995, up to 6 began to show breeding plumage in mid-March 1996. By 18 April the flock had decreased to 130, with 3 in breeding plumage. Of 30 remaining on 12 May none were in breeding plumage.
- *Sharp-tailed Sandpiper *Calidris acuminata*. 1 in Oct. 1977, 3 in Dec. 1979, 1 in Jan. 1981 (AB), 20 in July 1991, 3 in Nov. 1992 and 1 in Nov. 1996.
- *Curlew Sandpiper *Calidris ferruginea*. 1-3 usually Oct.-April of some years. 1 in June 1992 was in breeding plumage and showed a rufous chest and spotted back.
- Pied Oystercatcher *Haematopus longirostris*. 1 in Jan. 1976 (AB), March-April 1978 and April 1980. For lack of reports of these species south of Adelaide to west of Victor Harbor see Paton *et al.* (1994).
- Sooty Oystercatcher *Haematopus fuliginosus*. 3 in May 1973 (AB), 1 in Jan. 1978 (AB) and March 1978, 2 in April-June 1984, 1 in Aug. 1991 and Jan. 1992.
- Black-winged Stilt *Himantopus himantopus*. 2 flying near the shore in May 1996. (Seen on 5 occasions south of the Reserve in numbers up to 10).
- *Pacific Golden Plover *Pluvialis fulva*. 1 on reef in Jan. and March 1968 (Glover 1969) and Feb. 1970 (Glover 1971), 3 in Jan. 1972 (SAOA Newsletter March 1972). From Nov. 1972 1-4 birds were seen each summer, with greater numbers in 1971-72 (7-9, AB) and Jan. 1976 (7, AB), then numbers declined steadily until the last sighting in Jan. 1980.
- *Grey Plover *Pluvialis squatarola*. 3 birds on 15 Dec. 1976 (J. Reid 1976).
- Red-capped Plover *Charadrius ruficapillus*. Variable numbers recorded in all months, with around 10-20 in April-Aug. and 30-100 in Sep.-March, the maximum number in Jan. 1979 (AB). Breeding recorded in shingles south of the reef in Aug. or Sep. in 1980, 1983, 1985 and 1992 and runners were noted at the reef in Oct. 1979, Jan. 1987 (AB), Jan. 1990 (AB), Jan. 1992 (AB), and Aug. 1995 (AB).
- Double-banded Plover *Charadrius bicinctus*. At least 9 in March 1968 at "Aldinga Beach" (Glover 1969), over 20 in April 1971 (Glover 1972) at "Pt Willunga" and 9 in March 1973 (Cox 1976). 1-10 in 1977-1986, except in 1980 and 1981. Since 1986 there have been few records and only of 1 or 2 birds. Breeds in New Zealand.
- *Greater Sand Plover *Thinornis leschenaultii*. 1 in Jan. 1975 (Black 1975), 2 in April 1978 and 1 in Oct. 1993 (B. Glover *in litt.*).
- Hooded Plover *Charadrius rubricollis*. Recorded in some months of most years, but not in 1980-82, and only in one year since 1991 (1-2 in Feb. and Oct. 1993, B. Glover *in litt.*). All but two observations have been of 1-2 at the reef between Jan. and July, but up to 7 on the beach of Aldinga Bay in July 1984.
- Banded Lapwing *Vanellus tricolor*. 50 in Feb. 1971 (Glover 1971), and 12 in March 1978. Breeds nearby.
- Masked Lapwing *Vanellus miles*. Moderately frequent in all months on the exposed reef especially in summer, 34 in March 1996. Seen waiting on the beach prior to the reef being exposed. Breeds nearby.
- Great Skua *Catharacta skua*. 1 in July 1982, 1 in June 1985 (AB) and recorded in June 1986 and 1993 (B. Glover *in litt.*).
- Pacific Gull *Larus pacificus*. Occasional sightings of 1-4 birds in adult and immature plumage Nov.-March. More frequently recorded on the beach at water's edge south of the Reserve in all months except May-June.
- Kelp Gull *Larus dominicanus*. 1 in Aug. 1983 and 1 in Feb. 1985, 20 m from 4 Pacific Gulls. 2 immatures on the open shore south of the reef in Aug. 1983 making a 'mewing yelp' call.
- Silver Gull *Larus novaehollandiae*. Recorded on each visit, occasionally in flocks of 200-300. An exceptional total of 800 on 1 Oct. 1994 (AB) when no terns were present. 1300 in April 1996 in shallow water.
- Caspian Tern *Sterna caspia*. 1-4 recorded in most months.
- Crested Tern *Sterna bergii*. Flocks of 20-50 recorded on all but two (evening) visits, but occasionally 100 or more are seen, with a maximum of 190 in Feb. 1986 (AB).
- Common Tern *Sterna hirundo*. 2 on the shore amongst 20 Crested Terns in Aug. 1983 (SAOA Newsletter Dec. 1983).
- Fairy Tern *Sterna nereis*. Infrequent and in small numbers, not recorded since 1984. 10 in Jan. 1974 (AB), 5 in May 1974 (AB), 3 in Jan. 1975 (AB) and Nov. 1979, 1 in Aug. 1980, 2 in Aug. 1985, 4 in Jan. 1986 (AB) and 1 in July 1986. Not recorded since 1986.
- Whiskered Tern *Chlidonias hybridus*. 4 in Feb. 1985 and 1 in Jan. 1987 (AB).
- Galah *Cacatua roseicapilla*. Often seen flying over, and sometimes settling on the beach in numbers up to 300 to take sand, gravel or shellgrit, or to feed on the seed of sea rocket *Cakile maritima* in summer. Two perched on an offshore rock amongst Silver Gulls in April 1996. Breeds nearby.

Passerines

Magpie-lark *Grallina cyanoleuca*. Occasionally recorded in summer in most years, but regularly present in the early morning in summer-early autumn 1995-1996. Breeds nearby.

Willy Wagtail *Rhipidura leucophrys*. 1-4 frequently seen on the beach and adjacent reef in the early morning in summer-early autumn 1995-1996. Breeds nearby.

Richard's Pipit *Anthus novaeseelandiae*. 4 in May 1984 and 1 in Sep. 1992. Breeds nearby.

Welcome Swallow *Hirundo neoxena*. Occasionally recorded in summer in small numbers in most years, but up to 25 regularly present in the early morning flying over the beach and reef in summer-early autumn 1995-1996.

Common Starling *Sturnus vulgaris*. 2 in Oct. 1983, 6 in Jan. 1985 and 2 in thick seaweed in Oct. 1996. Breeds nearby.