

CHANGES IN THE AVIFAUNA USING ALDINGA SCRUB CONSERVATION PARK

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SUMMARY

A total of 172 species of bird has been seen at Aldinga Scrub Conservation Park and in surrounding areas since 1964. Of these, four species have not been seen since 1971 and 15 species not since 1983, while 13 species have been seen only since 1983. Most of these species were seen infrequently. Amongst the species not seen since 1983 were the Restless Flycatcher *Myiagra inquieta*, Flame Robin *Petroica phoenicea*, Diamond Firetail *Stagonopleura guttata*, and Zebra Finch *Taeniopygia guttata*. Of 149 species seen between January 1976 and July 1983 most showed little change in abundance or status during the next 12 years. However, 13 species showed a decrease in status, abundance or both. Most of these were species that foraged on or near the ground and included robins, flycatchers, babbler, whistlers and grass parrots. Ten species increased in status or abundance during the last 12 years to 1995, including two species of cockatoo and two species of lorikeet.

INTRODUCTION

The Aldinga Scrub Conservation Park, about 45 km south of Adelaide (35°17'S, 138°27'E), was previously known as the Aldinga-Sellicks Beach Scrub. The park is approximately 275 ha in area, consists mainly of dry sclerophyll woodland with some shrub and grassland areas (Ashton 1985) and represents the only large area of native vegetation remaining on the southern Adelaide Plains. Immediately south of the reserve is an ephemeral wetland or swampy area which when full does not exceed an area of 6 ha or a water depth of 1 m (Figure 1). Although this swamp is an integral part of the system it was not included in the park when the park was gazetted in November 1983.

In this paper I report on the distribution and abundance of birds using the Park and adjacent wetland between 1983 and 1995 and highlight some of the changes that have taken place since a similar assessment was made from observations collected between 1976 and 1983.

METHODS

The study site (park plus wetland and out to 200 m from the eastern and northern boundaries) was divided into three, more or less equal, sections. Only one of these three areas was searched on any one visit. In all, 409 visits were made to the study

site between August 1983 and December 1995. Each visit took place in the morning and lasted around 3 h. Visits were spread equally between each of the three areas and spanned all seasons more or less equally, particularly until the end of 1986. From 1987 to 1994 fewer visits were made between February and May than for other periods.

As in a previous survey (January 1976 to July 1983, Ashton 1985), monthly totals for each species were compiled and used to indicate seasonal and yearly variations in abundance. These monthly totals were made by adding the highest counts for each species from each of the three areas. An exception was made for those species known to move rapidly around the park. For these species the highest number seen in any one area was used unless there was good reason to do otherwise. For some species I also plotted sightings of pairs or groups on maps of the park from August 1983 to December 1986 and again from May to December 1995, and compared the numbers of nests or nesting territories with the numbers of birds estimated from counts in each of the three sections of the study site.

Based on these data species were classified as: 'resident' if they were recorded throughout the observation period; 'seasonal' if present for parts of most years with a strong seasonal bias; 'periodic' if present for parts of most years but without a seasonal bias; 'temporary' if present only for a 2–4 month period in some years without a seasonal bias; 'occasional' if recorded on isolated occasions only; and 'flying over' if only seen flying over the park. These assessments were then compared with similar assessments made in the previous survey.

RESULTS AND DISCUSSION

Since 1964, 172 species have been seen at Aldinga Scrub Conservation Park or in the immediate surrounding area. This list includes six escapee species and an additional eight species of introduced birds. Between August 1983 and December 1995, a total of 153 species was recorded (Appendix 1) and this compared well with the 149 species seen

between January 1976 and July 1983 (Ashton 1985). The 15 species seen occasionally in 1976–1983 were not seen in the 1983–1995 survey and 13 species seen in the latter survey were not seen during the first (Table 1). Most of these were species which visited the area occasionally.

Most of the species seen during both surveys showed no change in status or abundance. However, five species showed a decrease in status between the two periods while the status of five others increased (Table 1). Eleven species decreased in abundance from 1976–83 to 1983–96, including the Red-rumped Parrot *Psephotus haematonotus*, White-browed Babbler *Pomatostomus superciliosus*, Scarlet Robin *Petroica multicolor*, Hooded Robin *Melanodryas cucullata*, Yellow-rumped Thornbill *Acanthiza chrysorrhoa*, Superb Fairywren *Malurus cyaneus* and Richard's Pipit *Anthus novaeseelandiae*. The only species showing an

increase in abundance were various species of lorikeet, cockatoo and the introduced Common Blackbird, *Turdus merula*.

The causes of the declines in some species are probably related to the continuing decline in the vegetation at Aldinga Scrub Conservation Park. Over the last 20 years there has been continued invasion of exotic weeds into the park, especially veldt grass *Ehrharta longiflora* which in that time has moved from the eastern border to throughout the park, displacing varying amounts of native understorey and competing with native grasses and bracken (Kraehenbuehl 1989a). Native trees have also continued to lose vigour, probably as a result of altered water tables in the region (Fatchen 1986 cit. in Kraehenbuehl 1989b). Progressive dieback of trees is likely to lead to losses of birds (Ford and Bell 1981). However, most of the species that showed declines in abundance or status forage

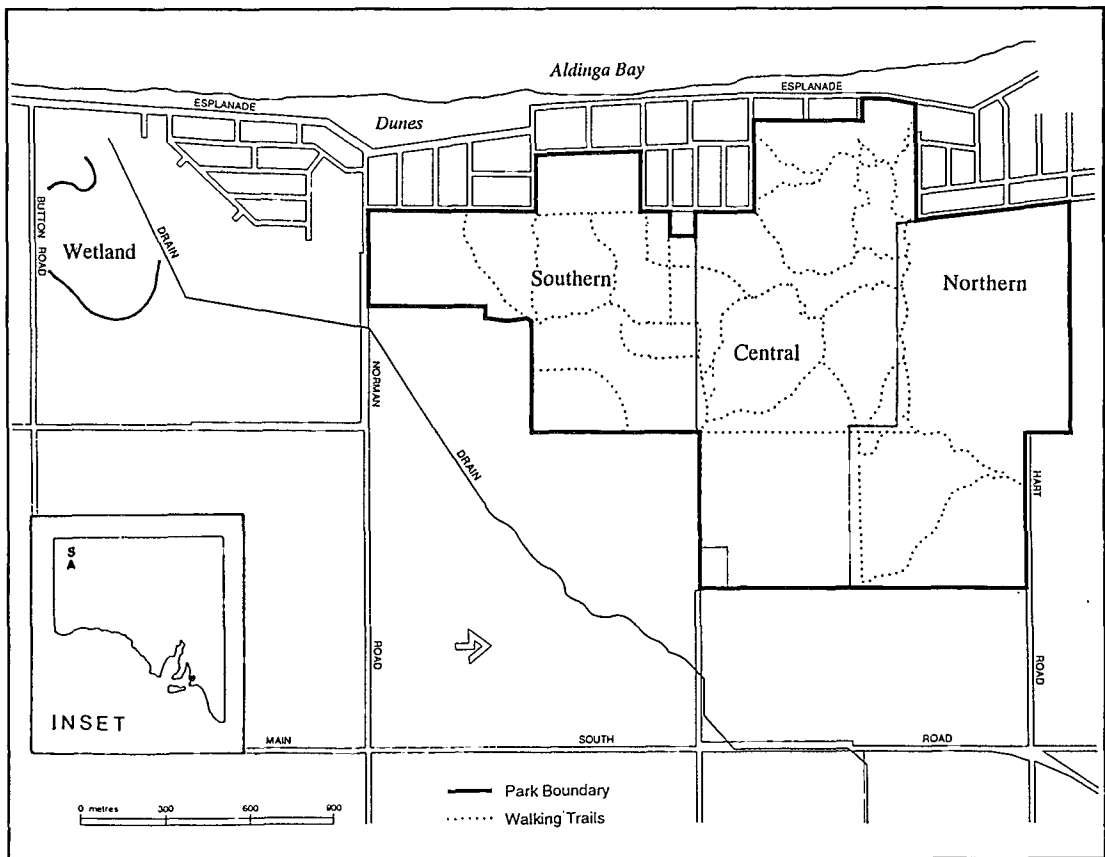


Figure 1. Map of Aldinga Scrub Conservation Park indicating the three study areas, wetland and nearby residential areas (walking trails as used by the author before the introduction of guided paths by the National Parks and Wildlife Service).

Table 1. Summary of changes in the avifauna at Aldinga Scrub Conservation Park from 1976–1983 to 1983–1995. The status of birds for the first and/or second census period is shown (O = occasional; T = temporary; P = periodic; S = seasonal; R = resident). Appendix 1 provides an annotated list of recent sightings.

Category	Species (status)
1. Species seen in 1976-83 and not in 1983-95	Mallard (O); Pied Cormorant (O); Common Coot (O); Bush Thick-knee (O); Whistling Kite (O); Banded Stilt (O); Curlew Sandpiper (O); Diamond Dove (O); Blue-winged Parrot (O); Flame Robin (O); Jacky Winter (O); Restless Flycatcher (O); White-naped Honeyeater (O); Diamond Firetail (O); Zebra Finch (O)
2. Species not seen in 1976-83, but seen in 1983-95 (excluding escapees)	Pink-eared Duck (O); Little Eagle (O); Australian Crake (O); Little Button-Quail (O); Red-necked Stint (O); Caspian Tern (O); Rainbow Lorikeet (P); Western Yellow Robin (O); Yellow-faced Honeyeater (O); Crimson Chat (O); Crested Shrike-tit (O); Masked Woodswallow (O); Little Grassbird (S)
3. Species decreasing in status (1976-83 to 1983-95)	Australian Pratincole (S-O); Brown Goshawk (S-P); Red-rumped Parrot (R-P); Scarlet Robin (R-P); White-browed Babbler (R-P)
4. Species increasing in status (1976-83 to 1983-95)	Banded Lapwing (T-P); Brush Bronzewing (O-T); Weebill (P-R); Red Wattlebird (O-P); Little Wattlebird (S-R)
5. Species declining in numbers from 1976-83 to 1983-95 (excluding category 1)	Red-rumped Parrot (P); Richard's Pipit (R); Scarlet Robin (P); Hooded Robin (R); Willie Wagtail (R); White-browed Babbler (P); Golden Whistler (R); Superb Fairy-wren (R); Yellow-rumped Thornbill (R); White-fronted Chat (R); Silvereye (R)
6. Species increasing in numbers from 1976-83 to 1983-1995 (excluding category 2 and escapees)	Musk Lorikeet (O); Rainbow Lorikeet (P); Galah (R); Little Corella (S); Common Blackbird (R)

on or near the ground suggesting that continued changes to the understorey have been more significant in influencing the maintenance of avian diversity in the region.

Increases in the numbers of Musk Lorikeets *Glossopsitta concinna*, Rainbow Lorikeets *Trichoglossus haematodus* and the Common Blackbird coincide with the establishment of residential gardens near the park, providing these birds with additional opportunities for foraging, while the increases in Little Corellas *Cacatua sanguinea* and Galahs *Cacatua roseicapilla* are consistent with a regional increase in abundance.

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APPENDIX 1

Annotated list of birds seen at Aldinga Scrub Conservation Park and surrounds, August 1983–December 1995. The status of each species during this period is indicated by: R = resident; S = seasonal; P = periodic; T = temporary; O = occasional; and F = flying over. B = species nested and B(Y) = dependent young seen. Where the number of birds seen during a specified period varied, the minimum and maximum number is indicated as a range. * = species not recorded in the 1976-83 survey, while # = newly reported breeding (Ashton 1987).

- Stubble Quail *Coturnix pectoralis* R. 1-8 birds; two shooters bagged 200 birds in adjacent grassland (per H. Matthews).
 Brown Quail *Coturnix ypsilophora* O. Species reported at Willunga 8 km east (Black 1975), but this bird, a road kill, was an escapee.
 Common Pheasant *Phasianus colchicus* O. An escapee; 1 in April 1990.
 Black Swan *Cygnus atratus* S. 2-15 at swamp each year in May-Oct.; 3 flying over in Jan. 1986.
 Cape Barren Goose *Cereopsis novaehollandiae* S. 1 in Sep. 1983, 1-3 in Sep. 1988, 1 in Sep.-Nov. 1991-95 at swamp; 2-3 flying over in Jan. 1984 & 1986.
 Australian Shelduck *Tadorna tadornoides* O. 1 in Nov. 1985, 2 in Sep. 1988-89, 2 in Aug., & Oct.-Nov. 1995 at swamp.
 Australian Wood Duck *Chenonetta jubata* O. 3 in June 1984, 1-2 in Aug. 1985-86, 4 in July 1987 at swamp.
 Pacific Black Duck *Anas superciliosa* SB(Y). 2-14 yearly in June-Nov. at swamp; adult with ducklings in Sep. 1985.
 Australasian Shoveler *Anas rhynchos* O. 2 in Aug. 1983 and 1984, 6 in July 1986, 6-8 in July 1987, 5 in Dec. 1992, 4 in June 1995 at swamp.
 Grey Teal *Anas gracilis* S. 5-100 in June-Sep. yearly, 4 in Dec. 1992 at swamp; 15 at casual water at edge of Park in July 1986.
 Chestnut Teal *Anas castanea* S. 2-30 in May-Oct. most years and 4 in Dec. 1992 with Grey Teal at swamp; 6 with Grey Teal at casual water in July 1986.
 *Pink-eared Duck *Malacorhynchus membranaceus* O. 1 in Sep. 1985, 6 in July 1987, 1 in Sep. 1995 at swamp.
 Australasian Grebe *Tachybaptus novaehollandiae* O. 1-8 in Feb.-Sep. 1983-86 & 1992 at swamp or dam.
 Hoary-headed Grebe *Polioccephalus polioccephalus* O. 1-2 in July-Aug. 1983, 1 in April, Aug. & Dec. 1984, 1-2 in Jan., March, April & Aug. 1985 at dam or swamp.
 Little Pied Cormorant *Phalacrocorax melanoleuca* O. 1 in Aug.-Sep. 1983, July 1987 & Sep. 1989 at swamp.
 Great Cormorant *Phalacrocorax carbo* O. 9 flying over in Aug. 1989, 110-220 flying over in Aug.-Sep. 1991; 1-2 at swamp in Nov. 1994 & Aug. 1995 (one feeding half submerged in shallow water).
 Australian Pelican *Pelecanus conspicillatus* O. 1-10 in June & Sep. 1989-90 at swamp; one flying over in Aug. 1992.
 White-faced Heron *Egretta novaehollandiae* RB. 1-50 at swamp, dam & in bushland; 5 nests in eucalypts.
 White-necked Heron *Ardea pacifica* O. 1 in Aug. 1986, Oct. 1991 & Nov. 1992.
 Great Egret *Ardea alba*-O. 1 in July & Oct. 1984.
 Cattle Egret *Ardea ibis* O. 2 in May 1985, 180 m from cattle.
 Australian White Ibis *Threskiornis molucca* O. 2 in Aug. 1983, 2-4 in Sep.-Oct. 1985, 1 in Sep. 1995 in adjacent grassland.
 Straw-necked Ibis *Threskiornis spinicollis* S. 13-40 in Oct. 1984 & Oct. 1985, 1-2 in Oct.-Nov. 1992. & 1993, 100 in May 1995 in adjacent grassland.
 Royal Spoonbill *Platalea regia* O. 1-7 in Aug.-Sep. 1984 & 1985; 1 in Aug. 1995 (in breeding plumage at swamp).
 Yellow-billed Spoonbill *Platalea flavipes* O. 1 in Sep.-Oct. 1984 & 1985, 3 in Aug. 1995 at swamp.
 Black-shouldered Kite *Elanus axillaris* RB. 1-6 birds; 5 nests in eucalypts; recently dead Richard's Pipit run over by a mower in adjacent field taken by a kite (per H. Matthews).
 Spotted Harrier *Circus assimilis* O. 1 in Dec. 1985, 1-2 in April and July 1986, 1 in Sep. 1994.
 Swamp Harrier *Circus approximans* O. 2 in Aug.-Sep. 1984, 1 in Oct. 1985 & Sep. 1992, 2 in Jan.-July 1994.
 #Brown Goshawk *Accipiter fasciatus* SB. 1-4 birds; 2 nests; seen eating a rat *Rattus* sp., brain first.
 Collared Sparrowhawk *Accipiter cirrhocephalus* O. 1 in May 1987 & June 1995.
 Wedge-tailed Eagle *Aquila audax* O. 1 in Dec. 1987 & Feb. 1988 (and flew across the sea).
 *Little Eagle *Hieraaetus morphnoides* O. 1 in April 1993.
 Brown Falcon *Falco berigora* R. 1-3 birds; reduced numbers over several years coincided with less mice in nearby almond orchards.
 Australian Hobby *Falco longipennis* O. 1 in Sep. 1984, July 1987, Sep. 1992, Jan. 1992 & 1994, 2 in Sep. 1995.
 Black Falcon *Falco subniger* T. 1 in June 1984-86 & Sep. 1984, 2 in July 1985, 1 in Jan. 1995.
 Nankeen Kestrel *Falco cenchroides* RB. 1-6 birds; 2 nests.
 *Australian Spotted Crake *Porzana fluminea* O. 1 in Sep. 1985 at swamp, in a prunings heap.
 Black-tailed Native-hen *Gallinula ventralis* O. 3-9 in July-Oct. 1984, 1-3 in April-May & 5-8 in Sep.-Oct. 1985, 4 in May 1986, 2 in Sep. 1991 in rushes at edge of swamp.
 *Little Button-quail *Turnix velox* O. 1 in Nov.-Dec. 1984.
 Common Greenshank *Tringa nebularia* O. 1 in Sep. 1985, 1-3 in Nov. 1992 & 1994 at swamp; 3 at casual water on edge of Park in Dec. 1992.
 Ruddy Turnstone *Arenaria interpres* O. 2 in Sep. 1983 at swamp (1 in breeding plumage).
 *Red-necked Stint *Calidris ruficollis* O. 3 in Sep. 1985 & 1986 at swamp.
 Sharp-tailed Sandpiper *Calidris acuminata* S. 3-40 most years in Sep.-Oct., 6 in Aug. 1986 at swamp.
 Black-winged Stilt *Himantopus himantopus* SB(Y). Up to 52 yearly at swamp soon after water appears; 15 nests in 1983-85 on samphire *Sarcocornia* sp.; breeding ceased after flattening of samphire by car parking until Jan. 1995 (3 nests); swamp dries out most years before juveniles are ready to leave with parent birds.
 Red-capped Plover *Charadrius ruficapillus* SB. Most years in Aug.-Oct. at swamp; 1 in Dec. 1992 & Jan. 1993 after late rain; 2 nests.
 #Black-fronted Dotterel *Elsayornis melanops* OB. 1-4 in June-Sep. most years at swamp; 12 in June-July 1987, 1 in Dec. 1992-Jan. 1993 after late rain; 1 nest.
 Red-kneed Dotterel *Erythrogonys cinctus* O. 1 in Oct. 1984, 3 in Aug. 1985, 2-10 in July-Aug. 1992, 3 in Oct. 1995 at swamp.
 Banded Lapwing *Vanellus tricolor* PB. 2-5 in Aug.-Nov. 1983, 4 in July 1984, 2 in March, Aug. & Nov. 1985, 4-8 in April-Sep. 1986, 2 in June 1988, 2-4 in Sep. 1989 & 1991 in adjacent fields; 1 nest.
 Masked Lapwing *Vanellus miles* RB. 1-13 birds; 2 nests.
 Australian Pratincole *Siltia isabella* OB. 2 in Nov. 1983 in the adjacent grassland.
 Silver Gull *Larus novaehollandiae* P. 1-100 birds; frequently seen hawking beetles.
 *Caspian Tern *Sterna caspia* O. 1-2 in Sep. 1983, 1984 & 1986, 1 in July 1986, 2-3 in Sep. 1991 & 1992, 2 in Oct. 1995 at swamp.
 Crested Tern *Sterna bergii* O. 2 in Oct. 1986 at swamp.
 Whiskered Tern *Chlidonias hybridus* O. 1-41 in Sep.-Oct. 1983 & 1985, 1-3 in July & Sep. 1986 at swamp; 12 in Sep. 1988 taking

APPENDIX 1 *Continued*

- insects from water surface.
- Rock Dove *Columba livia* O. 1-150 flying over or on edge of Park.
- Collared Turtledove *Streptopelia decaocto* O. Escapee; 1 in March & Sep. 1986.
- Spotted Turtle-Dove *Streptopelia chinensis* RB. 5-32 throughout Park and at swamp; 54 nests.
- Common Bronzewing *Phaps chalcoptera* O. 1-2 in Aug. & Oct. 1985, Sep. 1988 & Aug. 1995.
- Brush Bronzewing *Phaps elegans* T. 1-2 in Aug.-Sep. 1983, April & Nov. 1985, July-Aug. 1986, July 1987, June & Sep. 1995.
- Crested Pigeon *Ocyphaps lophotes* RB. 10-58 birds; 31 nests.
- Peaceful Dove *Geopelia striata* T. 1-2 in April, Sep. & Dec. 1985, 2 in Aug. 1986, 1 in Sep. & Nov.-Dec. 1991.
- Yellow-tailed Black-Cockatoo *Calyptorhynchus funereus* O. 2-4 in Feb. & Dec. 1985, 1 in Oct. 1991, 3 in April 1993.
- Galah *Cacatua roseicapilla* RB(Y). 10-500 birds; in March 1994 300 fed on green seeds of sea rocket *Cakile maritima* on beach, denuding bushes of 40-90% of seed in 10 minutes; other food not previously recorded by Ashton (1985) were nutgrass corms *Cyperus rotundus* & golden wattle *Acacia pycnantha* seeds.
- Little Corella *Cacatua sanguinea* S. 3-180 birds; a few records of single birds only from May-July; most records are flying over or settled in trees in north-east of Park.
- Sulphur-crested Cockatoo *Cacatua galerita* F. 1 in Nov. 1985, July 1986, Oct. 1992, Sep. 1993, June & Oct. 1994, & Sep.-Oct. 1995.
- Cockatiel *Nymphicus hollandicus* SB(Y). 10 in Nov. 1983, 6-15 in Oct.-Dec. 1984, 4 in Oct. 1985, 1-6 in June-July & Nov.-Dec. 1986, 1 in Nov. 1988, 6 in Oct. 1995; juvenile being fed in Dec. 1984.
- *Rainbow Lorikeet *Trichoglossus haematodus* P. 2-60 birds; first recorded in Park in Jan. 1985, with numbers and frequency increasing since then.
- Musk Lorikeet *Glossopsitta concinna* O. 1 in Nov.-Dec. 1992, 10 in Feb. 1994.
- Purple-crowned Lorikeet *Glossopsitta porphyrocephala* S. 2-100 birds; mostly flying over in groups of 2-40; less frequently recorded in May-July.
- Rose-ringed Parrakeet *Psittacula krameri* O. Escapee; 1 in Nov. 1990.
- Peach-faced Lovebird *Agapornis roseicollis* O. Escapee; 1 in Feb. 1982; Black (1994) reported species from nearby Port Willunga.
- #Crimson Rosella *Platycercus elegans* RB. 1-6 birds; sometimes in association with Eastern Rosellas; recorded feeding on fruit of tea-tree *Leptospermum* sp. and seed-heads of dandelion *Taraxacum officinale*.
- Eastern Rosella *Platycercus eximius* T. 1-2 in Aug.-Sep. 1983-84, 1 in Aug. & Dec. 1986, 2 in Nov. 1991, 1-2 in Nov.-Dec. 1992, 1 in Dec. 1993, 2 in July 1994, 1 in June 1995.
- Australian Ringneck *Barnardius zonarius* P. 1 in March 1985, 1-2 in Aug.-Dec. 1985, 1 in March 1986; regarded as feral in this area, due to duration of stay and further sightings east of its accepted range, however, the records are probably escapees.
- Red-rumped Parrot *Psephotus haematotus* P. 2-4 in Aug. 1983-Aug. 1984, May 1985 & June & Nov. 1988, 4 in July-Aug. 1986, 5 in Jan. 1994.
- Budgerigar *Melopsittacus undulatus* S. 30-750 in Nov.-Dec. 1983, 3-60 in Jan. & Oct.-Nov. 1984, 5-12 in Oct.-Dec. 1985, 20 in Dec. 1986, 1-60 in Nov.-Dec. 1992; 584 birds in 59 groups flying north along the dunes during 1200-1400 h on 19/11/83.
- #Elegant Parrot *Neophema elegans* PB(Y). Resident until 1994, when it was not recorded between June & Oct. A Dec. record of 2 juveniles, one with some down & a white wing band.
- Rock Parrot *Neophema petrophila* O. 3 in Feb. 1985 in dunes bordering swamp; 2 at swamp; 1 on our aviary in Feb. 1992.
- #Pallid Cuckoo *Cuculus pallidus* SB. 1-2 in July-Sep. 1984, 2-3 in July 1985-Jan. 1986, 1 in July-Sep. 1986 & June 1991, 1-3 in Aug.-Nov. 1994; 2 juveniles fed by White-plumed Honeyeaters; juvenile seen near a Willie Wagtail nest containing 3 dead wagtail chicks, with another dead chick on the ground (Ashton 1987).
- Fan-tailed Cuckoo *Cacomantis flabelliformis* PB(Y). 1 bird recorded in all months and for 3-5 months of most years; juveniles seen in Oct. 1993.
- Black-eared Cuckoo *Chrysococcyx osculans* O. 1 in July 1986, Dec. 1994 & Oct. 1995.
- Horsfield's Bronze-Cuckoo *Chrysococcyx basalis* S. 1-5 in June-Jan., but also single birds in other months.
- Shining Bronze-Cuckoo *Chrysococcyx lucidus* O. 1 in Sep.-Oct. 1986.
- Southern Boobook *Ninox novaeseelandiae* ?R. 1-3 in April-June & Aug. 1984, April-May & Aug.-Sep. 1985 & Jan.-Aug. 1986; 1 in July 1987, July 1988, & Apr. & June-July 1992; 1 found dead ensnared in dodder *Cassytha* sp.
- Barn Owl *Tyto alba* ?R. 1-3 in Aug. & Nov.-Dec. 1983, Jan.-Feb., April & June 1984, May & Aug.-Nov. 1985, & Jan., April & July-Aug. 1986; 1-2 in June 1988, Aug., Oct. & Dec. 1994, & Aug. & Oct. 1995; 1 attacked by 3 Australian Magpies after being flushed in daylight.
- Tawny Frogmouth *Podargus strigoides* PB. 1-4 in Jan.-March & Nov. 1984, Aug.-Sep. 1985, May 1989, April & June-July 1994, & June-July 1995; 2 nests.
- Fork-tailed Swift *Apus pacificus* O. 5 in March 1985, 350 in Nov. 1987, 7 in Jan. 1988, 1 in Feb. 1990, 4-7 in April 1992; rare winter sighting of two on 7/7/94 coincided with a low pressure system & 'tropical' clouds over Adelaide.
- Laughing Kookaburra *Dacelo novaeguineae* RB(Y). 3-7 birds; 2 breeding records in eucalypt hollows; food included a 10 cm lizard ('billed' for several minutes before it was swallowed) and a White-plumed Honeyeater (fed to young).
- Sacred Kingfisher *Todiramphus sanctus* S. 1-2 in Oct.-Nov. 1984, 1985 & 1991, Dec. 1992, & Nov. 1995.
- Rainbow Bee-eater *Merops ornatus* S. 2-3 in Oct. 1984-85 & Nov. 1989.
- Superb Fairy-wren *Malurus cyaneus* RB. 1-28 birds; 6 nests; since 1985 number of groups has declined from 9 to 3.
- Spotted Pardalote *Pardalotus punctatus* S. 1-7 birds; uncommon in May-Sep.
- Striated Pardalote *Pardalotus striatus* R. 1-8 birds.
- Weebill *Smicromis brevirostris* RB. 16-40 birds; 7 nests; seen bathing in damp leaves.
- White-throated Gerygone *Gerygone olivacea* SB. 1-4 in Sep.-Dec. 1983 & 1985; 1 nest in 1983; not recorded since Sep. 1985.
- Chestnut-rumped Thornbill *Acanthiza uropygialis* O. 1 in Nov. 1983.
- Yellow-rumped Thornbill *Acanthiza chrysorrhoa* RB. 10-30 birds; 27 nests; since 1987 declined from 10 to 5 groups.
- Yellow Thornbill *Acanthiza nana* RB. 4-32 birds; 7 nests.
- Striated Thornbill *Acanthiza lineata* RB. 3-23 birds; 20 nests; fewer birds since 1986.
- Red Wattlebird *Anthochaera carunculata* PB. 1-24 birds; 1 nest; numbers increased, coinciding with the growth of gardens on edge of Park; since 1984 recorded in most months in open woodland; a flock of 20 in Jan. 1995.
- Little Wattlebird *Anthochaera chrysoptera* R. An increase in numbers coinciding with the growth of gardens on edge of Park, but confined to the coastal dune edge.
- Spiny-checked Honeyeater *Acanthagenys rufogularis* O. 1 in Aug. & Dec. 1983, & Sep. 1994.
- *Yellow-faced Honeyeater *Lichenostomus chrysops* O. 1-2 in July-Sep. 1986.
- #Singing Honeyeater *Lichenostomus virescens* RB. 1-9 birds; 3

APPENDIX 1 *Continued*

- nests; rare east of the coastal dunes; other food not previously recorded by Ashton (1985) were the fruit of coast daisy-bush *Olearia axillaris*, coast beard-heath *Leucopogon parviflorus*, saltbush *Rhagodia* sp. & boobialla *Myoporum insulare*.
 White-plumed Honeyeater *Lichenostomus penicillatus* R. 16-80 birds.
 Crescent Honeyeater *Phylidonyris pyrrhoptera* O. 1-2 in June-Sep. 1986.
 New Holland Honeyeater *Phylidonyris novaehollandiae* RB. 5-56 birds; 15 nests; numbers increased, coinciding with growth of gardens on edge of Park & thereby less dependent on the flowering of banksias (mid-summer to autumn); seen eating eggs in nest of a Spotted Turtle-Dove (Ashton 1987) & foraging on leaves of golden wattle.
 Tawny-crowned Honeyeater *Phylidonyris melanops* S. 2-7 in Aug.-Sep. 1983, 1-4 in July-Aug. 1984, 1-6 in July & Sep. 1986, 1 in Jan. 1989, 5-10 in June-Oct. 1994.
 Eastern Spinebill *Acanthorhynchus tenuirostris* O. 4 in July 1986, 3 in June 1994, 1-3 in June-July 1995.
 *Crimson Chat *Epthianura tricolor* OB. 1-6 in Nov.-Dec. 1983 in fernland; 1 nest (nest & residual egg in S.A. Museum - B38546 & B38545 respectively).
 White-fronted Chat *Epthianura albifrons* RB. 3-34 birds; 19 nests; at swamp & in fernland & grassland in Park; fewer in recent years & now seldom seen in fernland.
 Scarlet Robin *Petroica multicolor* P. 1 in Nov.-Dec. 1983, April, June, Aug. & Oct.-Nov. 1984 & July 1985; not recorded since.
 Red-capped Robin *Petroica goodenovii* SB. 1-2 in April, Aug.-Oct. 1984, Sep. 1988 & Oct. 1994; 1 nest.
 Hooded Robin *Melanodryas cucullata* RB. 1-14 birds; 3 nests; numbers gradually declined since 1983 from 8-10 pairs to 3 pairs.
 *Western Yellow Robin *Eopsaltria griseogularis* O. 1 in Jan. 1984 (Ashton 1986a).
 White-browed Babbler *Pomatostomus superciliosus* PB(Y). 2 groups of 6-10 birds in open woodland near northern & southern ends of Park, but numbers began decreasing in 1985 & not recorded since 3 birds were seen in Sep. 1989; 2 nests with young.
 #Varied Sitella *Daphoenositta chrysoptera* RB. Probably a small resident flock, with up to 7 birds throughout year; 5 nests.
 *#Crested Shrike-tit *Falculuculus frontatus* OB(Y). 1-2 in Oct. 1988 & 1994, a pair in Nov. 1995; 2 adults feeding 2 juveniles in Jan. 1995.
 Golden Whistler *Pachycephala pectoralis* RB. 5-19 birds; 26 nests; gradual decline since 1985; usually seen eating big caterpillars, but 1 seen consuming a mistletoe berry (there are records of this species eating berries, e.g. MacDonald 1973, Buckingham 1986).
 Rufous Whistler *Pachycephala rufiventris* SB. 1-16 birds; 6 nests; 1-2 recorded overwintering in some years; 2 uncoloured birds seen in courtship display on 3/10/95.
 Grey Shrike-thrush *Colluricincla harmonica* P. 1-2 in Sep.-Oct. & Dec. 1985-Jan. 1986, 1 in Aug. 1986 & Jan.-Nov. 1995.
 Leaden Flycatcher *Mylagra rubecula* O. A male in Dec. 1983 (Ashton & Ashton 1996).
 Magpie-lark *Grallina cyanoleuca* RB. 6-28 birds; 13 nests.
 Grey Fantail *Rhipidura fuliginosa* RB. 11-33 birds; 50 nests.
 Willie Wagtail *Rhipidura leucophrys* RB. 5-30 birds; 75 nests; fewer birds since 1987; one seen eating winged termites in Dec. 1984.
 Black-faced Cuckoo-shrike *Coracina novaehollandiae* RB. 1-24 birds; 7 nests; flock of 20 seen in May 1985; recorded feeding on boxthorn *Lycium ferocissimum* berries, larvae of the cup moth *Doratifera* sp. (11 birds in Oct 1984) & green shield bugs.
 White-winged Triller *Lalage suevrii* SB. 2-8 in Sep.-Dec. 1983, 3-6 in Oct.-Dec. 1984 & Jan. 1985, 1-8 in Sep.-Dec. & Jan. 1986, 2 in Nov. 1988, 4-8 in Sep.-Dec. 1995; 7 nests.
 *#Masked Woodswallow *Artamus personatus* SB. 2 in Sep. 1985, 7-10 in Nov.-Dec. 1988, 4 in Nov. 1989, 2 in Oct. 1991; 5 nests; always associated with the next species.
 #White-browed Woodswallow *Artamus superciliosus* SB. 2-4 in Oct.-Dec. 1984, 20 in Sep. 1985, 2-20 in Nov.-Dec. 1988-Jan. 1989, 17 in Nov. 1989, 2 in Oct. 1991; 5 nests; seen feeding on winged termites.
 Dusky Woodswallow *Artamus cyanopterus* SB. Some overwinter in most years; 38 nests.
 Grey Butcherbird *Cracticus torquatus* O. 1 in Dec. 1986.
 Australian Magpie *Gymnorhina tibicen* RB. 10-35 birds; 21 nests.
 Little Raven *Corvus mellori* RB. 4-50 birds; 16 nests; 20-50 seen feeding on burnt ground a few days after a grassland fire.
 Singing Bushlark *Mirafrja javanica* P. 1 in Aug. & Oct. 1983, 1-11 in May-Sep. 1984, 1-6 in Feb. & July-Oct. 1985, 1 in Aug. 1986 in grassland bordering swamp.
 Skylark *Alauda arvensis* R. 1-12 birds.
 Richard's Pipit *Anthus novaeseelandiae* RB. 5-20 birds; 1 nest; mainly along roadsides at northern & southern ends of Park and along swamp boundaries; decline since widening & clearing of roadways and heavier traffic.
 House Sparrow *Passer domesticus* RB. Numerous; 50 nests.
 Red-browed Finch *Neochmia temporalis* S. 5 in Sep. 1983, 1-11 in April-May & July-Oct. 1985, 4-20 in April, July & Sep. 1986, 2 in Dec. 1987, 3 in Aug. 1994, 1 in June 1995.
 Beautiful Firetail *Stagonopleura bella* O. 1 in Sep. 1983 & June 1984; other food not previously recorded by Ashton (1985) were seeds of salvation Jane *Echium lycopsis*.
 Canary *Serinus canarius* O. Escapee; 1 in May 1990 & Oct. 1992.
 European Greenfinch *Carduelis chloris* R. 3-35 birds; mainly near residential areas with *Pinus* sp.; at swamp & in coastal dunes.
 European Goldfinch *Carduelis carduelis* RB. 16-100 birds; 6 nests.
 Mistletoebird *Dicaeum hirundinaceum* SB. 2-42 birds; 19 nests; 1 male showed xanthochromism, having orange-yellow throat & chest & pale orange undertail coverts. (Xanthochromism is believed to be rare in wild birds, Klapste 1982.); seen feeding at flowers of pink gum *Eucalyptus fasciculosa* (also been recorded by Paton 1990); Silvereyes tried to take nesting material from active Mistletoebird nests (Ashton 1987).
 Welcome Swallow *Hirundo neoxena* RB. 1-100 birds; largest numbers seen at swamp; 1 nest, a repaired Fairy Martin nest, was used twice in the same season (Ashton 1986b).
 #Tree Martin *Hirundo nigricans* SB. 1-70 birds; 1 nest in a eucalypt hollow; numbers & frequency decline in winter.
 Fairy Martin *Hirundo ariel* SB. Regular visitor in Aug.-Jan.; bred in culvert on edge of park in 1985, 1989 & 1992; breeding birds depart in Feb., leaving young from second broods which cannot fly, e.g. 12 dead feathered young were below nests on 22/2/89.
 *Little Grassbird *Megalurus gramineus* S. First recorded in Sep. 1985, 2 in July-Aug. 1987, 1 in Sep.-Nov. 1995 at swamp.
 Rufous Songlark *Cincloramphus matthewsi* SB. 2-5 in Sep.-Dec. 1984, 1-2 in March, Sep.-Oct. 1985, 2 in Aug. 1986, 1-6 in Sep.-Oct. 1988 & 1989, 2-5 in Sep. & Nov. 1991, 2 in Nov. 1992, 1-3 in Sep.-Nov. 1995.
 Brown Songlark *Cincloramphus cruralis* SB(Y). 1-8 birds; 2 records of breeding (an adult with dependent young & a road kill of a juvenile); arrives June-Sep. each year, departs Jan.-March.
 Golden-headed Cisticola *Cisticola exilis* O. 2 in Aug. 1985, 3 in Jan. 1995 at swamp.
 Silvereye *Zosterops lateralis* RB. 30-150 birds; 195 nests (157 in 1985); numbers have declined since 1989.
 Common Blackbird *Turdus merula* RB. 3-23 birds; 1 nest; numbers increasing throughout Park.
 Common Starling *Sturnus vulgaris* RB. Numerous; 22 nests.