

WADERS IN NORTHERN SOUTH AUSTRALIA

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INTRODUCTION

This paper presents our own observations of all waders (*i.e.* the Sub-order Charadrii) in the Far North-East of South Australia, and also attempts to summarize previous published records for inland South Australia. Data from the Lake Callabonna area were collected by IAM who, while living in the Balcanoonna area from 1971 to 1975 visited this area regularly from 1976 to 1981, and who has lived at Leigh Creek since 1981. FJB has lived in the Marree area since 1976. Both authors have travelled extensively throughout these areas and the Cooper Creek drainage at all times of the year.

Early workers (e.g. McGilp 1923, Whitlock 1924) recorded few waders, especially migratory Palaearctic species. The latter species, visitors from northern Asia, begin to arrive in northern South Australia during August and September and depart during March and April and were thought to occur in inland Australia only as passage migrants (Thomas 1970). Our observations show that small numbers of some species (*i.e.* Wood Sandpiper, Greenshank, Marsh Sandpiper, Sharp-tailed Sandpiper and Red-necked Stint) remain at suitable habitat in the North-East of South Australia throughout every summer. Moreover, Sharp-tailed Sandpipers remain in large numbers throughout the summer when suitable habitat is present at larger bodies of water, such as lakes, where they can occur in flocks of a thousand or more (McGilp 1923, Badman 1979). The Curlew Sandpiper appears to be only a southern passage migrant in the Lake Eyre region, possibly due to a lack of suitable habitat. It appears to prefer a more saline habitat than that found at most bores: Curlew Sandpipers were often seen at the saline Cootabarlow Bore, and at Lake Callabonna and Lake Hope when both lakes were almost dry and had become very saline. Further north, at Alice Springs, Curlew Sandpipers are present throughout the summer (Roberts 1980, 1981). Red-necked Stints were recorded in most months of the year, and this species and the Greenshank are the only Palaearctic waders which we have observed overwintering in northern South Australia. Some species formerly considered rare inland (e.g. Wood and Marsh Sandpipers) are apparently regular visitors, in small numbers, to the North-East of South Australia.

There are considerable areas of suitable wader habitat in the North-East of South Australia, especially in the regions of Lake Eyre and

Lake Callabonna, and Cooper Creek. Some of these areas are capable of maintaining large wader populations, although wader numbers at any one location were seldom constant from day to day, even though overall numbers in the area might remain fairly stable. This indicates considerable local movement between the wader habitats within this region.

Published works from south of the N-East (Mack 1970), from the Gawler ranges to the south-west (Paton 1975, Joseph & Black 1983), and from the Great Victoria Desert to the west (Black & Badman in press, Close & Jaensch forthcoming) contain few wader records. This scarcity of records of Palaearctic waders from inland South Australia is paralleled in adjacent parts of the Northern Territory: Storr (1967) lists very few records of these species from the southern half of the Territory, and in his later work (Storr 1977) he regards most Palaearctic waders as being on passage in that area. Other recent workers in the southern Northern Territory (e.g. Watson & Watson 1967, Braithwaite & Stewart 1975, Klapste 1978 and Roberts 1980, 1981) frequently recorded migratory waders at the Alice Springs Sewage Farm. Prior to the establishment of this sewage farm there appears to have been little suitable wader habitat between the South Australian border and Alice Springs, except at pools along the upper Finke. Reference is made in this work to some waders recorded at Alice Springs as a comparison to observations in northern South Australia.

The development of artesian bores within the last 60 years has probably been advantageous to most inland waders; previously the only permanent wader habitat was to be found at Mound Springs, where few waders are seen today, and at the few permanent waterholes. Most fresh and salt-water lakes and waterholes provide suitable habitat only intermittently, following local rain or flooding of the Cooper Creek and Diamantina River systems after rain in central and western Queensland. The former absence of permanent wader habitat could explain the paucity of wader records by such experienced observers as McGilp and Whitlock. Conversely, the greater number of observers now visiting the inland, and the extensive habitat provided at flowing artesian bores, could partly explain the larger number of sightings, especially of migratory species, in recent years.

The large swamps formed at artesian bores also provide excellent breeding sites for some

TABLE 1

Preferred wader habitat in northern South Australia

See text for explanation of symbols.

Habitat	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3.1	2.3.2	2.3.3	3.1	3.2
Bush Thick-knee		O										O
Masked Lapwing	F	F	F	I	F	F	I	F	F	F	O	O
Banded Lapwing	I		O							O	I	I
Grey Plover									V	V		
Lesser Golden Plover ...			V									
Red-kneed Dotterel	I	F	I			I		F	F	O		O
Mongolian Plover										V		
Oriental Plover*												
Red-capped Plover	I	O	F	F	O	F	O	O	I	F	O	
Black-fronted Plover ...	I	I	I	O	F	F	F	F	F	F	O	
Inland Dotterel	I										F	I
Black-winged Stilt	I	F	F	O	I	F	O	F	F	F		
Banded Stilt	O		O	F	O	O	O		O	I		
Red-necked Avocet	I	I	F	F	I	F	O	I	F	F		
Ruddy Turnstone			V							V		
Whimbrel			V									
Little Curlew									V			
Wood Sandpiper		O					O	I	F	I		
Grey-tailed Tattler												
Common Sandpiper						I	I			O		
Greenshank	I	I	F	I	O	F	I	F	F	O		
Marsh Sandpiper			O	I		O	O		O	O		
Terek Sandpiper												
Latham's Snipe									V			
Black-tailed Godwit		V	V									
Red Knot				V								
Sharp-tailed Sandpiper	O	I	F	F	O	F	O	I	F	F	O	
Pectoral Sandpiper									V	V		
Red-necked Stint	O		F	F	O	F	O	O	I	F	O	
Long-toed Stint									V	V		
Curlew Sandpiper			I	F		I			O	F		
Oriental Pratincole												
Australian Pratincole ...	I	I	F	F	O	F	O		F	F	F	F

*records published without habitat notes

species of resident and nomadic waders (e.g. Masked Lapwing, Red-kneed Dotterel, Red-capped and Black-fronted Plovers and Black-winged Stilt) and so could have contributed to an increase in the local populations of these species. However, during the past few years many of these bores, which formerly flowed uncontrolled into large lagoons and swamps, have been controlled by the South Australian Department of Mines and now have flows which, while adequate for watering stock, do not produce large areas of wader habitat. When this control programme is completed, it may even lead to a decline in the numbers of waders present in northern South Australia from the levels which we have observed over the past decade.

HABITAT (see Table 1)

Wader habitat in northern South Australia can be classified as follows:

1. Ephemeral
 1. Claypans — shallow water usually devoid of vegetation.
 2. Swamps — shallow water supporting a lush growth of Canegrass *Eragrostis australasica* or Lignum *Muehlenbeckia cunninghamii* and often with Golden Goosefoot *Chenopodium auricomum*, *Epilates cunninghamii*, *Teucrium racemosum* and Nardoo *Marsilea drummondii*. This category also includes Coolibah *Eucalyptus microtheca* flood plain.
 3. Fresh-water lakes and dams — shallow to deep water with bare sandy or muddy margins, but often with a border of sedges *Cyperus* spp, especially *C. gymnocaulos* and *C. vaginatus*, and samphire *Halosarcia* spp.
 4. Salt lakes — similar to fresh-water lakes, but with more extensive tracts of samphire around the margins.
 5. Waterholes and creeks — shallow or deep water, often with steep banks but with shallow water at ends of waterholes. Creeks often lined by trees, the most common of which are Coolibah, River Red Gum *Eucalyptus camaldulensis* and *Acacia* spp, particularly *A. salicina* and *A. stenophylla*, or by Lignum.
2. Permanent
 1. Fresh-water lakes — similar to 1.3 (Includes Aroona and Leigh Creek Dams and Coongie Lake).
 2. Waterholes — similar to 1.5, but usually deeper, often with steeper banks, and occasionally fed by springs.

3. Artesian bores — water in the swamps and lagoons at these bores varies in salinity and this may be due to the salinity of the ground on to which the water flows, rather than to salts in the actual bore water.

1. Flooded areas of samphire and sedges particularly *Cyperus gymnocaulos*, rushes *Scirpus litoralis* and *S. maritimus* and Cumbungi *Typha angustifolia*.
2. Short flooded sedges — *Cyperus laevigatus* is found in large areas at most artesian bores and is probably the plant species most frequented by waders in northern South Australia. It grows to a height of 100-450 mm and provides excellent cover for most waders found in this area.
3. Open shallow water — usually found among the two previous habitats.
3. Open plains, usually dry
 1. Gibber — stony plains with little or no perennial vegetation.
 2. Grass — Mitchell Grass *Astrelba pectinata*, Button Grass *Dactyloctenium radulans*, Bottlewashers *Enneapogon avenaceus* and other grasses; Chenopods, including *Atriplex vesicaria*, *A. spongiosa*, *A. fissivalvis*, *Rhagodia spinescens*, *Maireana astrotricha* and *M. pyramidata*.

SIGHTING FREQUENCY (see Table 1)

This was calculated as the percentage of visits in which a species was recorded. In the case of migrant or nomadic species, the total number of visits was calculated between the species' first and last recorded appearance in the area.

- F. Frequent; more than 60%.
 I. Infrequent; between 20% and 60%.
 O. Occasional; between 1% and 20%.
 V. Vagrant; exceptional occurrence, well beyond normal limits of geographical distribution.

SPECIES - ABUNDANCE

Very Common. Many individuals, with high population density compared to similar localities during average periods.

Common. Many individuals, with the population density appearing normal compared to similar localities during average periods.

Uncommon. Small numbers of individuals; population controlled by limiting factors such as territory size, unsuitable or restricted habitat, or limit of normal geographical range.

Locally rare. Very small population locally, but within the species' normal geographical distribution. May occur in abundance elsewhere.
Rare. Very few individuals comprising the species' known population.

ANNOTATED LIST

BUSH THICK-KNEE *Burhinus grallarius*

Formerly common in the Flinders Ranges (McGill 1923), Andamooka area (Badman 1979) and north of Oodnadatta (Whitlock 1924), it is now locally rare except along Cooper Creek, where it has recently been recorded by S. A. Parker *et al.* in 1979 and by IAM *et al.* in 1981. Also recorded near Nunns Bore (Badman 1979) and near Coward Springs by FJB on 6 October 1980.

MASKED LAPWING *Vanellus miles*

Very common throughout the area in suitable habitat. Both subspecies, *V.m. miles* and *V.m. novaehollandiae*, are present, although most birds are hybrids between these. *V.m. miles* was first recorded at Yandama Bore by IAM in 1975, and later bred there. Found at most bores, springs, lakes and waterholes, usually in pairs or small parties, although up to 200 seen around the margins of fresh-water lakes on Cooper Creek. Storr (1977) recorded it as an occasional visitor in the southern Northern Territory, but Klapste (1978) and Roberts (1981) both recorded it regularly at the Alice Springs Sewage Farm and noted both subspecies (see also Parker 1969). This species will be covered in more detail in a paper at present in preparation (Badman & Parker, forthcoming). Apparently occurs only occasionally in the Ranges.

BANDED LAPWING *Vanellus tricolor*

Usually uncommon but widespread, becoming common in grasslands in good seasons with flocks of 25 or more, usually less than 10. Irruptions at Mt Dare in 1973 and North Mulga in 1975. Storr (1977) lists it as a mainly winter visitor in the Northern Territory, with records from April to November. Parker (1969) also gives a November record. It was recorded in all months in the Lake Eyre district, with occurrence apparently depending on rainfall rather than time of year. Breeding at North Mulga in 1975, near Lake Eyre South in June 1978, and at Wilpoorinna in most years.

GREY PLOVER *Pluvialis squatarola*

Vagrant. One observed at Coward Springs from 1 to 3 October 1978 by R. Swaby and I. Goldsmith (SAOA Newsletter 88) was still in partial breeding plumage. This bird was also seen by FJB and J. B. Cox during this period. Other records are of two at Billa Kalina on 23

October 1981 (P. Langdon, SAOA Newsletter 101) and a tentative sighting at Frome Downs on 3 September 1963 (Mack 1970).

LESSER GOLDEN PLOVER

Pluvialis dominica

Vagrant. One was seen at Lake Goyder on 31 August 1982 by FJB, IAM, D. H. Close and J. Hatch (SAO Newsletter no. 104). There are other far-inland records for South Australia from Carrierloo (S. Aust. Orn. 28:131) and west of Lake Everard Stn. (SAO Newsletter no. 88). Other inland records are from Mt Isa, Queensland, and Tennant Creek, Northern Territory (Thomas 1970).

RED-KNEED DOTTEREL

Erythrogonys cinctus

Common nomadic visitor throughout the area; it frequents swamps, bore drains and occasionally lakes, waterholes and dams. Largest numbers seen were at swamps; 156+ in a loose flock among Canegrass *Eragrostis australasica* at the Hundred Mile Plain on 29 June 1979, and 100+ scattered among *Chenopodium auricomum* and Lignum throughout the swamp two km south-east of Olgawa WH in October 1979. Breeding was confirmed at the latter location, and there were many immature birds in the flock at the Hundred Mile Plain. Breeding was also confirmed at Crows Nest Bore, Coward Springs and Cootanoorinna WH during September and October 1978. Other large flocks were ca 50 at Old Nilpinna in December 1977 (Badman 1979), 30+ at Cannuwaukaninna Bore in November 1979, ca 50 at Coward Springs in March 1980 and 35+ at Welcome Bore in May 1980. Flocks at bore drains were usually of less than 20 birds. In August 1977 two were seen in the Simpson Desert by IAM, far from any water.

Storr (1977) suggests that this species is a casual visitor to the southern Northern Territory in winter and spring, but Klapste (1978) recorded four to 16 at Alice Springs in December. It was also recorded in this area by Braithwaite & Stewart (1975), Chinner (1977) and Roberts (1981). Whitlock (1924) recorded this species at only a few places between Oodnadatta and Central Australia.

MONGOLIAN PLOVER

Charadrius mongolus

Vagrant. IAM recorded a single bird at the Clifton Hills bore drain, beside the road crossing on the western Birdsville Track (Inside Track), on 28 December 1981. The bird was feeding and resting on a sand bank adjacent to the margin of open shallow water. Dark eye patch, same size or slightly larger than Red-kneed Dotterel, grey-green legs, slight wing-stripe in flight, bill

stout but not as prominent as on the Large-billed Sand Plover.

There is an old record of "large numbers" at Coward Springs (Cooper 1941), but Thomas (1970) regards this record as doubtful and S. A. Parker (pers. comm.) considers these birds to have been immature Red-kneed Dotterels.

ORIENTAL PLOVER *Charadrius veredus*

Vagrant. A record of four birds at Billa Kalina on 20 November 1981 (P. Langdon, SAOA Newsletter 101) is the only one for this area. This species has been reported from Beachport, Collinsfield, Port Neill, ICI Saltfields (Adelaide) and the Coorong in South Australia (Close 1982) and there is a specimen record from Black Ridge Dam (72 km north-west of Naratha) in Western Australia (Brooker *et al.* 1979).

RED-CAPPED PLOVER

Charadrius ruficapillus

Common at salt and fresh-water lakes, bore drains and mound springs, less common at dams and rarely at waterholes. About 2000 at fresh Lake Goyder in winter and early spring 1982 was the largest number recorded at any one place. Flocks of *ca* 100 at Lake Eyre and Lake Harry (Badman 1979), up to 200 at Welcome Bore, *ca* 100 at Nunns Bore, several hundreds at Lake Eyre South in June 1979, several hundreds at Lake Hope in 1979 and 1980, 100+ at Lake Appadare, 100+ at Lake Marion (the lake was dry at the time of this record — 15 January 1980) and 200+ at Lake Toontoowaranie. Usually seen in smaller numbers, ones and twos on dams and less than 50 at most bore drains and some springs.

There are few published records from northern inland South Australia (Mack 1970, Paton 1975); it was not recorded by Whitlock (1924), but was found to be more common by McGilp (1923). Wyndham (1978) saw only three birds near Tibooburra, New South Wales, during an extensive study in this area in 1974, and Storr (1977) cites very few inland records for the Northern Territory.

Breeding was observed regularly at Lake Frome and Lake Callabonna from 1971 to 1975 and in the Coward Springs district from 1976 to 1982.

BLACK-FRONTED PLOVER

Charadrius melanops

Common resident in pairs or small parties, wherever there is water. Records of up to 100 along lower Cooper Creek in October 1977 and 36 at Nunns Bore in September 1977 (Badman 1979), 60+ at Welcome Bore in April 1979

and 20-30 in July 1980 and April and May 1982, and 30+ at Coward Springs in April 1982, but usually in groups of less than 10 birds. Recorded at salt water in the Willouran Ranges (Badman 1981) and along dry gravel creek beds in the Flinders Ranges. Regularly recorded breeding.

INLAND DOTTEREL *Peltohyas australis*

Common and widespread in good seasons, but numbers fluctuate and it may be almost absent in dry years. Often observed on roads at night and roadkills are commonplace. Occasionally in large flocks; IAM recorded several flocks of 50+ on roads at night where the roads passed through hollows during the exceptionally wet years of 1971-1975, 23 at Clifton Hills (Cox & Pedler 1977), and 29 at Cootanoorinna WH on 17 April 1982, but usually in parties of less than 10 birds. Nesting September, October and November with eggs, and at Wilpoorinna — where this species can almost always be found — in October 1979 (Badman 1981), and at Welcome Bore in September 1978, Lake Eyre South in January and September 1979. A flock of up to 10 was seen on almost every visit to an area two kilometres west of Jersey Springs from January 1980 to April 1981.

BLACK-WINGED STILT

Himantopus leucocephalus

Common throughout the Lake Eyre drainage on bore drains, swamps, fresh-water lakes, dams and waterholes, and occasionally on salt-water lakes; perhaps slightly less common further south in the Lake Frome and Lake Callabonna areas. Sometimes in large numbers; 1000+ at Welcome Bore (Badman 1979), 200+ at Coward Springs, Lake Goyder and Lake Marradibbadibba and 100+ at Nunns Bore, Crows Nest Bore, Lake Appadare, Lake Hope and the swamp two km south-east of Oolgawa WH. Frequently breeding at flooded ephemeral swamps and grassy bore drains. Birds in immature plumage are often seen throughout the area. This species has also bred in the Gawler Ranges (Paton 1975) and at Alice Springs (Parker 1969).

BANDED STILT *Cladorhynchus leucocephalus*

Numbers fluctuate and are determined by the season, but frequently recorded at suitable habitat. In 1971 and 1972, and again in 1974 and 1975, numbers estimated to be in excess of 100,000 were observed at Lake Callabonna. Although constant observations were made by IAM during this period no breeding was located (May 1972a, 1972b). The Banded Stilt bred at Lake Callabonna in enormous numbers in 1930 (McGilp & Morgan 1931). About 100, all

immature-phase birds, were recorded at Lake Appadare in November 1979. Otherwise seen only in small numbers in the Lake Eyre district and these birds were usually in immature phase plumage. There is a specimen of an immature bird taken at Nunns Bore in the S.A. Museum collection (B31600).

RED-NECKED AVOCET

Recurvirostra novaehollandiae

Common at suitable habitat: salt and fresh-water lakes, bore drains, swamp and waterholes, especially on lower Cooper Creek during 1978, 1979 and 1980, when the lakes and waterholes were drying up and becoming brackish. At Lake Appadare a flock of 5000+ was seen on 9 May 1979, with up to 10000 present on 19 November 1979. Up to 1000 were seen at Lake Hope in December 1980, and *ca* 2000 at the lake six kilometres upstream from Camel Bend WH in May 1979. Small flocks of less than 100 were seen at most waterholes on lower Cooper Creek during this period. A flock of 2000+ was seen at Lake Eyre in 1977 (Badman 1979). IAM recorded many hundreds nesting at Lake Callabonna in 1971-1972 and again in 1974-1975. The largest numbers recorded at other places were *ca* 200 at Welcome Bore and Watts Bank in September 1978, *ca* 200 at Welcome Bore in October 1978 and May 1980 and 300+ in July 1980. Flocks of *ca* 100 were often recorded on bore drains.

Storr (1977) lists this species as being nomadic in the Lake Eyre drainage in the southern Northern Territory, while Roberts (1981) recorded up to 50 birds on all visits to the Alice Springs Sewage Farm.

RUDDY TURNSTONE *Arenaria interpres*

Occasional. IAM recorded a single bird at Cootabarlow Bore, feeding with Sharp-tailed Sandpipers and Australian Pratincoles at the margin of open shallow water. The bird was in almost full breeding plumage, with white around the head, chestnut on the wings and bright orange legs. A. H. Corrick recorded one bird at the south-west corner of Lake Harry on 1 September 1977 (*in litt.* to FJB, 7 December 1982). P. Langdon also recorded one bird at Billa Kalina on 2 November 1982 (SAOA Newsletter 104).

WHIMBREL *Numenius phaeopus*

Vagrant. A single record of one bird at Lake Appanburra on 21 May 1980 (J. Paton, SAOA Newsletter 95).

LITTLE CURLEW *Numenius minutus*

Vagrant. One observed by R. Swaby and L. Dunkley at Coward Springs on 1 and 3 October

1978 (SAOA Newsletter 88). Three seen by FJB at Welcome Bore, among *Cyperus laevigatus*, on 23 March 1981: a specimen was taken (SAM B33997) and the stomach of this bird was found to contain, among other insect remains, several larvae of an *Odontomyia* sp. Stratiomyidae, a genus of swamp-dwelling flies (det. L. Queale SAM). (*O. scutellata* occurs in similar situations in northern South Australia).

The Little Curlew has also been recorded at Alice Springs (Braithwaite & Stewart 1975) and there is a specimen in the Australian Museum which was collected in the Tanami Sanctuary on 5 April 1965 (Parker 1969). S. A. Parker (*in litt.*) pointed out that the Alice Springs record was of up to two birds in February - March 1968, so from these records it would appear that this species is usually on passage when seen in these areas, as it is regularly at Mt Isa and Richmond, Queensland (Thomas 1970).

WOOD SANDPIPER *Tringa glareola*

A regular visitor in small numbers to bore drains, with one record at a spring — The Bubbler (Badman 1979), once at a waterhole—two at Yard WH on 16 March 1979, and twice at dams — Aroona and Leigh Creek (Tripodis) Retention Dam. Recorded in all years from 1976 to 1983 in the Lake Eyre region and at Nunns Bore in each year from 1976-1980. Date of the earliest sighting in any year was 20 August, and of the latest sighting for any year was 17 April. Recorded at Nunns Bore, The Bubbler, Coward Springs, McEwans Bore and Old Nilpinna in 1976-1978 (see Badman 1979). Further sightings are: one at Nunns Bore on 20 August 1978, three on 18 September 1978 (one specimen SAM B31591), three on 1 October 1978, four on 26 January 1979 and one on 2 April 1980; one at Coward Springs on 1 October 1978, one on 1 March 1980 and one on 10 December 1980; one at Purni Bore on 13 April 1979; six at Cannuwaukaninna Bore on 23 November 1979 (one specimen SAM B32567), two on 6 December 1980 and four on 8 November 1981; one at Welcome Bore on 25 February 1980, two on 12 and 16 March 1980, two on 20 September 1980, five on 27 February 1981, 12 on 23 March 1981 and two on 15 April 1982. A. H. Corrick (*in litt.*) recorded one bird at the Birdsville Track crossing of Cooper Creek on 30 August 1977.

There are several earlier records for northern South Australia and southern Northern Territory (Whitlock 1924, Thomas 1970, Glover 1971, Braithwaite & Stewart 1975, Roberts 1981).

GREY-TAILED TATTLER *Tringa brevipes*

There is a record of *ca* 25 tattlers which the observer, D. Pomeroy, tentatively identified as *T. brevipes*, on a permanent watercourse 16 km from Muloorina HS. This record is not dated, but is listed in the 1963 Bird Report (S. Aust. Orn. 24:28).

There are Central Australian records of this species from Hermannsburg, Palm Valley, Glen Helen Gap and Mt Isa (Roberts 1977).

COMMON SANDPIPER *Tringa hypoleucos*

Uncommon. Apparently an occasional visitor, usually seen at waterholes, with one record at a stock trough (Badman 1981), and one at a bore drain. One at Echo Camp WH, at Arkaroola in the northern Flinders Ranges, from October 1971 to January 1972; one at Oolgawa WH on 10 April 1979; one at Purni Bore (which is 60 km NNE of Oolgawa WH) on 11 April 1979; one at Camel Bend WH on 12 May 1979; one at Algebuckinna WH on 20 October 1979; one at Carpamoongana WH on 20 April 1981; and one at Leigh Creek (Tripodis) Retention Dam for three weeks from 11 February 1982.

Other records for northern South Australia are one at Lake Kopperamanna on 20 October 1957 (Thomas 1970), one at Billa Kalina on 17 September 1977 (P. Langdon, SAOA Newsletter 86) and one at Wynbring on 27 August 1979 (J. Bransbury, SAOA Newsletter 92). One record for southern Northern Territory in August 1923 (Whitlock 1924) was one of the few sightings of Palaearctic waders made by Whitlock on this expedition. Brooker *et al.* (1979) collected a specimen at Black Ridge Dam and saw several others at Lake Brown, Western Australia, in September 1976.

The above records would suggest that the birds were on passage; yet Braithwaite & Stewart (1975) have recorded it in all months except June at Alice Springs and it is much more common there than in northern South Australia, with 20 present in December 1976 (Klapste 1978) and up to 15 present from November 1978 until 12 May 1979 (Roberts 1981).

GREENSHANK *Tringa nebularia*

Common visitor to most bore drains and many salt and fresh-water lakes and waterholes throughout the area. Occasionally at dams. Recorded in all months, although usually from September to April, but with several records from May to July. Usual numbers seen were from one to four, but 100+ seen by G. Ragless and L. Pedler at Lake Harry on 24 April 1979 (SAOA Newsletter 90), and 50+ at Cooper Creek on 12-13 November 1977 and 20+ at Lake Killamperpunna on 7 October 1977 (Badman 1979). A flock of 16 was seen at Nunns

Bore on 18 September 1978 and 15 at Welcome Bore on 16 March 1979. Winter records were usually of one or two birds, but eight were present at Welcome Bore on 26 July 1980, following sightings there of three during May and one in June of that year. The call of this species was once heard at night on 27 April 1980 as one or more Greenshanks flew over our camp at Jersey Springs. Greenshanks were recorded more often on dams in the Lake Callabonna area than in the Lake Eyre region, possibly due to the fact that there are far fewer artesian bores in the Lake Callabonna area.

This species is one of the more widespread and common of the Palaearctic waders in northern South Australia, with records from the Gawler Ranges (Paton 1975) and Cook (W. Klau, SAOA Newsletter 95), and a few records from the southern Northern Territory (Whitlock 1924, Thomas 1970, Braithwaite & Stewart 1977, Klapste 1978, Roberts 1981). Schrader (1981) reported a large number of small flocks, totalling *ca* 150 birds in three hours, passing south along the Mulligan River in south-west Queensland in August-September 1980.

MARSH SANDPIPER *Tringa stagnatilis*

This species is more common in northern South Australia than the few published records would indicate. It was recorded from 15 September to 16 April, usually at bore drains and lakes, but once at a waterhole. Recorded at Lake Killamperpunna, Nunns Bore and Coward Springs (Badman 1979). Small numbers, occasionally up to 15, seen infrequently at the margins of Lake Callabonna from October 1971 to March 1972 and during the same period in 1974-1975 and 1975-1976; one at Yandama Bore in September 1975; recorded at Mulligan Springs, Lake Callabonna, in September 1977; one at Nunns Bore on 30 January 1978, one on 1 October (also seen by J. B. Cox) and two on 24 October 1978, and one on 15 September and two on 22 September 1980; one at Welcome Bore on 1 October 1980 (also seen by J. B. Cox), six on 12 January 1980, one on 25 February 1980, one on 13 April 1980 and two on 10 December 1980; 14 at Lake Appadare on 21 November 1979; one at Leigh Creek (Tripodis) Retention Dam in November 1981; two at Warrawoona WH on 16 April 1982. Other records are from near Yunta (Mack 1970) and Oakden Hills (C. Garrett, SAOA Newsletter 95), with southern Northern Territory records from Alice Springs: Watson & Watson (1967)—up to 11 birds present, Braithwaite & Stewart (1977) and Roberts (1981). Schrader (1981) reported flocks of 30, with a total of *ca* 400 in three hours, passing south along the Mulligan

River in south-west Queensland in August-September 1980.

TEREK SANDPIPER *Tringa terek*

Vagrant. A single record of one at Coward Springs on 1 October 1978 (R. Swaby, SAOA Newsletter 88).

LATHAM'S SNIPE *Gallinago hardwickii*

Owing to the difficulty of determining the species of birds of this genus, unless in the hand, ascription of the following records to *hardwickii* can only be considered as tentative: one at Cooranna Bore on 28 and 29 January 1978 (Badman 1979); one south of Frome Downs in November 1974 (Pedler & Ragless 1978); and one at Yandama Bore by IAM on 3 February 1973.

BLACK-TAILED GODWIT *Limosa limosa*

Vagrant. A flock of 11 was seen near Lake Toontoowaranie on 29 August 1979 by FJB and 12 other observers, including S. A. Parker and D. H. Close; these birds were possibly on passage as they were not there on our return that afternoon. Three were seen at Lake Hope by FJB on 20 November 1979. This species is regularly seen in small numbers at Mt Isa from September to November (Thomas 1970).

RED KNOT *Calidris canutus*

Vagrant. A single record of one at Lake Eyre South on 18 October 1974 (Cox & Pedler 1977).

SHARP-TAILED SANDPIPER

Calidris acuminata

The most common of the migratory waders in northern South Australia, it was found on salt and fresh-water lakes, bore drains, mound springs, swamps, dams and waterholes, from 15 August to 16 April with no winter records. Largest numbers were recorded on lakes and bore drains from September to December: A. H. Corrick (*in litt.*) recorded 1500 at Lake Harry on 1 September 1977; flocks of *ca* 1000 at Lake Eyre, Lake Killamperpunna and Lake Harry (Badman 1979), and *ca* 500 at Lake Appadare on 21 November 1979, Welcome Bore on 1 October 1978 and Nunns Bore on 24 November 1978, with "hundreds" at Lake Hope on 6 December 1980. Sharp-tailed Sandpipers were not seen at Lake Hope until this date, although they were seen at Lake Appadare during 1979, perhaps because the margins of Lake Hope, when the lake is full, are pure sand, becoming muddier as water in the lake dries up. Smaller flocks of usually less than 50 were recorded at most artesian bores, with some birds remaining throughout the summer.

There are few old records of this species in northern South Australia: McGilp (1923) re-

ported "thousands" in the Lake Frome* district on 18 May 1918 (this record is of special interest as none of our sightings were as late as this date) and all had left by 10 July; Whitlock (1924) saw three or four at Hamilton Bore (note that this is not the present Hamilton Bore, but a now abandoned bore a few kilometres upstream along Hamilton Creek from the present location); and there are old records from the Musgrave Range and Ooldea, and more recent records from Cook, between Mt Eba and Bon Bon, Eucla Dam (west of Tarcoola), Lake Everard and Artiming Dam (Parker *et al.* in prep.). Mack (1970) regarded this species as being rare south of Lake Frome. S. A. Parker (pers. comm.) has found no previous records for the far North-East east of Oolgawa WH and north of New Kalamurina, Lake Killamperpunna and Lake Callabonna South district: on 31 August 1982 we recorded *ca* 100 Sharp-tailed Sandpipers at Lake Goyder (north-west of Innamincka).

Storr (1977) gives the status of this species as "casual, or in passage, September-October and March-April" in the southern Northern Territory, while Braithwaite & Stewart (1975) recorded it on 25% of visits to the Alice Springs Sewage Farm and Roberts (1980, 1981) recorded 20-80 birds on all visits to the Sewage Farm, with a maximum of *ca* 120 birds.

PECTORAL SANDPIPER *Calidris melanotos*

A single bird was recorded by J. B. Cox and FJB at Welcome Bore on 1 October 1980. Good views were obtained by Cox, who positively identified the bird as *C. melanotos*. This bird was seen after Cox had collected the two specimens of the previously unknown, and similar, Cox's Sandpiper *C. paramelanotos* (see Parker 1982) and so he would have been aware, at the time of this sighting, of the similarity between the two species.

RED-NECKED STINT *Calidris ruficollis*

Uncommon, although recorded in all months except June and July. Frequents bore drains, lakes (salt and fresh) and waterholes. Largest numbers seen were "hundreds" at Lake Hope on 6 December 1980, up to 100 at Lake Eyre on 4 October 1977 (Badman 1979) and 100+ at Coward Springs on 1 October 1978 and at Lake Appadare on 21 November 1979. On bore drain swamps less than 10 birds of this species were usually seen, although 26+ were present at Welcome Bore on 13 April 1980 and 56 at the same place on 15 April 1982. Specimens were

*McGilp's Lake Frome was really Lake Callabonna (S.A. Parker, pers. comm.).

taken at Nunns Bore on 24 October 1978 and 20 October 1979 (SAM B32566, B33073) and at Lake Appadare on 21 November 1979 (SAM B32565).

There are scattered records from the Gawler Ranges (Parker *et al.* in prep.) and this species has been recorded in small numbers at Alice Springs (Thomas 1970, Braithwaite & Stewart 1975, Roberts 1980) although Storr (1977) regarded it as coastal in the Northern Territory.

LONG-TOED STINT *Calidris subminuta*

Vagrant. FJB recorded one bird in short *Cyperus laevigatus* and *Solanum oligacanthum* in shallow water at Cannuwaukaninna Bore on 6 December 1980. The bird was collected and is now in the S.A. Museum collection (B33808). A probable sighting was made by IAM at Leigh Creek Retention Dam on 1 November 1981, but the bird flew before adequate views could be obtained and was not relocated.

Although there are no other inland records for South Australia, it has been recorded several times at Mt Isa (Thomas 1970) and Brooker *et al.* (1979) collected one bird at Lake Brown, Western Australia, on 22 September 1976. Storr (1977) regarded this species as a rare passage migrant in the Northern Territory and Parker *et al.* (in prep.) consider it to be a regular visitor in small numbers to southern South Australia (Lake Alexandrina and ICI-Buckland Park).

Calidris sp. (unidentified)

Two small stint-like waders, one apparently in total and the other in partial breeding plumage, were observed by Bob and Hilda Lovell, and three hours later by IAM *et al.*, at Cannuwaukaninna Bore on 1 May 1982. They were approached to within 10 metres, allowing good views in excellent light with 10 x 50 binoculars.

Both birds were about the same size, appearing slightly larger and more robust than the Red-necked Stint. The following descriptions were noted at the time of sighting: breeding-plumage bird; throat, neck, upper breast and upper part of lower breast red-brown, sharply demarcated from pale lower breast and belly; face and around base of bill pale, continuing into prominent white superciliary stripe extending to ear coverts; crown bright rusty-brown, finely streaked black; nape and back duller rusty brown; wings grey-brown with prominent darker scalloping on coverts; legs black and short; bill black, length of head or slightly longer, thickened and slightly decurved near tip, distinctly broad at base, looks heavy. In flight: prominent light wing bar, pale underwing with darker rear margin, blackish centre to grey rump and darker

tail. Partial breeding plumage bird: similar to above, but considerably duller, being more grey-brown on the rusty-red parts.

Both birds presented a robust appearance with round dumpy head, heavy bill with broad base, sharply demarcated breast, scalloped wing coverts and light face with broad white supercilium stripe, particularly on the breeding plumage bird. No calls were heard. Lovell observed the birds feeding in a typical stint-like manner around the margin of a "turkey-nest" dam for about 15 minutes from 10.00. At 13.00 IAM sighted the same birds resting on the dam bank. They were disturbed after about 20 minutes observation and flew 300 m west, settling on a dry gibber flat.

Red-kneed Dotterels and Black-fronted Plovers which were also in the vicinity were not seen to associate with these birds.

Later that day IAM and Lovell met at Cooper Creek and compared notes, but the species identification was not determined.

Almost two weeks later, on 13 May 1982 at about 11.00, IAM and Lovell again sighted what appeared to be the same two birds timidly feeding among flooded Samphire *Halosarcia* spp. at the Leigh Creek Retention Dam, 230 km south of Cannuwaukaninna Bore. After about 20 minutes the birds were flushed by a close attack by an Australian Hobby *Falco longipennis* and they disappeared towards the south.

CURLEW SANDPIPER *Calidris ferruginea*

Generally uncommon and an irregular visitor in the Lake Eyre region, and as a southern passage migrant only, in most but not all years, from 31 August to 6 December: perhaps more common, but still irregular, in the Lake Callabonna area. Apparently prefers a more saline habitat than is provided at most bores, and large numbers were recorded only at brackish lakes, with other sightings at bore drains and dams. Usually in small numbers (less than 10) but "thousands" at Lake Callabonna when the lake was almost dry, *ca* 350 at Mulligan Springs, *ca* 200 at Welcome Bore on 1 October 1978, "hundreds" at Lake Hope on 6 December 1980 and 20+ at Lake Appadare on 21 November 1979. Other records from Lake Eyre South (Cox & Pedler 1977), Roxby Downs (Badman 1979), Nunns Bore, Coward Springs and Lake Goyder. Two specimens were taken at Nunns Bore on 26 October 1978 (SAM B31758, B31759).

Storr (1977) regards this species as being only in passage in the southern Northern Territory, but Roberts (1980) recorded one to four birds on most visits to the Alice Springs Sewage Farm, with up to 23 in March 1979 (Roberts

1981). Thomas (1970) lists this species as a regular passage migrant at Mt Isa.

ORIENTAL PRATINCOLE

Glareola maldivarum

Vagrant. A single bird was recorded by P. Langdon at Billa Kalina on 1 and 3 December 1980 (SAOA Newsletter 98). There is a possible record of one bird from between Clayton and Dulkaninna (Glover 1957). Apart from these records, this species has previously been recorded in South Australia only at Meningie or Milang in 1905, and Mosquito Point, Lake Alexandrina (Finch & Cox 1974), Nullarbor Station (Opie 1974) and near Burra (Pedler 1976). There is one record from Alice Springs Airport (Parker 1969).

AUSTRALIAN PRATINCOLE

Stiltia isabellae

Common from September to March, with some birds in August and April, and occasional winter records of one or two birds. Frequents lakes (fresh and salt), bore drains, swamps and dams, and grassland and gibber plains. Breeding in September, October and November, and January (Badman 1979). Usually up to 10 or 20 together, but IAM recorded flocks of 50+ arriving continually, with daily totals in excess of 1000 when this species arrived on the eastern side of the Flinders Ranges in September during the exceptionally wet years 1971-1975. McGilp (1923) lists this species as a visitor to the Lake Frome area only in good seasons. Other records of large flocks are: up to 100 along Cooper Creek in November 1977 and 40 at Crows Nest Bore in October 1977 (Badman 1979); ca 50 near Lake Toontoowaranie on 29 August 1979; 40+ at Gift Bore on 16 November 1979; 50+ at Meteor Bore on 3 November 1981; and 600+ at Lake Goyder on 31 August 1982 — these birds scattered among lush Cooper Clover *Trigonella suavissima* on a recently dried up part of the lake bed.

Storr (1977) regarded this species as casual in the southern Northern Territory (Alice Springs, upper Finke). Roberts (1981) has also recorded it at Alice Springs.

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REFERENCES

- Badman, F. J. 1979. Birds of the southern and western Lake Eyre drainage. *S. Aust. Orn.* 28: 29-31.
- 1981. Birds of the Willouran Ranges and adjacent plains. *S. Aust. Orn.* 28: 141-153.
- Black, A. B. & F. J. Badman. In press. Birds of the eastern Great Victoria Desert. Nature Conservation Society of S. Aust.
- Braithwaite, L. W. & D. A. Stewart. 1975. Dynamics of Water Bird populations on the Alice Springs Sewage Farm. *N.T. Aust. Wild. Res.* 2: 85-90.
- Brooker, M. G., Ridpath, M. G., Estbergs, A. J., Bywaters, J., Hart, D. S. & M. S. Jones. 1979. Bird observations on the north-western Nullarbor Plain and neighbouring regions, 1967-1978. *Emu* 79: 176-190.
- Chinner, D. W. 1977. Observations on the effect of increased rainfall on birdlife in Central Australia. *S. Aust. Orn.* 27: 188-192.
- Cooper, R. P. 1941. A trip in Central Australia in mid-summer. *Emu* 41: 106.
- Cox, J. B. & L. P. Pedler. 1977. Birds recorded during three visits to the Far North-East of South Australia. *S. Aust. Orn.* 27: 231-250.
- Close, D. H. 1982. Recent records of the Oriental Plover. *S. Aust. Orn.* 28: 205-206.
- Finch, B. W. & J. B. Cox. 1974. Another Oriental Pratincole in South Australia. *S. Aust. Orn.* 26: 166.
- Glover, B. 1957. A journey to Cooper Creek. *S. Aust. Orn.* 22: 32.
- 1971. Bird Report, 1968-69. *S. Aust. Orn.* 25: 219-233.
- Joseph, L. & A. B. Black. 1983. Further notes on birds of the Gawler Ranges. *S. Aust. Orn.* 29: 46-54.
- Klapste, J. 1978. Bird observations at Alice Springs Sewage Farm. *N.T. Aust. Bird Watcher.* 7: 148-151.
- Mack, K. J. 1970. Birds of the North-East of South Australia. *S. Aust. Orn.* 25: 126-141.
- May, I. A. 1972a. Recent observations of the Banded Stilt on Lake Callabonna. *Bird Observer* 485: 6-7.
- 1972b. More on the Banded Stilt on Lake Callabonna. *Bird Observer* 488: 3.
- McGilp, J. N. 1923. Birds of the Lake Frome district, South Australia. *Emu* 23: 227-244, 274-287.
- McGilp, J. N. & A. M. Morgan. 1931. The nesting of the Banded Stilt. *S. Aust. Orn.* 11: 37-53.
- Opie, M. J. 1974. A further sighting of the Oriental Pratincole. *S. Aust. Orn.* 26: 166-167.
- Parker, S. A. 1969. New and interesting distribution records of Central Australian birds. *S. Aust. Orn.* 25: 59-71.
- 1982. A new Sandpiper of the genus *Calidris*. *S. Aust. Nat.* 56: 63.
- Eckert, H. J. & G. B. Ragless. (In prep.). An annotated Checklist of the Birds of South Australia. Part 2. Waterfowl to gulls and terns.
- Paton, J. B. 1975. Birds of the Gawler Ranges, South Australia. *S. Aust. Orn.* 26: 180-193.
- Pedler, L. P. 1976. Oriental Pratincole in the Lower North. *S. Aust. Orn.* 27: 111.
- Pedler, L. P. & G. B. Ragless. 1978. Birds observed near Lakes Frome and Callabonna. *S. Aust. Orn.* 27: 274-276.
- Roberts, G. 1977. Central Australian records of the Grey-tailed Tattler. *S. Aust. Orn.* 27: 192.
- 1980. Records of interest from the Alice Springs region. *S. Aust. Orn.* 28: 99-102.
- 1981. Observations of water-birds at the Alice Springs Sewage Ponds. *S. Aust. Orn.* 28: 175-177.
- Schrader, N. W. 1981. Birds recorded at Sandringham Station, S.W. Queensland, during August-September 1980. *Aust. Bird Watcher* 9: 80-87.
- Storr, G. M. 1967. List of Northern Territory Birds. *W. Aust. Mus. Spec. Publ.* No. 4.
- 1977. Birds of the Northern Territory. *W. Aust. Mus. Spec. Publ.* No. 7.
- Thomas, D. G. 1970. Wader migration across Australia. *Emu* 70: 145-154.
- Watson, J. D. & (Mrs) J. D. Watson. 1967. Birds listed in the Alice Springs area October 18-November 3, 1966 Pt 2. *Bird Observer* 422: 2-3.
- Whitlock, F. L. 1924. Journey to Central Australia in search of the Night Parrot. *Emu* 23: 248-281.
- Wyndham, E. 1978. Birds of the Milparinka district and Cooper Creek Basin. *Emu* 78: 179-187.

APPENDIX
Gazetteer of localities mentioned in text

Adelaide	34°56'S, 138°36'E	Lake Callabonna	29°40'S, 140°01'E
Algebuckinna WH	27°53'S, 135°49'E	Lake Eyre	27°57'S, 137°03'E
Alice Springs, N.T.	23°42'S, 133°52'E	Lake Eyre South	29°15'S, 137°23'E
Andamooka	30°29'S, 137°13'E	Lake Everard	31°25'S, 135°05'E
Angas Bore	29°17'S, 136°44'E	Lake Everard HS	31°44'S, 135°10'E
Arkaroola	30°20'S, 139°22'E	Lake Frome	30°40'S, 139°50'E
Aroona Dam	30°35'S, 138°22'E	Lake Goyder	26°59'S, 140°10'E
Artiming Dam	32°07'S, 135°31'E	Lake Harry	29°22'S, 138°19'E
Beachport	37°29'S, 140°00'E	Lake Hope	28°23'S, 139°17'E
Billa Kalina	29°55'S, 136°11'E	Lake Killamperpunna	28°35'S, 138°45'E
Black Ridge Dam, W.A.	30°52'S, 124°33'E	Lake Marion	29°29'S, 138°12'E
Bon Bon	30°26'S, 135°29'E	Lake Marradibbadibba	26°59'S, 140°15'E
Bubblers Spring, The	29°27'S, 136°51'E	Lake Toontoowaranie	27°06'S, 140°10'E
Buckland Park (32 km NNW of centre of Adel.)	32°07'S, 135°51'E	Leigh Creek Retention Dam	30°30'S, 138°26'E
Burra	33°41'S, 138°56'E	McEwans Bore	29°23'S, 136°32'E
Camel Bend WH	28°24'S, 138°56'E	Meningie	35°41'S, 139°20'E
Cannuwaukaninna Bore	28°48'S, 138°33'E	Meteor Bore	29°27'S, 139°26'E
Carpamoongana WH	26°45'S, 134°46'E	Milang	35°24'S, 138°58'E
Carriererloo	32°24'S, 137°14'E	Mosquito Point	35°20'S, 139°13'E
Clayton	29°17'S, 138°28'E	Mount Dare	26°04'S, 135°15'E
Clifton Hills	27°01'S, 138°54'E	Mount Eba	30°11'S, 135°40'E
Collinsfield	33°37'S, 138°14'E	Mount Isa, Qld.	20°44'S, 139°29'E
Cook	30°37'S, 130°25'E	Mulligan Springs	29°43'S, 139°57'E
Coongie Lake	27°11'S, 140°10'E	Muloorina	29°14'S, 137°54'E
Cooper Creek	28°27'S, 137°45'E	Musgrave Ranges	26°18'S, 132°15'E
Cooranna Bore	29°31'S, 137°47'E	New Kalamurina	27°43'S, 138°15'E
Coorong, The	36°12'S, 139°40'E	North Mulga	30°12'S, 139°42'E
Cootabarlow Bore	30°17'S, 140°07'E	Nullarbor Stn.	31°26'S, 130°54'E
Cootanoorinna WH	28°10'S, 135°18'E	Nunns Bore	29°04'S, 136°31'E
Coward Springs Bore	29°24'S, 136°49'E	Oakden Hills	31°40'S, 137°02'E
Crows Nest Bore	29°23'S, 137°46'E	Old Nilpinna	28°13'S, 135°41'E
Dulkaninna	29°01'S, 138°28'E	Oodnadatta	27°33'S, 135°27'E
Echo Camp WH	30°18'S, 139°24'E	Ooldea	30°27'S, 131°50'E
Finke River, N.T.	25°51'S, 135°03'E	Oolgawa WH	26°47'S, 135°53'E
Flinders Ranges	30°40'S, 138°55'E	Palm Valley, N.T.	24°04'S, 132°40'E
Frome Downs	31°13'S, 139°46'E	Port Neill	34°07'S, 136°21'E
Gawler Ranges	32°20'S, 135°30'E	Purni Bore	26°17'S, 136°06'E
Gift Bore	29°37'S, 137°18'E	Richmond, Qld.	20°44'S, 143°08'E
Glen Helen	23°42'S, 132°40'E	Roxby Downs	30°42'S, 136°46'E
Goyder Channel	29°05'S, 137°42'E	Simpson Desert	26°22'S, 138°26'E
Great Victoria Desert	28°45'S, 129°30'E	Tanami Sanctuary, N.T.	20°40'S, 131°10'E
Hamilton Bore (old)	26°39'S, 135°17'E	Tarcoola	30°43'S, 134°34'E
Hamilton Bore (new)	26°39'S, 135°18'E	Tennant Creek, N.T.	19°39'S, 134°11'E
Hamilton Creek	26°44'S, 135°00'E	Tibooburra, N.S.W.	29°26'S, 142°01'E
Hermannsburg, N.T.	23°57'S, 132°46'E	Warrawaroonna WH	28°03'S, 135°55'E
Hundred Mile Plain	29°07'S, 136°28'E	Watts Bank	28°23'S, 135°43'E
Innamincka	27°44'S, 140°46'E	Welcome Bore	29°21'S, 136°38'E
Jersey Springs	29°21'S, 136°45'E	Willouran Ranges	29°50'S, 137°58'E
Lake Alexandrina	35°25'S, 139°10'E	Wilpoorinna	29°58'S, 138°20'E
Lake Apanburra	26°59'S, 140°05'E	Wynbring	30°34'S, 133°32'E
Lake Appadare	28°13'S, 139°12'E	Yandama Bore	29°58'S, 140°24'E
Lake Brown, W.A.	29°05'S, 126°00'E	Yard WH	29°17'S, 136°37'E
		Yunta	32°35'S, 139°34'E