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TABLE 1.—SYNOPSIS OF APPARENT OR INFERRED CHANGES IN THE OCCURRENCE AND DISTRIBUTION OF MOLLUSCS IN THE AVON RIVER, 1840-1975.

Species	Past status	Present status
1. *Westralunio carteri*	Originally common and widespread. In pools above York, common up to the 1940s, then in decline; last seen about 1950 in Gwambygine Pool. Between Toodyay and Northam common up to about 1947, in decline to about 1960, subsequently rare.	Probably extinct above Northam except for remnant population in Spring Pool, by Dale River. Below Northam rare, perhaps close to extinction. Present but uncommon in Wooroloo Brook, 1971.
2. *Anticorbula amara*	Prior to 1900 probably wholly estuarine. Below Northam rare in the 1920s, increasingly abundant since.	Common in the Swan estuary and abundant upstream to beyond York.
3. *Potamopyrgus* sp.	Unknown; possibly once widespread.	Living near the Wooroloo Brook confluence since 1969.
4. *Coxiella glabra*	Unknown but may have been originally restricted to saline/brackish lakes in the northern headwaters of the drainage basin; present in the Mortlock (North Branch), 1958.	No records since 1958.
5. *Plotiopsis australis*	Originally common and widespread at least upstream to York, but not reported from there since about 1840. Between Northam-Toodyay, common up to the 1950s; subsequently in decline there.	Probably extinct from York upstream; recently living in Burlong Pool but now possibly extinct between Northam and York. Uncommon between Northam-Toodyay. Common in Darling Range, notably around Wooroloo Brook confluence and downstream to Guildford.
6. *Physa* sp.	Introduced species.	In Burlong railway dam, 1968; in Avon near Wooroloo Brook confluence, 1969.
7. *Physastra* sp.	Unknown but probably once widespread. Collected in 1950 from "soak near Beverley".	In Brockman River and in Spring Pool by Dale River.
8. *Ferrissia (Pettancylus) petterdi*	Unknown; past presence inferred.	Unknown; recent decline or extinction possible.

NEW BREEDING RECORDS OF THE BANDED STILT IN WESTERN AUSTRALIA

By NICHOLAS KOLICHIS, Osborne Park

C. F. H. Jenkins (1975) has given a brief summary of the remarkable history of discovery of the nesting habits of the Banded Stilt *(Cladorhynchus leucocephalus)* in inland salt lakes, and of the latest record, at Lake Ballard, near Menzies, in 1973.

Some additional early nesting records, attempted and actual, not cited by Mr. Jenkins, may be mentioned.

On November 8, 1960 in the Yalgoo district Ivan Carnaby found 40-50 depressions in preparation for nesting by this species on an island in Wagga Wagga Lake, but when he and P. J. Fuller (1963) returned on November 26 nesting had been abandoned, presumably because the lakes were drying. About 400 Banded Stilts were present on both visits.

On August 11-17, 1971 Mr. W. H. Butler (pers. comm.) saw a flock of Banded Stilts, adults and young, at a claypan 30 km south of Durba Spring on the Canning Stock Route and others at a claypan 5 km north of Well No. 11. He collected an immature specimen (now in the American Museum of Natural History, New York). Presumably they had nested nearby, probably at Lake Disappointment. This lake would have been filled by heavy rain in May of that year.

In July 1974 Mr. A. Middleton (pers. comm.), while a resident at Menzies, saw a large number of chicks and adult Banded Stilts on the

eastern end of Lake Ballard but he did not see any actual breeding. As reported in Mr. Jenkins's article Mr. Middleton had discovered nesting at this lake in the previous year and had forwarded newly hatched chicks to the South Perth Zoological Gardens.

In September 1975 the Western Australian Museum received fragments of sub-fossilised eggs of the Banded Stilt from the Geological Survey of Western Australia. These had been found partly buried in clay in the Percival Lakes (Lat. 21° 22' S. Long. 124° 44' E). The shells were still pigmented and were evidently of recent age.

Fig. 1.—Nesting islet on Lake Marmion (resembling reversed figure "3").

OBSERVATIONS IN 1975

On April 6-7, 1975, Mr. and Mrs. A. G. Wells saw a flock of about 3,000 adult Banded Stilts at the eastern end of Lake Ballard, and during the nights while camped in this vicinity heard stilts continuously flying overhead until midnight. The water in the lake was about 30 cm deep and appeared to have an abundance of small fish and brine shrimps.

Mr. Wells's information stimulated me to search for breeding colonies. Consequently Mr. J. B. Woods and I chartered a plane on May 26, 1975, and flew over the lakes between Kalgoorlie and Menzies. At Lake Goongarrie, 86 km north of Kalgoorlie, a flock of about 1,000 Banded Stilts were observed feeding in the shallow water but no nesting was found.

At Lake Ballard, a vast sheet of water some 65 km long and 15 km wide, there were literally hundreds of islands varying in shape and size. In shallow water on the north-eastern end, several thousand Banded Stilts were scattered in about 20 groups over an area of approximately 3 km in diameter. As the aircraft approached the birds the adults flew off leaving behind hundreds of large flightless young which huddled closely together. As soon as the aircraft had passed over the adult birds returned to their young. After passing over most of the islands in the lake we located those on which the birds were nesting. These were two sandy islands about 10 metres apart in shallow water about 300 metres from the north-eastern shore of the lake. The smaller of the islands had no vegetation and was completely covered in empty nest scrapes. The other was a flat, wide,

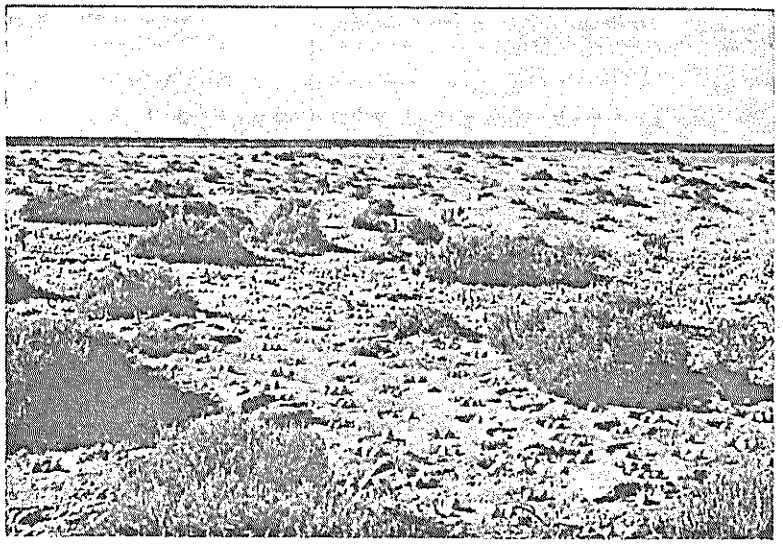

Fig. 2.—Rookery on Lake Marmion.

arc-shaped island with some scattered samphire bushes on the northern end, and two-thirds were covered with nests containing one to three eggs. These nests were presumed to have been abandoned because the eggs were partly buried in sand and no birds were seen in attendance. Possibly the receding water allowed mammal-predators to cross to the island or the eggs were infertile and abandoned remnants of successful breeding because numerous young birds were on the lake.

At Lake Marmion, we saw Banded Stilts on the water in small groups varying from three young with two adults to about 40 young with six to nine adults and eventually we saw a large colony of birds leaving an island. As the aircraft flew closer these birds huddled together in shallow water off the edge of a rookery consisting of hundreds of scrapes with eggs. The birds returned to their nests as soon as we passed over the area.

The colony at Lake Marmion was later surveyed from the ground. The nesting colony could not be seen from the lake shore. On walking to the rookery three flightless young stilts were captured while they were swimming in water 25 cm deep. They were white except for black wings and bill and dark greyish-black legs. As the rookery was approached we noticed that the smallest chicks were closest to the nesting area and the largest chicks were the furthest from the rookery, about 2 km away. The smaller chicks were covered with pure white down, their legs and bill being black. While several of the young were swimming they pecked at small black ostracod crustaceans floating on the surface of the water. Brine shrimps, the main food of adults, were not plentiful. One recently hatched chick was seen to leave its nest and huddle close to another chick in another nest nearby.

RAINFALL

Rain from tropical cyclone "Trixie" of February 17-24, 1975, filled these lakes. "Trixie" arose in the Cockatoo Island—Yampi Sound area and moved parallel to the coast before crossing inland just east of Onslow. It then moved southward to just east of Shark Bay and then moved south-eastwards into the Eastern Goldfields as a rain depression. Table 1

gives rainfall data for places in the Eastern Goldfields in the late summer and early autumn of 1975. Usually these centres receive an average monthly rainfall of only 15-30 mm during this period.

TABLE 1.—MONTHLY RAINFALL IN MM

	JAN	FEB	MAR	APR	MAY
Menzies	3	242	3	38	43
Leonora	12	237	26	63	37
Agnew	NIL	333	30	42	57
Sandstone	NIL	292	43	56	41
Cashmere Downs	0.5	299	15	72	27
Diemals	NIL	105	26	100	25
Laverton	NIL	120	(No Report)		

DESCRIPTION OF LOCALITY

Lake Marmion is an ephemeral salt lake 32 km east of Menzies (130 km north of Kalgoorlie). It is about 30 km long by 20 km wide. The nesting island was in the north-western part of the lake, and the nesting colony was on the north-eastern end of the island, about 7 km from the western shore. The island was long, narrow, and shaped like the numeral "3", about 5 km long, 100 m wide and one metre above water, covered sparsely with samphire and short green grass, and with odd low mud spits along the edges. There was open water on the north side and high islands on the south side of this island, the closest island being about 200 m from the rookery. Water about 40 cm deep surrounded the island and the water gradually became shallow towards the lake shore. The bottom of the lake was partly covered with soft mud up to 15 cm deep. The water was very salt.

Fig. 3.—Nest with four eggs, Lake Marmion.

DESCRIPTION OF COLONY AND NESTING

A colony of approximately 2,500 nesting pairs covered an area of about one half a hectare, which was on a bare patch of sandy-clay soil on the island, 70 cm above water. The surface had a thin, dry but fairly hard crust, which, when broken, revealed a soft, fine, light reddish-brown subsoil. Only odd bushes of samphire were scattered over the nesting area. The nests were shallow scrapes in the ground, averaging 15 cm across by 3 cm deep and were placed 30-40 cm apart. There were patches of unused ground throughout the rookery. Eggs were laid on bare ground, except for odd nests with pieces of dry samphire and dry grass as lining. Clutch sizes varied from 1-5; 3 was most common, followed closely by 4; odd clutches of 5 were scattered through the rookery and clutches of 1 and 2 were uncommon. Eggs varied considerably in colour, markings and shape, even within a clutch. The stage of incubation varied from fresh eggs to young recently hatched. Where there were breeding birds only odd nests contained addled eggs, but about 1,000 nests at the southern part of the rookery, where there were no birds, contained addled eggs partly buried in the ground.

MORTALITY AND PREDATION

About 300 small young dead in the rookery, and odd dead young, on the lake and outer shore were found. Three Whistling Eagles *(Haliastur sphenurus)* and several crows were seen flying round the rookery. A mouse was seen leaving a half dead chick with its scalp partly eaten and bleeding. Another 25-30 dead chicks were seen amongst the colony with their heads partly eaten. Only one adult was found dead; it was 200 m from the rookery. Adults were never seen feeding young birds, so possibly the high

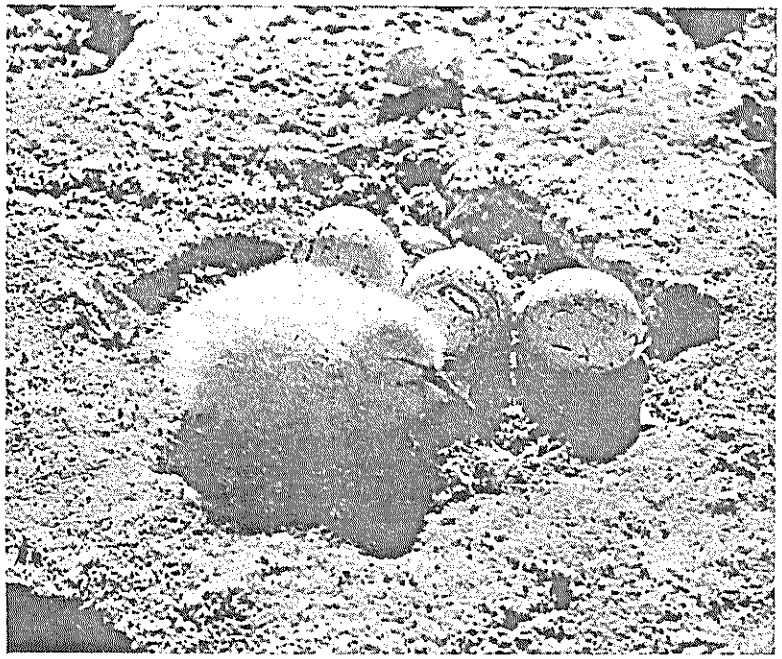

Fig. 4.—Eggs and chick in nest, Lake Marmion.
—Photos N. Kollichis

mortality among young birds was due to starvation and exposure to cold nights.

DISCUSSION AND CONCLUSION

The Banded Stilt has now been found nesting, or attempted nesting, at Lake Grace, Lake King, Wagga Wagga Lake (Yalgoo), Lake Ballard, Lake Marmion, Lake Disappointment (probably) and the Percival Lakes in Western Australia, and Lake Callabonna in South Australia. The Percival Lakes are the northernmost known breeding locality of this species. These are ephemeral lakes which are infrequently filled because very heavy rain is irregular, especially in arid areas. Numerous other inland lakes in the central parts of Australia are also presumably used for breeding if they contain islands and sufficient water and food (cf. Fuller, 1963). Breeding is seldom discovered because these lakes are numerous, large and difficult to survey from the ground, and often inaccessible.

ACKNOWLEDGEMENTS

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THE NOISY SCRUB-BIRD — FACT AND FICTION

By F. N. ROBINSON and G. T. SMITH

INTRODUCTION

This article has been prompted by the recent publication of incorrect and misleading information on the vocal abilities and habitat of the Noisy Scrub-bird, *Atrichornis clamosus*, (Macdonald, 1973; P. Slater, 1974). Because the general standard of these texts is good, they will be widely used as a source of information and will consequently be considered authoritative. It is therefore essential that in correcting these inaccuracies their genesis is examined in some detail.

The Noisy Scrub-bird was discovered in 1842 at Drakesbrook in the Darling Range. Between then and 1889 it was reported in other parts of the south-west corner of W.A., from Boogidup creek, Augusta, Torbay, Albany (Serventy and Whittell, 1967) and as far north of Albany as Mt. Barker (E. Slater, 1973 and pers. comm.). It was not sighted again until 1961 when H. O. Webster re-discovered it at Two Peoples Bay near Albany (Webster, 1962a). It is therefore important to consider two generations of data, namely that of the 19th century when the bird was widespread and that of the 20th century based on relatively few individuals at one location.