
SUTTON—Lake Alexandrina and Coorong in Flood-time.

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By J. Sutton.

A party consisting of Drs. A. S. Randell and A. M. Morgan, Messrs. F. T. Bruce, W. M. Morgan, M. Randell, and J. Sutton made a trip in the motor-launch of the first-named on Lake Alexandrina and the Coorong from 30th August to 4th September, 1931. On 30th August we arrived at Goolwa by motor-car from Adelaide shortly after noon, left in the motor-launch just after 2 p.m. and proceeding up the Goolwa Channel, anchored for the night off Goose Island in Dunn's Lagoon at 3.30 p.m. We worked part of the mainland shore for 1½ hours before dark. On 31st August we left Dunn's Lagoon at 7.34 a.m., proceeded by the usual course past Ram Island to Pelican Point and down the Coorong to the Needles, arriving there at 12.50 p.m. We walked across Younghusband Peninsula to the ocean, about three-quarters of a mile, and back, from 2.45 to 4.23 p.m. Heavy rain fell for some hours after dark. On 1st September in the forenoon we were in the scrub on the Peninsula along the Coorong shore for 2½ hours; in the afternoon we went in the dinghy to two of the Needles Islands (Goat and Needles). On 2nd September in the morning we worked the Peninsula shore, left the anchorage at 11.20 a.m., and reached a bay at

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the south side of Gnurlung Point at 4 p.m. We walked in the shore scrub for a time. There were very few birds about, but mosquitoes were in very great numbers. This was the only place where we were troubled by these pests during the trip. Rain began to fall after 6 p.m. and continued for most of the night. On 3rd September we left Gnurlung Point at 6.35 a.m. and anchored at the former position of the mouth of the Mundoo Channel at 7.48 a.m. After breakfast we went bird-nesting for three hours in the dinghy in the belt of tea-trees (*Melaleuca*) on Mundoo Island. At 2 p.m. we proceeded to Ram Island where we landed and remained for an hour, and then going on reached Dunn's Lagoon at 3.55 p.m. We rowed round Goose Island in the dinghy before darkness set in. On 4th September we left for Goolwa at 8.45 a.m. and arrived there at 9.47 a.m.

The places mentioned above may be found by reference to the maps in "The South Australian Ornithologist," Vol. VIII., page 84, and Vol. X., pages 94 and 196.

Flood.—The view southwards and westwards after we passed Ram Island was most impressive. With the exception of a portion of the western end of Mundoo Island all the islands were under water, the tops of lignum bushes indicating the former shore-lines of the islands. A fisherman's wooden hut at Deep Creek, Long Island, was under water to within 6 inches of the guttering, and the corrugated-iron hut at Shooting Creek, Reedy Island No. 2, had water just up to the doorway. The sandhills at the end of Younghusband Peninsula were clearly visible as well as the portion of sand sloping towards the River Murray mouth, but the mouth itself could not be seen as it was at first hidden by a clump of teatrees on the western end of Mundoo Island, and when we cleared that obstacle we were then too far south-east to pick out the mouth. The water was muddy and flowing swiftly. The flood waters, judging by the coloration, reached down the Coorong as far as Sam's Island, 16 miles from Pelican Point, and about that spot the fishermen had their nets placed, and were catching large quantities of Mulloway (*Sciaena antarctica*), mostly small sized. The level of the water at the Needles was higher than usual. In the Lake and the Coorong, wherever we went, the sandspits and sandy shore-lines were covered with water. We saw very few wading birds, most probably we were too early for the migratory waders, but birds may have been in the vegetation then forming the shore-line, so they could easily have been missed. At Goolwa, on 8th September, four days after

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our return there, the flood reached its peak, and was 4 feet 5 inches above the normal summer level. This flood was considered to be higher than those in 1890 and 1917. It was stated in the press on 20th November, 1931, that a sand-bar half a mile long had formed half a mile out in the ocean from the Murray mouth. It was diverting the ocean currents in south-westerly and south easterly directions. Fishermen were able to set their nets in the sea off Younghusband Peninsula, a thing that had never been possible before. A little later it was reported that during a storm at night the whole of the nets had been swept away and lost.

Dead Fish.—Many dead Bony Bream or Tookarie (*Nematalosa erebi*) were seen floating past the launch in Lake Alexandrina on 31st August. One was found on the ocean shore of Younghusband Peninsula near the Needles. On 2nd September I counted 129 dead amongst the portion of the belt of teatrees on Mundoo Island which we visited. A blackish patch, about 1½ inches square, showed on one body, and on rowing closer it was found to be a mass of mosquitoes. On Ram Island I counted 424 dead on the shore-line in a distance of 150 yards; the average weight of a fish was about one pound. I am informed that the death of these fish is caused by the change in the alkalinity of the water owing to the flood.

Snakes.—We saw three. A brown snake (*Demansia textilis*) exactly 4 feet long was killed close to our landing-place on the Peninsula at the Needles. Two tiger snakes (*Notechis scutatus*) were found in the teatree belt on Mundoo Island. One was lying on the top of a samphire bush a foot off the water. It was very black with a yellowish belly, and made no move as we approached it in the dinghy. The second was 18 inches above the water, stretched out on the dead stem and branchlets of a teatree. It was blackish with dull dark yellow bands across the back and yellowish on the sides and belly. It was larger and longer than the other, and as we rowed nearer it attempted to get away.

Fox.—On the ocean beach of the Peninsula the tracks of a fox near the high-water mark were followed up for a quarter of a mile.

Human Skeletons, presumably those of Aborigines.—Portions of the skeletons of two individuals were found on Needles Island, and parts of one individual were seen in an old cockle-shells deposit on the Peninsula close to the Coorong shore at the Needles.

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Bird-nesting.—At the Needles we found Rufous Bristle-Birds nesting on the Peninsula, a Pied Oystercatcher on Goat Island, a Spur-winged Plover and Singing Honeyeaters on Needles Island. On Mundoo Island the belt of teatrees is over a mile long, and from 200/300 yards wide. The depth of water about the trees varied from 2½ to 4½ feet. Notwithstanding the necessity of keeping a lookout for snakes whilst rowing and pushing our way amongst the trees, we had a very interesting morning. We only worked about a quarter of a mile and found the following species nesting:—Dusky Moorhen, Little Pied Cormorant, White-faced Heron, Black Swan, Black Duck, Magpie-Lark, White-browed Scrub-Wren, Striped Honey-eater, Raven, and White-backed Magpie. There were most probably many birds nesting in the part of the teatrees unvisited by us. On Ram Island we found a Black Duck's nest, and on Goose Island, Dunn's Lagoon, nests of Ravens and one of a Black Swan.

During the motor-launch trip 49 species of birds with 2,676 individuals were noted; for the whole trip 65 species and 2,933 individuals were recorded. In the list appended the numbers in parentheses after the names represent the individuals. All the members of the party contributed to the particulars and the census.

Gallinula tenebrosa, Dusky Moorhen (10).—One was heard in Dunn's Lagoon in the afternoon and again at 7.54 p.m. on 30th August. Nine birds were noted in the Mundoo teatrees and two nests were found there—(a) Foundation of sticks, lined with teatree bark, the water lapping the bottom of the nest; built under a teatree which had two limbs barked for the nest requirements. The water there was 4½ feet deep. 6 eggs, incubation .1. (b) Similarly constructed nest built in the fork of a teatree, the bottom of the nest touching the water. 7 eggs, fresh.

Podiceps cristatus, Great Crested Grebe (16).—All on the Coorong—7 of them at the Needles.

Phalacrocorax carbo, Black Cormorant (27).—One at Mundoo Island, 26 near the Needles.

Phalacrocorax ater, Little Black Cormorant (18).—Five on Dunn's Lagoon, six on Lake Alexandrina, one at the Needles, and six at Mundoo Island.

Phalacrocorax varius, Pied Cormorant (294).—17 on Lake Alexandrina, 9 about Mundoo Island, 268 on the Coorong—131 of them at the Needles.

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Microcarbo melanoleucus, Little Pied Cormorant (62).—One on Lake Alexandrina, five at the Needles, and 56 about Mundoo Island—seven nests were found in the belt of teatrees, evidently the start of a "shaggery." (a) nest three feet above the water, made of green teatree sticks with a lining of small pieces of teatree, 12 x 12 inches, 3 eggs. (b) nest four feet above the water, made with green teatree sticks and lined with green teatree, 15 x 15 inches, 2 eggs, fresh. (c) with 3 eggs. (d) with one egg. (e) (f) (g) being built.

Cormorants sp. (65).—Were seen at Dunn's Lagoon, on Lake Alexandrina, and on the Coorong.

Pelecanus conspicillatus, Pelican, (1,060).—16 in the Goolwa Channel, 7 in Dunn's Lagoon, 91 on Lake Alexandrina, 52 about Mundoo Island, 894 on the Coorong—191 of them about the Needles.

Hydroprogne caspia, Caspian Tern (45).—One on Lake Alexandrina, 44 on the Coorong—5 of them about the Needles.

Sterna bergii, Crested Tern (31).—26 of them on the Coorong.

Sterna nereis, Fairy Tern (77).—All on the Coorong—34 of them about the Needles.

Larus novae-hollandiae, Silver Gull (257).

Haematopus ostralegus, Pied Oystercatcher (30).—Eight along the Coorong, 22 about the Needles. A nest was found on Goat Island on a point jutting out into the Coorong. It was 4 feet above, and 12 feet from, the water. A cup-shaped hollow in the dark sandy soil, 23 cm. in diameter and 6 cm. in depth, near a prone ruby saltbush (*Enchylaena tomentosa*). 2 eggs. A pair was seen standing, as we passed, at opposite ends of Sam's Island. The birds about the Needles were chiefly in pairs and seemed very excited at our presence, flying towards us, switching away when near, and calling loudly, during the time we were walking about on both the islands.

Lobibyx novae-hollandiae, Spur-winged Plover (24).—Eleven on Hindmarsh Island, one in Dunn's Lagoon, two about Mundoo Island, two on Ram Island, 8 on the Coorong—six of them at the Needles. The pair on Ram Island appeared to be breeding, although we did not find a nest or young. One bird attacked a Starling that was flying past and later both birds attacked and pursued a Swamp Harrier flying over the island. On Needles Island a pair flew overhead and called for a long time. An egg was found against a small stone, but the nest was 7

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feet away on a little rise in a bare patch of small stones and flat rocks. The egg had evidently been blown down, or washed away by rain, from the nest.

Charadrius cucullatus, Hooded Dotterel (1).—On the ocean shore of the Peninsula near the Needles. It kept running ahead of us as we walked along at the water's edge.

Charadrius ruficapillus, Red-capped Dotterel (2).—One on the ocean shore of the Peninsula, and one on Needles Island.

Numenius cyanopus, Eastern Curlew (3).—On the mainland shore of the Coorong near Pelican Point.

Erolia ruficollis, Red-necked Stint (9)?—A flock of four flew past us on 31st August, and five on 2nd September whilst we were voyaging on the Coorong. They were not positively identified.

Notophox novae-hollandiae, White-faced Heron (33).—27 of them about Mundoo Island, where 10 occupied nests were found in the teatrees. (a) 25 feet above the water, a stick nest, diameter 8 x 12 inches with some pieces of fine rushes interwoven in the sticks and forming the lining of the nest. Bird flushed off nest. 5 eggs, incubation 4. (b) 7 feet above the water. Bird flushed off nest. 4 eggs, fresh. (c to i). 7 Herons flushed off nests which were not climbed to. (j) a nest 15 feet above the water was partly climbed to when young ones were heard calling.

Nycticorax caledonicus, Nankeen Night Heron (30).—One on Goose Island in Dunn's Lagoon, and 29 flushed from the teatrees on Mundoo Island—old nests of the species were seen there, but none of this season.

Chenopsis atrata, Black Swan (114).—Seen about the Goolwa Channel, Dunn's Lagoon, Ram Island, Mundoo Island, and Lake Alexandrina, and a pair at Needles Island. A pair was seen with three cygnets in the Goolwa Channel. Two nests were found. (a) built in the water in the reeds off Goose Island, constructed of reeds which had been pulled up at the site, thus making a clear space round the nest. The top of the nest was 9 inches above the level of the water. One egg. Bird flushed from the nest. (b) In the Mundoo teatrees, nest on a lignum flattened down on the water, with a few pieces of teatree bark and some down added. Nest was two feet in circumference, cavity 6 inches deep. The constructed portion was 6 inches above the water. 5 eggs, fresh. Bird flushed off nest. At Needles Island the pair seemed to be nesting, but no nest could be found in the reeds there.

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Casarca tadornoides, Mountain Duck (3).—All at Needles Island. A female was seen to fly into some samphire, but we could not cause it to flush.

Anas superciliosa, Black Duck (26).—Ten in the Goolwa Channel, eight at Dunn's Lagoon, one on Lake Alexandrina, one on Ram Island, and six about Mundoo Island. Three nests were found—two in the Mundoo teatrees. (a) Twelve feet above the water on an old stick nest, probably a Pied Cormorant's. Much noise was made, and the adjoining tree was shaken, but the bird remained fast until its nesting tree was being climbed. It then flew off, but the nest was not climbed to. (b) Nest about one foot above the water in the dead branches of a teatree. Bird flushed from nest. 6 eggs could be seen and doubtless there were more. (c) Nest on Ram Island on the ground, surrounded on three sides by a large tussock of rushes, constructed firstly with a layer of rushes and then a thick layer of the bird's down. 13 eggs. Bird flushed from the nest.

Querquedula castanea, Chestnut Teal (2).—These were seen about the Mundoo teatrees.

Querquedula gibberifrons, Grey Teal (5).—These were seen about the Mundoo teatrees.

Biziura lobata, Musk Duck (10).—Seven in Dunn's Lagoon, one on the Coorong at Gnurlung Point, and two in the Mundoo teatrees. A male was seen at 5.15 p.m. near some reeds in Dunn's Lagoon, and we searched for a nest in every patch of reeds in the neighbourhood without success, only flushing a female which splashed away some distance before diving. At Gnurlung Point, soon after we anchored on 2nd September, and whilst we were still on the launch, a male Musk Duck came out from the shore near a boobialla (*Acacia longifolia*) the branches of which were dipping into the water. He swam out past the launch, stopped about 50 yards off and cruised backwards and forwards about that spot for 20 minutes. At irregular intervals he kicked up the water behind him with his feet, sometimes using both feet together, sometimes one foot directly after the other, and sometimes one foot only—either the right or left indifferently. When kicking the beak was pointed up into the air, and the head drawn slightly backwards. He did not whistle at any time, nor did he evert his tail. He dived twice. The lobe below the bill hung loosely and dangled from side to side as he moved his head. After some time he

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swam slowly towards the opposite side of the little bay and finally at 5.45 p.m. he turned inwards towards the shore and disappeared behind a lignum clump. No nest was found near our anchorage. Birds were heard whistling at Dunn's Lagoon and Mundoo Island.

Circus approximans, Swamp Harrier (4).—Three at Dunn's Lagoon and one at Ram Island.

Haliastur sphenurus, Whistling Eagle (3).—One was seen at the Needles and two were flying over Younghusband Peninsula when we were returning along the Coorong.

Falco cenchroides, Nankeen Kestrel (9).—Three near the shores in the Goolwa Channel, one at Dunn's Lagoon, two along the Coorong, and three in the Mundoo teatrees—of these last one was sitting on a limb of a teatree just below a large stick nest and did not budge on our shouting. The two other birds were not far from that tree.

Glossopsitta porphyrocephala, Purple-crowned Lorikeet (1).—Flew overhead and called whilst we were amongst the Mundoo teatrees.

Neophema elegans, Elegant Parrot (3).—One the mainland shore at Dunn's Lagoon.

Hirundo neoxena, Welcome Swallow (26).—A pair came to the launch at Dunn's Lagoon, another pair at Mundoo Island, and a third pair at the Needles—this last pair flew into the cabin at 6.22 a.m., and on our return from the trip to the two islands the birds flew from the cabin.

Rhipidura leucophrys, Willie Wagtail (7).—Seen at Dunn's Lagoon, Needles Island, and about the Mundoo teatrees.

Colluricincla harmonica, Grey Shrike Thrush (5).—Two near Dunn's Lagoon and 3 in the Mundoo teatrees.

Grallina cyanoleuca, Magpie Lark (9).—Five at Dunn's Lagoon and 4 in the Mundoo teatrees, where also three new nests were seen, but none was climbed to.

Epthianura albifrons, White-fronted Chat (14).—Two at Dunn's Lagoon, two near Pelican Point, and ten on Ram Island.

Acanthiza pusilla, Brown Thornbill (29).—Four at Dunn's Lagoon and 25 in the Mundoo teatrees.

Acanthiza chrysorrhoa, Yellow-tailed Thornbill (4).—All in the Mundoo teatrees.

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Sericornis frontalis, White-browed Scrub-Wren (16).—All in the Mundoo teatrees. A nest was found 2½ feet above the water in a teatree, constructed of teatree bark, with some old sticks and bark on the outside. Not complete.

Dasyornis broadbenti, Rufous Bristle-Bird (26).—These birds were found in a stretch of about three-quarters of a mile in the scrub on the Coorong side of Younghusband Peninsula at the Needles. The chief call was quite different from that of the birds to be found near Robe. Five nests of this season were found. (a) three feet up in a clump of boobialla built of rushes (*Scirpus nodosus*) and in rushes. A small and very open nest with fine bark lining, but no rabbit's fur. It was situated about 30 yards from the water. The nest with one egg was found shortly after 10 a.m. on 1st September; at 11 a.m. on 2nd September there was still but one egg. A bird was heard singing from the clump on the latter morning. (b) 2½ feet up in a clump of boobialla built of dead rushes in rushes. A typical rush-nest. The nest was situated 20 feet in the clump, and was found through a bird calling. 2 chicks, skins black with a dark blue sheen. A parent bird appeared several times in the runway, a space between overhanging trees, and would put out its head and utter a harsh single note tending to a scream. (c) Two feet from the ground in a small clump of boobialla, constructed of sword grass, dead rushes, and strips of boobialla bark, first lining fine bark, inner lining rabbit's fur. The nest contained portion of a broken shell with traces that the chick had hatched out. (d) Nest in rushes in a clump of boobialla and two feet from the ground. Not complete. (e) Nest in rushes in a clump of boobialla. It was about finished, lined with rabbit's fur.

Megalurus gramineus, Little Grassbird (5).—Three on Goose Island, one at Gnurlung Point, and one in the Mundoo teatrees.

Maturus cyaneus, Superb Blue Wren (20).—Two on Goose Island and 18 in the Mundoo teatrees.

Zosterops halmaturina, Grey-backed Silvereye (7).—All in the Mundoo teatrees.

Plectorhyncha lanceolata, Striped Honeyeater (2).—In the Mundoo teatrees. A suspended nest was built in the twigs right out at the end of a dry branch of a teatree, constructed of feathers, spiders' cocoons, rabbits' fur, sheeps' wool, bark, and fine twigs of teatree. The nest was 7 feet above the water, and was swaying in the breeze. Ready for eggs.

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Meliphaga virescens, Singing Honeyeater (56).—Six about Dunn's Lagoon, one at Ram Island, and 49 about the Needles—the islands and the Peninsula. Two nests were found on Needles Island—(a) $2\frac{1}{2}$ feet up in a boobialla. One egg. (b) Four feet up in an *Olearia*. Not complete.

Acanthagenys rufogularis, Spiny-cheeked Honeyeater (9).—Two at Dunn's Lagoon, three on the Peninsula at the Needles, and 4 at Gnurlung Point.

Anthus australis, Pipit (8).—Two near Dunn's Lagoon, 4 on Ram Island, and two in the sandhills half-way across the Peninsula at the Needles.

Corvus coronoides, Raven (73).—Forty of them in the Mundoo teatrees. Two nests with young were noted at Goose Island, and 7 occupied nests were seen in the Mundoo teatrees. None was climbed to.

Cracticus torquatus, Grey Butcher-Bird (5).—One at Dunn's Lagoon, one on Needles Island, and three on the Peninsula—one at the Needles, and two at Gnurlung Point.

Gymnorhina hypoleuca, White-backed Magpie (56).—In the Mundoo teatrees a bird flew from a teatree in which there was a nest; another bird flushed from a nest. Neither was climbed to.

Unidentified (25).—Five on Lake Alexandrina, and 20 on the Coorong.

On the way from Adelaide to Goolwa and back the following species were seen. In those cases marked with an asterisk the species was also seen on the motor-launch trip:—*Larus novae-hollandiae**, Silver Gull (33); *Notophyx novae-hollandiae**, White-faced Heron (3); *Platycercus adelaidae*, Adelaide Rosella (40); *Psephotus haematonotus*, Red-backed Parrot (5); *Dacelo gigas*, Laughing Kookaburra (4); *Hirundo neo-vena**, Welcome Swallow (11); *Rhipidura leucophrys**, Willie Wagtail (6); *Seisura inquieta*, Restless Flycatcher (1); *Microeca fascinans*, Jacky Winter (1); *Petroica multicolor*, Scarlet Robin (2); *Melanodryas cucullata*, Hooded Robin (2); *Colluricincla harmonica**, Grey Shrike Thrush (1); *Grallina cyanoleuca**, Magpie-Lark (5); *Coracina novae-hollandiae*, Black-faced Cuckoo-Shrike (1); *Acanthiza chrysorrhoa**, Yellow-tailed Thornbill (1); *Malurus cyaneus**, Superb Blue Wren (1); *Climacteris leucophaea*, White-throated Treecreeper (1); *Acanthorhynchus tenuirostris*, Eastern Spinebill (2);

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Gliciphila melanops, Tawny-crowned Honeyeater (2); *Meliphaga penicillata*, White-plumed Honeyeater (5); *Meliornis novae-hollandiae*, Yellow-winged Honeyeater (10); *Myzantha melanocephala*, Noisy Miner (7); *Anthochaera chrysoptera*, Little Wattle-Bird (2); *Anthochaera carunculata*, Red Wattle-Bird (6); *Anthus australis**, Pipit (4); *Corvus coronoides**, Raven (1); *Gymnorhina hypoleuca**, White-backed Magpie (100).