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FURTHER NOTES ON THE BUSH-HEN IN SOUTH-EASTERN QUEENSLAND

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SUMMARY

The bush-hen *Amaurornis olivaceus* is common wherever suitable habitat of prolific rank grass and shrubs occurs. It breeds freely from December to February and has relatively large clutches. Losses from clutches are high.

INTRODUCTION

The presence of the bush-hen *Amaurornis olivaceus* in southern Queensland was reported by Morgan and Morgan (1968). Subsequently, Clarke (1975) prepared a detailed report on behaviour and calls of a pair at Camp Mountain. Beruldsen (1975) briefly reported some recent sightings, and suggested the species was not uncommon in suitable localities in south-eastern Queensland. This paper summarizes observations made since 1972 in the western districts of Brisbane.

The bush-hen possibly occurs in suitable habitats throughout eastern Queensland. The difficulty of observation, and lack of observers with a working knowledge of its call notes, probably explains the absence of records. It seems unlikely that the bush-hen has arrived, established itself, and multiplied so prolifically near Brisbane, within the last two decades. I suspect the species has been present without being detected.

The bush-hen inhabits the densely overgrown margins of small streams, both on the coastal lowlands and higher in the near coastal ranges around Brisbane ($27^{o}28'S$, $153^{o}02'E$). A prolific growth of tall rank grass in association with shrubs 2-3 m in height, especially lantana *Lantana camara*, appears to be essential.

Areas searched included Gold, Gap, Moggill and Pullen Creeks and several small feeder streams of Moggill Creek. Bush-hens were

only found where water ran or was permanent. Some territories were in areas devoid of tall trees, while others were beneath groves of tall trees, mostly *Casuarina* species, that cast shade over most of the territory. Several other areas were searched, but the species was not found: these were similar to those favoured, except that either tall rank grasses or shrubs were missing.

TERRITORIES

Nine territories were isolated and studied (Table 1): they were centred every 250-300 m. Two pairs occupied territories where the appropriate grass and shrub association extended for less than

TABLE 1

Territories studied in the western districts of Brisbane, 1975 - 1976

Territory	Location
A	A small feeder stream to Moggill Creek.
B	Pullen Creek
C	Moggill Creek
D	Moggill Creek, adjacent to C.
E	Moggill Creek, adjacent to D.
F	Moggill Creek, approximately 1.5 km downstream from C.
G	Moggill Creek, approximately 5 km upstream from E.
H	Gold Creek, same location as was studied by Morgan and Morgan (1968).
I	Gold Creek, approximately 2 km downstream from H.

100 m. These pairs occupied adjoining territories. The species wandered as far as 100 m away from a stream side but usually remained within 25 m. Playing a recording of bush-hen calls within a territory during the breeding season usually drew a response. However, the type and quickness of the response varied according to the stage of breeding. During pre-courtship, courtship and nest construction, the vocal response was almost immediate and rendered by the male and female. Both immediately tried to locate the intruder. The vocal and physical response was sometimes maintained for an hour or more. Once egg laying commenced, vocal response was delayed and limited initially to short periods of subdued piping (see Clarke 1975). However, both male and female immediately searched for the intruder. If they failed to locate an intruding bush-hen within 30 minutes or so, they usually gave the typical shrieking call. If the recording was played again, they became very excited and vigorously searched for the intruder, but did not persist for long. Once excitement diminished, the female hurriedly returned to the vicinity of the nest and usually

perched in grass or the shrub beneath the nest, where she stayed throughout the day, and probably the night, until incubation commenced. The response to the recording was limited once incubation commenced, and was sometimes delayed for 15 minutes or more. The non-incubating bird endeavoured to locate the intruder without calling, whilst the incubating bird remained on the nest. If an intruder could not be located some calling followed, but often it was simply a subdued piping of short duration. Once the young had hatched, vocal and physical response was immediate and aggressive. Both male and female left their young under cover whilst locating the intruder, often calling almost continuously. On one occasion they were 100 m from their young before wavering and turning back. On that occasion however the six young were almost as large as their parents.

CALLS

Clarke (1975) gives an excellent description of the calls and indicates their functions. However, he apparently failed to notice the difference in pitch between the corresponding calls of the male and female. The greatest difference occurs in the piping call, and the least in the shrieking call. The piping call, which is used with a great variation of intensity, appears to be a contact call between male and female. The shrieking call, which is again used with a variation of intensity, is an aggressive or defence call. The clicking call, which is used with a small variation in intensity, is a contact call between parents and young. Unfortunately I was unable to determine which sex used the lower scale notes and which the higher.

OBSERVATION

Without a portable recording of the calls of the species they are exceedingly difficult to locate. One could walk through a territory for hours and never see or hear one, yet pass within a metre of them. They are not shy but are very quiet. They are vocal only during the early part of the breeding season and then usually early in the morning and late in the afternoon. Sometimes a piping call may be heard for from a few minutes to several hours at night. The species keeps within dense cover and only occasionally ventures into the open. When in the open along stream sides they appear to stay within shade and often walk in shallow running water. When crossing a road they venture from cover far enough to detect potential danger. If they can see no danger they hurry across, often stopping to look around just before re-entering cover.

ROOSTING STAGES

The bush-hen, like many other water birds, builds roosting or resting stages. However, whereas most related species construct only rudimentary platforms, the bush-hen constructs a more complex structure, closely resembling a nest. Their siting is

different from the nest in that they are far less selective when choosing a site. Roosting platforms may be sited amongst grass or in a shrub. Few have a roof overhead.

NESTS

The nest is bowl shaped. It varies from 10-20 cm across the inside top and is at least 5 cm deep. It is constructed from soft green grass blades and sheaths, and some dry grass (Clarke 1975). The pieces of grass are laid criss-cross and moulded into shape by the body of the bird. Many pieces are bent down from the surrounds. Usually a rudimentary roof is constructed by bending down surrounding grasses, however it appears to be for camouflage only. Nests are usually placed amongst dense grass (Table 2). The preferred sites are the densest and tallest portion in a patch of grass, grass growing through a shrub or bush, or dense grass adjacent to a vine, stump or tree trunk. Nests may be 2 m or more above the ground but are usually lower. Many first nests for the season are built below normal flood level and are affected by flash floods. Subsequent nests are usually constructed above normal flood level.

EGGS

The shell is pale creamy-white with a moderately lustrous surface, which becomes increasingly lustrous as incubation proceeds. Clarke (1975) describes the shell colour as pinkish cinnamon, which is the apparent colour of a full fresh or partly incubated egg, and not an empty shell. Eggs are marked as detailed by Clarke (1975) except that some are closer and more prolifically marked. The pale mouse-grey spots appear as if beneath the surface. They closely resemble those of *Rallus pectoralis* and *R. philippensis*, but have a slightly paler ground colour and are noticeably larger. The first clutch for the season consists of six or seven eggs, although sometimes only five (Table 2). If these are lost, usually to flooding or reptiles, the second clutch, produced from 14-21 days later, consists of four or five eggs and sometimes six. Most clutches were laid in January and February. A few young, seen in February, must have hatched from eggs laid in mid-December. Those pairs that suffered repeated losses persisted into March. One pair made four attempts in ten weeks.

BREEDING LOSSES

Only one of 12 nests located in January and February 1976 was successful to the hatching stage (Table 2). Of the others, four clutches were taken by reptiles, four were deserted-probably due to disturbance to their surrounds-and three were flooded. Three of the four taken by reptiles, and two of the four deserted nests, were later flooded. The remains of the eggs taken by reptiles were left in the nest. On each occasion each egg had been crushed sideways, causing one end of the inner lining to split. The

TABLE 2

Nests observed in territories A to I.

Territory, nest and month	Distance from stream (m), height above ground (m), and location	Clutch and outcome
A1 January	5, 1.8, grass growing through lantana.	7, hatched.
A2 January	3, 0.3, prominent tussock in tall grass.	7, predated/ flooded.
A3 January	2, 1.1, grass growing through thorny shrub.	5, dis-appeared.
A4 February	7, 1.0, grass against a fence post.	4, predated.
A5 March	6, 0.9, grass growing through a shrub.	1, deserted, disturbed by cattle.
B1 January	0, 0.2, tussock in main stream.	7, predated/ flooded.
D1 January	4, 0.8, grass growing through lantana.	0, deserted/ flooded.
D2 January	5, 0.8, prominent tussock in tall grass.	0, flooded.
D3 February	20, 1.0, grass against a stump.	0, deserted.
E1 January	6, 0.7, thorny vine and grass patch.	6, predated.
E2 January	6, 2.0, grass growing through and around vine and tree trunk.	4, deserted.
H1 January	3, 0.8, centre of sugar cane clump.	7, deserted/ predated.
H2 February	20, 0.6, grass against fence post.	6, hatched.
I1 February	3, 1.2, grass growing up through lantana.	1, flooded.

NOTES 1. Nest A1 constructed in 1975, all others in 1976. No nests were found in territories C,F and G.

2. Desertion of nest H1 was probably due to nearby flooding, even though the nest was not damaged.

3. Nest I1 was probably a second nest.

emptied remains, i.e. the inner lining with crushed shell attached, had been ejected back into the nest. Each of the nests had been predated within a few days of the clutch of eggs being completed.

Feral cats and dogs abound in the area, but appear to pose no threat.

INCUBATION

Both male and female incubate the eggs although I suspect that the female does most of the incubating. Both incubate very closely and from the commencement are reluctant to flush and will peck at a finger placed on the nest. Once flushed they usually drop to the ground beneath, or close to, the nest and take up an aggressive posture with wings spread and head held high, calling softly, but with a sharp and aggressive shrieking note, at intervals. As incubation proceeds they become more aggressive and may fly at the intruder.

YOUNG

The young leave the nest shortly after hatching but probably return to roost at night for the first week or so. Fresh droppings have been seen in vacated nests up to about ten days after hatching.

CONCLUSION

This species is much more numerous and probably much more widespread in south-eastern Queensland than has been indicated. They are persistent breeders, and cope with high breeding losses to predation and flooding. They appear to be in no danger as long as their habitats are maintained.

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NEST OF THE CRESTED PIGEON

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SUMMARY

The crested pigeon *Ocyphaps lophotes* builds a nest, which consists of a substructure and cup, on a natural platform of branchlets. The male and female collect material for the sub-structure, but the male fetches most of the material for the cup. The female builds the nest. The female's position relative to the platform may determine the angle at which each layer of twigs crosses the preceeding one. She laces slender twigs through the substructure when building the cup and weaves the loose ends into the rim as she pivots slowly and rounds the rim with her breast. Crested pigeons may learn through trial and error that a natural platform is necessary for the base of a nest and that notched twigs are required for a stable structure.

INTRODUCTION

The endemic crested pigeon is common in open woodland and agricultural areas. Nest-building occurs throughout the year but egg-laying is confined mainly to spring and summer. Nests of the Columbidae have been described by North (1913-1914), C.B. Frith (1970) and H.J. Frith (1972).

STUDY AREA AND METHODS

This study took place at Gilgai, near Inverell, New South Wales, (29°53'S, 150°40'E), in eight hectares of undulating granite woodland and natural grassland. Species of *Eucalyptus*, *Angophora* and *Callitris* predominated, with some understorey. Two cottage gardens were planted with native and exotic shrubs.

I have observed the crested pigeon for many years and have watched daily as the birds fed on grain at my home. As well, I have made ten hours observations at one nest from site-selection to egg-laying. Many other nests have been watched for shorter periods. Several nests at various stages of construction have been carefully dismantled: two of these are described. I have also noted behaviour associated with nest-building.

In the breeding pairs I observed closely, the secondaries of the male were longer than those of the female and had correspondingly more purple colour - a feature easily seen in the field. Young birds had limited wing colour.

OBSERVATIONS OF NESTS

Nests were found at heights of 1-9m in *Angophora* sp., *Acacia* sp., *Araucaria cunninghami, Casuarina* sp., *Eucalyptus* sp., *Amyema* sp. (mistletoe), *Viburnum vitus, Lonicera fragrantissima* (honeysuckle), *Rosa* sp. (rose) and *Quercus robur* (English oak). Almost any tree or shrub sufficed providing it had a firm natural platform of horizontal branchlets, screened by foliage, on which to build a substructure of twigs to hold the nest-cup. The two nests selected for detailed study were built near the ground and were surrounded by shrubs which made an excellent hide. These nests were also used for more than one brood.

MOCK-BROODING

A pair of crested pigeons often place a few sticks across a disused nest then sit, perhaps for an hour or two but usually for several days. As no eggs are laid I have named this behaviour mock-brooding. It has been recorded nine times in seven years but may be much more common.

All mock-brooding occurred between April and October. One pair sat from 17 April to 10 July 1975 when they were harried by a pied currawong *Strepera graculina*. They settled down again later on the same day and sat until 8 August when one fledgling left the nest. No record was kept of eggs laid but it seems likely that some of that long period was mock-brooding.

DESCRIPTION OF NESTS

The first nest (Nest 1), built in August 1974, was well hidden in a compact *Viburnum* at a height of 1.2m. It was deserted on 19 September leaving two dead pin-feather stage chicks. Subsequent use as a roost squashed the bodies down in the cup where they became covered with what appeared to be powder down, the birds often preening above the nest, and droppings. Excrement also matted the twigs of the substructure, which projected well beyond the cup. No attempt was made to clean the debris from the nest when a second cup was added one month later. Sitting recommenced but was interrupted after a predator took the two eggs.

The natural nest platform was a spray of four equal length laterals lying horizontally between five upright branches. The substructure built on this natural platform consisted of dry forked twigs crossing at surprisingly consistent angles of nearly 90°, and 15-20 mm apart. Some of the twigs were laced through the laterals comprising the natural platform; many extended between the surrounding upright branches. Most of the twigs were *L. fragrantissima* which had, as well as angular laterals, opposed nodes about 15mm apart which hooked the substructure twigs firmly to the natural platform and the surrounding branches. There were three layers of twigs in the substructure: although the second and third were placed at an obtuse angle to the first, they retained the

crossed pattern.

Much of the material in the substructure was brittle and broke easily but there were about 70 twigs up to 2mm in diameter and up to 244mm in length.

Forty slender forked twigs, crossing in 10mm squares, were depressed and rounded to form a cup in the centre of the "saucer" of substructure twigs. One pliant fork, with a short stem of 34mm, had its 105mm laterals woven one to the right the other to the left around the rim of the cup. The cup was 155mm across and 50mm deep externally with a nest cavity internally 80mm across and 15mm deep.

About 20 fine curved stems from unidentified shrubs lined the cup. Some grass stems had been used but these were broken and trampled down under the decomposed chicks and accumulated excreta.

The second cup, added one month later, began with the placing of five small twigs across the bottom of the cup on the debris, together with one single-stemmed plant with root attached (148mm) and one multi-stemmed plant also with root (60mm). Ten pieces of fine root (70-270mm) and 14 pieces of grass *Panicum* sp. (longest 329mm) were curled on these. The proximal end of the grass stem was hooked over the rim of the cup and then fixed at the base continuing in zig-zag fashion but leaving the seed-head free. Each piece of grass was worked in this way, either around the inside of the cup or across the flat base. Eight *Viburnum* leaves were tangled in the lining but these could have been accidental inclusions.

The second nest (Nest 2) was well hidden under the outer foliage of a rose bush at a height of 1.2m. It consisted of a three storied cup on a substructure of *L. fragrantissima* and *Angophora* sp. twigs interlaced through the supporting rose branches. These twigs were 2mm in diameter, and up to 340mm in length. Each of the three cups was made of slender curved and forked stems of rose, *Prunus* and other unidentified shrubs. The two top nests were lined with grass stems, grass stolons with roots attached, bulb fibre and a few feathers. Both were slightly matted from use. The lowest nest was unlined and clean.

This use of an original nest, presumably by the same pair, for subsequent broods was common and each time an additional nest-cup was built on the old one making a deep dense mass of twigs. Only a token number of twigs, up to 5, was added before clement weather induced off-season mock-breeding.

SITE-SELECTION

I made notes on the preliminary investigation of a nest-site by the male crested pigeon on five occasions. After moving round in the shrub and cooing, the male flew to the waiting female and displayed - bowing, cooing, raising and spreading the tail -

before preceding the female to the nest-site. There was much noisy wing-flapping as the male tried to display in the confined space while the female rounded out an imaginary nest. There were loud calls of "wook" from the male and softer coos from the female. Three nests were built on sites chosen by the male and two on those chosen by the female. Once a site was finally selected, the female cooed loudly and pecked the male. He then flew off and returned with a twig which the female took and placed in position.

BUILDING

Both birds gathered material for the substructure but the female wove it and pushed the male aside if he attempted to help. Most of the material for the cup was brought by the male.

When the pigeons were building Nest 3, I was able to watch them closely from behind a shrub 2m away. The female sat on one side of the natural platform of crossed stems of *L. caprifolium* and placed twigs to the front and sides. She pushed and pulled at the twigs until the forks caught tightly about each other and about the stems making the platform. The male often sat close by.

I examined the nest from time to time when both birds were absent and found that the crossed pattern continued until about 20 twigs were fixed at the front and sides of the female. She then moved about 40° to the right and commenced the second layer of crossed twigs, and having completed this, moved to the left beyond her original position and built the third layer. The position in which the female sat, relative to the platform, appeared to determine the angle at which each layer of twigs crossed the preceding one.

For the cup, the female used slender forked twigs. She laced these through the substructure with her bill, crossing them as she had done for the base, but in 10mm squares. Most of the proximal ends of the twigs were pulled through to the height of the rim of the cup and the rather untidy distal ends were woven into the rim as the female pivotted slowly and rounded the cup with her breast.

The birds appeared to select twigs carefully - often a dozen twigs were picked up and dropped before one was taken. If none seemed suitable they searched beneath other trees, sometimes returning to the original tree before taking a twig.

Work began about an hour before sunrise and ceased about 09:00; it resumed at 15:00 and continued until dark. The pair spent the middle of the day feeding, preening and sunning, with occasional nest-inspecting.

At 08:00 on 14 February 1968 a pair of crested pigeons, thought by their plumage to be sub-adults, attempted to build a nest in a deep fork in a camphor laurel *Camphora officinalis* tree. The

birds brought twigs from an angophora 100m away and tried to fix them in the fork, but as there was no natural platform of crossed branches, the twigs kept falling through to the ground. One bird perched on the head of the other and tried to secure a stick in the branches without avail. Late in the afternoon there were no twigs in place, only a scattering on the ground below. I inspected these twigs and found them to be smooth and without hook-like laterals.

A more experienced pair of pigeons successfully built a nest in a deep fork in an angophora by bending down the stiff laterals growing about the fork to form a platform.

On 20 June 1973 a nest at cup-stage was found in a Cootamundra wattle *Acacia baileyeana* on a platform of tangled branches beneath sheltering foliage. The female remained at the nest while the male gathered twigs. A few of these came from beneath the wattle but most were brought from under angophora and eucalypt trees 150m away.

The female cooed when the male approached with a twig which he placed on the nest. He then flew to the gable of a nearby house to sit and preen, after which he collected more material. The flight took 20 seconds each way - twig selection averaged one minute. At 19:20 the male flew to the gable, gave six sharp coos, then flew to the angophora but gathered no twigs, flying instead to the house for food. Here he courted another female by cooing, bowing and wing-fanning, before returning to the now loudly cooing female at the nest. The male settled on the nest for a few minutes while the female continued to call, then moved along the limb to preen in the sun, coo and make knocking noises in the throat.

DISCUSSION

Mature crested pigeons seem to have learnt through trial and error that a natural platform is necessary for a nest-base and that notchy twigs must be used for a stable structure. Nest-building may have an inborn behaviour pattern which is developed by learning e.g. the attempt of young birds to build in the camphor laurel. Many nests started and abandoned in spring and summer may have been built by sub-adults gaining experience.

At present our knowledge of the nest-building techniques of the Columbidae is scanty, but the substructure and cup nest seem to prevail throughout the family with the possible exception of the genus *Petrophassa*. These pigeons nest in an earth-scrape or on a rock ledge, sites which need no strenghthening substructure for a token cup of grass or twigs. However, Frith (1972 p.15) found that one nest of *P. rufipennis* had "...a base...and...pad... depressed in the centre", and that one nest of *P. albipennis* was similar.

When describing the nest of the purple-crowned pigeon *Ptilinopus superbus*, Crome (1975 p.172) referred to a stable (natural) platform and the use of forked sticks "...tangled into a tight strong mat...bound to the site." He also stated that "Despite the apparent fragility...the nests...are quite strong and difficult to pull apart."

Gilbert (1936 p.304) described the nest of the top-knot pigeon *Lopholaimus antarcticus* as "...a flat and loose although substantial structure...sticks had lateral twigs which interlaced one across the other...perfectly secure in the midst of a clump of bushy branchlets." Gilbert also mentioned that the egg rested in a groove formed by parallel sticks.

All these features referred to by the above writers were found in the nests of *O. lophotes*.

North (1913-1914) described the nests of some pigeons as frail because of the relatively small number of twigs used and the "see-through" nature of the initial, i.e. first-cup, construction. The red wattle-bird *Anthochaera carunculata* builds a similar twig nest and uses approximately 40% more material (Baldwin 1972). The only frail nests were those chancy structures built by birds assumed by their limited wing colour to be young. These nests were seldom finished and if eggs were laid they often fell through to the ground.

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THE GREY SWIFTLET COLONY AT FINCH HATTON GORGE

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In a cave above the Dooloomai Falls overlooking the Finch Hatton Gorge in Eungella National Park, Queensland (21°04'S, 148°38'E) lives a colony of grey swiftlets *Collocalia spodiopygia*; the size of this colony during the last 25 years appears to have undergone considerable fluctuation and may now be at its lowest level since its discovery in 1951.

Wheeler (1959) reported that 20 deserted nests were found in the cave on 24 August 1953 and that 12 nests, most of which contained eggs, were found in another cave further up the hillside later that year; the author also suggests that the number of birds nesting in 1953 was only about half as many as in 1951. Robertson (1962) reported that, on 7 October 1959, 25 nests with eggs or sitting birds were in the first cave referred to by Wheeler (1959). Robertson (1962) also mentioned the discovery of a third cave occupied by grey swiftlets further down the mountain, but which required access by swimming and was not visited. Seton (1965) reported that, on 8 December 1963, 250 nests were seen in the Dooloomai Falls cave and 300 were present on 21 November 1964; Chisholm (1966) estimated the number of nests to be 200 on 3 November 1964.

On 29 February 1976 a small party of biologists from James Cook University made the journey up the Mountain View Walking Track from Finch Hatton Gorge to the cave at Dooloomai Falls. The cave lies about 10 metres from the top of the falls and is easily accessible; as reported by the earlier visitors it is uncomfortable to explore because of the cramped conditions and muddy floor. We arrived at the cave at noon and the only obvious evidence of swiftlet occupation was a pair of nests dangling in disrepair from the ceiling at the site where 300 nests had been observed by Seton in 1964. At 18:45 the first grey swiftlet flew into the cave and during the following 1½ hours between 20 and 30 birds were seen, some of which roosted for brief periods on, or in the vicinity of, the two nests. The ceiling and walls of the cave were wet, providing very few dry roosting sites.

A second, smaller cave was found behind and above the falls cave; this was probably the additional cave referred to by Wheeler (1959). No evidence of grey swiftlet occupation was found in this cave, though it was not revisited after dark.

It seems clear that the local grey swiftlet population was considerably reduced from the large numbers present in 1963 and 1964. That such a small number of nests was found during the breeding seasons of 1953 and 1959 suggests that population fluctuations reported here are not caused by migration or dispersal during the

non-breeding season, but rather may result from variations in some basic ecological factor. Regular and frequent visits to all known grey swiftlet colonies need to be made to establish the presence and nature of such a factor, but it seems possible that the extent and intensity of the summer rains may influence the success of each breeding season at Dooloomai Falls. The cave is adjacent to a major watercourse and has a lesser stream flowing through it; it is very likely that a heavy and prolonged wet season, such as in 1975-76, may swamp the nesting area causing the displacement of nests and the removal of eggs and young. Alternatively, the excessive water flow may simply prevent or hinder the construction of nests.

The significance of this grey swiftlet colony has increased since the sighting by Boles and Barry (1975) of a flight of glossy swiftlets *Collocalia esculenta* in Finch Hatton Gorge. It would be of great interest to discover these two swiftlet species nesting in the same locality since they would provide an excellent source of comparison in the study of bird acoustic orientation or echo-navigation. Roberts, Smyth and Spain (1976) have shown that the grey swiftlet possesses the ability to fly in total darkness using the echoes of their own emitted vocalizations for navigation, in a similar manner to the echo-location "radar" of bats; Medway (1967), on the other hand, has shown that the glossy swiftlet in Malaysia does not possess this ability. There is much to be learned about the mechanisms involved in acoustic orientation and why two such closely related swiftlet species should differ in this way and yet lead otherwise apparently similar lives.

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BIRDS FROM SOME ISLANDS OF THE TORRES STRAIT

GLEN INGRAM

This paper reports observations of birds made in the Torres Strait during 1974 and 1975. Most observations were made by G. Ingram (G.I.), E. Cameron (E.C.) and G. Roberts (G.R.): these are supplemented by those of H. Cogger (H.C.), G. Courtice (G.C.), H. Heatwole (H.H.) and A. Young (A.Y.). The fifteen islands visited are shown on the map (Figure 1), and are briefly described below. Visits were at different times of the year and for varying periods of time (e.g. a few hours on Waraber, four weeks on Mer, and two visits to Nurupai). Frogs and reptiles were the main interest of the party, however I am taking this opportunity to publish my limited observations to add to knowledge of distribution and movements of birds in the Torres Strait.

Storr (1973) lists bird distribution and movements pertinent to this area, and Kikkawa (1976) has given an historical account of early ornithological activity off Cape York Peninsula.

I have had the Torres Strait people in mind whilst preparing this paper, and many of the islanders are keen to know more about their fauna. The field guides by Slater (1970, 1974) enable all the birds of the area to be readily recognized. I have used local names for the islands and where possible I have given the Meriam names for the birds. Meriam is one of the endemic languages and is spoken mainly by the people of the eastern island groups. Mr. Ses Baroona, an elder on Mer, told me much about the birds of Mer, and supplied their Meriam names where possible. Island names follow Lawrie (1970) and reference is made to the birds she records.

Storr (1973) lists 128 species of birds from 35 islands and the waters of the Torres Strait. My list gives 121 records from five new islands (Waier, Dauar, Masig, Ugar and Saibai) and contains 23 apparently new records (those indicated with an asterisk). The order and nomenclature follow CSIRO (1969).

THE ISLANDS VISITED

Names, locations, dates visited and the major observers precede a brief description of each island in the following list.

Muralug (Prince of Wales Island), 10°42'S, 142°12'E, 5-17 February 1975. (Main observers - E.C. A.Y.).

The largest island in the Torres Strait. It rises to 243m above sea level and is continental. The vegetation is similar to the northern portion of Cape York. There are large areas of monsoon forest in gullies, but most of the island is open forest. Extensive areas of mangroves are along the coast.

Nurupai (Horn Island), 10°37'S, 142°17'E, 24-30 January 1975 (A-G.R., G.I.), 21-26 July 1975 (B-E.C., G.C.)

A large low continental island lying near Muralug. There are areas of monsoon forest in the gullies especially on the western end, and these sometimes adjoin the mangroves. There are extensive wetland areas on the western side, usually adjacent to the mangroves which surround the island.

Thursday Island, 10°35'S, 142°10'E, 8-10 July 1974. (G.I.)

A small continental island which is heavily populated. It is mostly hilly with open forest and with small patches of monsoon forest surviving in protected areas. Mangroves are also present. The vegetation is often burnt.

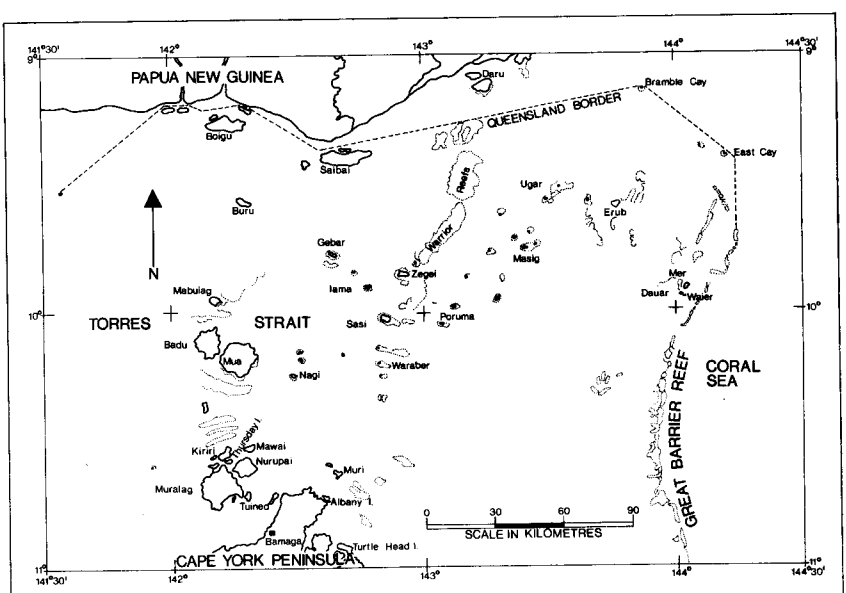

Figure 1. Islands of the Torres Strait.

Kiriri (Hammon Island), 10°33'S, 142°12'E, early July 1974. (E.C., H.H., H.C.).

Similar to Muralug, but smaller and rising to 153m.

Mua (Banks Island), 10°12'S, 142°16'E, 19-27 February 1975. (E.C., A.Y.).

A large continental island rising to 400m. It is the second largest island in the Strait.

Waraber (Sue Island), 10°12'S, 142°49'E, 11 July 1974. (G.I.).

A low small coral cay. The vegetation is low and thick with a few tall trees. There are coconut plantations, but no mangroves.

Poruma (Coconut Island), 10°03'S, 143°04'E, 12 July 1974. (G.I.).

Like Waraber but smaller. The lower storey of the vegetation is not as thick and there are more grassy areas. There are no mangroves.

Iama (Yam or Turtlebacked Island), 9°55'S, 142°47'E, 12 July 1974 (G.I.)

A small, high, continental island. Most of the vegetation on the island is monsoon forest and mangroves. There is a lagoon on the north west tip.

Waier, 9°55'S, 144°02'E, 3 August 1974. (E.C., H.H., H.C.).

A very small rocky horseshoe-shaped volcanic island which is sparsely vegetated. It is uninhabited.

Dauar, 9°55'S, 144°02'E, 29 July 1974 (G.I.).

A very small bi-peaked volcanic island which is connected to Waier at very low tides. The vegetation includes a thick understorey with a small area of monsoon forest. It was once inhabited and is now infrequently visited by Mer islanders.

Mer (Murray Island), 9°55'S, 144°02'E, 15 July - 12 August 1974. (G.I.).

A small volcanic island, but much larger than Dauar. The northern end of the island is covered with monsoon forest with many small clearings for cultivation. The southern aspects are high and steep (e.g. Gelam) and clothed in grass: this large area of grass appears to be recent, resulting from the annual spring burn. The western part has flat ground about 200m wide in places and about 2km long and this is where the present day villages are. Bruce's Creek, which is a series of waterholes for most of the year, meets the sea on the northern part of this strip. Most of the island is surrounded by extensive exposed reef at low tide: these are usually covered in sand and rocks.

Masig (Yorke Island), 9°45'S, 143°25'E, 13 July 1974. (G.I.)

A small flat coral cay. It is well vegetated and has thick undergrowth. An airstrip has been cleared and is grassed along the edges. There are no mangroves.

Erub (Darnley Island), 9°35'S, 143°46'E, 13-15 July 1974. (G.I.)

Similar to Mer, except that it meets the sea quite steeply in many parts. Large grassy areas flank the steep slopes, also as a result of burning. Many areas are under cultivation.

Ugar (Stephen's Island), 9°31'S, 143°33'E, 12 August 1974. (G.I.).

A small low volcanic island. We did not land there.

Saibai, 9°24'S, 142°42'E, 10-20 July 1975. (E.C., G.C.).

A low-lying swampy island with large areas of grassland. Vegetation similar to the adjacent Papuan coast.

Further information on the islands is given by Mayer (1918), Lawrie (1970) and Walker (1972).

OBSERVATIONS ON THE BIRDS

Yellow-breasted sunbirds and bar-shouldered doves were the most common and ubiquitous birds observed on the islands visited. Pale silvereyes were just as common on the eastern islands. The behaviour of the pale sivereye is very similar to the grey-breasted silvereye *Z. lateralis* in that it appears to be always moving in groups through low vegetation and trees, pecking soft fruits and catching insects.

Lesser frigate-birds were very common around the far eastern islands. They parasitized the lesser crested terns mainly, but often outnumbered the terns and fished for themselves. From Waraber to Mer in July 1974, and from Mer to Thursday Island on the return trip in August, white-capped noddies always appeared to be present in a constant stream beside the boat, sometimes in flocks of several hundred.

LIST OF SPECIES

*Wilson storm-petrel, *Oceanites oceanicus* One sighted 11 July 1974, approximately half-way between Thursday Island and Waraber.

Brown booby, *Sula leucogaster* Dauar, Mer, Erub. (Meriam, 'bear-roo-ger'; Lawrie (1970), 'beuger'). (The Mer Islanders have a Meriam word, 'bar-zog', for a "white" gannet).

*Darter, *Anhinga rufa* Nurupai (B).

*Black cormorant, *Phalacrocorax carbo* Nurupai (B).

*Pied cormorant, *P. varius* Nurupai (A,B).

Greater frigate-bird, *Fregata minor* Nurupai (A), Iama. One on each island. Lawrie (1970) mentions the names 'womer' and 'said', and from her illustration these apparently refer to this species.

Lesser frigate-bird, *F. ariel* Mer, Masig, Erub, Ugar. (Meriam, 'wadow-wada' - male, 'mi-mi' - female). Very common off Mer.

White-faced heron, *Ardea novaehollandiae* Nurupai (A, B).

*Pied heron, *A. picata* Nurupai (A), Saibai. (Meriam, 'po-sem'). Ses Baroona (pers. com.) told me it comes to Mer.

Mangrove heron, *Butorides striatus* Thursday Island, Waraber.

*White egret, *Egretta alba* Nurupai (B), Saibai. Either this egret, one of the following two, or all, are called 'ta-por'.

Little egret, *E. garzetta* Mer, Saibai. One on 19 July.

Plumed egret, *E. intermedia* Muralug, Poruma, Iama.

Reef heron, *E. sacra* Muralug, Nurupai (B), Mua, Waraber, Iama, Waier, Dauar, Mer, Masig, Erub. (Meriam, 'si-ee' - white phase, 'col-bit' - dark phase). The following numbers of grey/white phases respectively were noted while walking around Mer:- 8 August, 5/2; 9 August, 3/1. Numbers of grey and white phases noted for Nurupai (A)-4/3; Dauar-5/1; Erub-27/12.

Nankeen night-heron, *Nycticorax caledonicus* Nurupai (A, B), Waier, Dauar, Mer. (Meriam, 'cow').

Black bittern, *Dupetor flavicollis* Nurupai (A), Mer, Saibai. (Meriam, 'beart').

White ibis, *Threskiornis molucca* Muralug, Nurupai (A, B).

Straw-necked ibis, *T. spinicollis* Nurupai (B).

*Glossy ibis, *Plegadis falcinellus* Saibai

Royal spoonbill, *Platalea regia* Nurupai (A). One, mangroves.

*Magpie goose, *Anseranas semipalmata* Muralug, Saibai.

*Burdekin duck, *Tadorna radjah* Muralug, Mua. H. Spanner (pers. com.) noted it was a regular visitor to Nurupai.

*Black duck, *Anas superciliosa* Mer, Saibai. (Meriam, 'ga-mi'). One flushed for 3 successive days (26-28 July).

Red-backed sea-eagle, *Haliastur indus* Waraber.

Whistling eagle, *H. sphenurus* Saibai.

White-breasted sea-eagle, *Haliaeetus leucogaster* Saibai

*Osprey, *Pandion haliaetus* Nurupai (A), Thursday Island.

Scrub fowl, *Megapodius freycinet* Muralug, Nurupai (A), Saibai. Common on Nurupai, monsoon forest and mangrove edges.

Red-backed quail, *Turnix maculosa* Poruma, Mer, Erub, Saibai. (Meriam, 'tol-ae'). Flushed in small numbers in grassy areas.

Banded landrail, *Rallus philippensis* Saibai.

Red-necked rail, *Rallina tricolor* Mer. One, monsoon forest, 3 and 8 August.

Swamphen, *Porphyrio porphyrio* Mer, Saibai. (Meriam, 'k-oo-cat-i'). One near windmill, 8 August.

Pied oystercatcher, *Haematopus ostralegus* Masig.

Masked plover, *Vanellus miles* Muralug, Nurupai (A, B), Mua, Saibai.

*Red-capped dotterel, *Charadrius alexandrinus* Nurupai (A), Waraber.

Mongolian sand-dotterel, *C. mongolus* Nurupai (A), Mua, Waraber, Poruma.

Eastern golden plover, *Pluvialis dominica* Nurupai (A), Mer, Erub.

Turnstone, *Arenaria interpres* Waraber.

Whimbrel, *Numenius phaeopus* Muralug, Nurupai (A), Mua, Waraber, Iama, Waier, Dauar, Mer, Masig. (Meriam, 'ka-roll').

Eastern curlew, *N. madagascariensis* Nurupai (A), Waraber. (Meriam, 'o-rar'; see also Lawrie, 1970). Ses Baroona (pers. com.) described this bird for Mer.

Greenshank, *Tringa nebularia* Nurupai (A). One.

Common sandpiper, *T. hypoleucos* Nurupai (A).

Grey-tailed tattler, *T. brevipes* Nurupai (A), Mua, Waier, Dauar, Mer, Erub. (Meriam, 'pil-pil').

Wandering tattler, *T. incana* Mer. One observed often on a stretch of rocks on the southern side of the island. First seen 19 July.

*Terek sandpiper, *Xenus cinereus* Poruma. Three, northern sandbanks.

Sharp-tailed sandpiper, *Calidris acuminata* Nurupai (A).

Red-necked stint, *C. ruficollis* Nurupai (A), Poruma, Erub.

*White-headed stilt, *Himantopus himantopus* Nurupai (B), Saibai.

Southern stone-curlew, *Burhinus magnirostris* Nurupai (A), Mua.

Beach stone-curlew, *Esacus magnirostris* Erub. Two observed.

*Australian pratincole, *Stiltia isabella* Nurupai (B), Saibai.

Silver gull, *Larus novaehollandiae* Muralug, Nurupai (A, B), Thursday Island, Kiriri, Waraber, Poruma. (Meriam, 'kip-row'). Not observed on Mer, but is known by the peqple there.

White-winged black tern, *Chlidonias leucoptera* Nurupai (A). Small flock.

*Gull-billed tern, *Sterna nilotica* Saibai.

Asiatic common tern, *S. hirundo* Mer. (Meriam, 'saer-ra'). Not as common as lesser crested terns.

Black-naped tern, *S. sumatrana* Waraber. Three were observed over the reef near north west of the island.

Sooty tern, *S. fuscata* Seven observed soon after the sighting of the Wilson storm-petrel.

Little tern, *S. albifrons* Nurupai (A). (Meriam, 'sil-la-cus'). Ses Baroona (pers. com.) told me this bird was a visitor to Mer.

Crested tern, *S. bergii* Nurupai (A), Thursday Island.

Lesser crested tern, *S. bengalensis* Waier, Dauar, Mer, Erub, Ugar. (Meriam, 'nor-saer-ra'). Very common.

Noddy, *Anous stolidus* Waier, Mer. (Meriam, 'dai-o'). One observed on 23 and 25 July on the northern side of Mer and a sick bird caught by hand on 7 August. The latter was made into a skin (QM 015558). Dead bird on rocks on Waier on 3 August (QM 015557).

White-capped noddy, *A. minutus* Waraber, Poruma, Iama, Mer, Masig, Erub. Common off islands. One on beach on the northern side of Mer on 25 July 1974. Apparently 'dai-o' is used for both the species of noddy.

Red-crowned pigeon, *Ptilinopus regina* Muralug, Nurupai (A), Dauar, Mer, Erub. (Meriam, 'diba-diba'). Common monsoon forest, mangroves, wongai plum trees *Manilkara kauki* in villages.

Purple-crowned pigeon, *P. superbus* Muralug, Nurupai (A). Mangroves, monsoon forest.

Torres Strait pigeon, *Ducula spilorrhoa* Muralug, Nurupai (A), Mua, Waraber, Iama, Masig, Saibai. (Meriam, 'do-mer'). Not recorded on Mer. Ses Baroona (pers. com.) said it would not arrive for a few months.

Bar-shouldered dove, *Geopelia humeralis* Recorded from all islands except Waier. (Meriam, 'coo-coo'). Very common.

Peaceful dove, *G. striata* Muralug, Nurupai (A), Thursday Island, Saibai.

Green-winged pigeon, *Chalcophaps indica* Nurupai (A), Mer. (Meriam, 'sep-room-room'). One on Mer, 4 August.

Rainbow lorikeet, *Trichoglossus haematodus* Nurupai (A, B), Thursday Island, Kiriri, Saibai. Watched 13 birds fly from Thursday Island to Kiriri.

Sulphur-crested cockatoo, *Cacatua galerita* Muralug, Nurupai (A, B), Mua.

Brush cuckoo, *Cacomantis variolosus* Nurupai (A), Mua.

Golden bronze cuckoo, *Chrysococcyx plagosus* Nurupai (A), Saibai.

Koel, *Eudynamys scolopacea* Muralug, Mer. (Meriam, male - 'naur-a-bur', female - 'zow'). One calling on Mer on 3 August.

Channel-billed cuckoo, *Scythrops novaehollandiae* Mer, Erub. (Meriam, 'mar'). On Mer, calling 27 July and 4 August.

Pheasant coucal, *Centropus phasianinus* Muralug, Nurupai (A), Kiriri, Mua, Saibai.

Barking owl, *Ninox connivens* Nurupai (A, B). Pair calling near the airport.

Papuan frogmouth, *Podargus papuensis* Muralug.

*White-tailed nightjar, *Caprimulgus macrurus* Saibai.

Fork-tailed swift, *Apus pacificus* Nurupai (A). A small flock on 27 January.

*Azure kingfisher, *Alcyone azurea* Muralug, Nurupai (A). Mainly in mangroves.

Blue-winged kookaburra, *Dacelo leachi* Muralug, Nurupai (A, B), Thursday Island, Kiriri. Common.

Forest kingfisher, *Halcyon macleayi* Mer. (Meriam, 'ki-ow'). The Meriam word 'ki-ow' is applied apparently to this species and the sacred kingfisher.

Sacred kingfisher, *H. sancta* Thursday Island, Kiriri, Waraber, Poruma, Iama, Waier, Dauar, Mer, Masig, Erub, Saibai. All habitats.

Rainbow bee-eater, *Merops ornatus* Nurupai (A,B), Thursday Island, Mer, Saibai. (Meriam, 'bare-row-bare-row'). Not located on Mer until 27 July when a flock of eight flew on to the island, apparently from Erub.

Dollar-bird, *Eurystomus pacificus* Mer. (Meriam, 'kar-care'). Not recorded until 3 August when one was located calling from the top of a wongai tree.

Noisy pitta, *Pitta versicolor* Nurupai (A). Common in the monsoon forest.

Welcome swallow, *Hirundo neoxena* Nurupai (B), Thursday Island.

Tree-martin, *Petrochelidon nigricans* Mua, Saibai.

Fairy martin, *P. ariel* Nurupai (B), Thursday Island, Saibai.

Black-faced cuckoo-shrike, *Coracina novaehollandiae* Nurupai (B), Thursday Island, Poruma, Erub, Saibai. (Meriam, 'nawa-nawa'). Common. All the individuals of black-faced cuckoo-shrikes observed in July-August 1974 were immatures and in flocks. There were 32 in one group on Poruma. Storr (1973) notes that the greater part of wintering flocks in Torres Strait are immatures.

Papuan cuckoo-shrike, *C. papuensis* Muralug.

Varied triller, *Lalage leucomela* Muralug, Nurupai (A, B), Mua. Common, monsoon forest, mangroves.

Golden-headed fantail-warbler, *Cisticola exilis* Nurupai (A), Mua, Mer, Erub, Saibai. Recorded from grassy areas.

Large-billed warbler, *Gerygone magnirostris* Nurupai (A), Thursday Island. Common in mangroves.

Lemon-breasted flycatcher, *Microeca flavigaster* Muralug.

*Willie wagtail, *Rhipidura leucophrys* Saibai.

Leaden flycatcher, *Myiagra rubecula* Muralug, Nurupai (A), Mer.

Broad-billed flycatcher, *M. ruficollis* Nurupai (A). One in mangroves on 24 January.

Shining flycatcher, *M. alecto* Muralug, Nurupai (A), Saibai.

*Restless flycatcher, *Seisura inquieta* Saibai.

Spectacled flycatcher, *Monarcha trivirgata* Waraber, Iama, Dauar, Mer. (Meriam, 'karis-karis'). Common, monsoon forest.

Mangrove golden whistler, *Pachycephala melanura* Waier, Dauar, Erub.

*Grey shrike-thrush, *Colluricincla harmonica* Nurupai (A). Common, mangroves.

Rufous shrike-thrush, *C. megarhyncha* Nurapai (A). Common, monsoon forest, mangroves.

Mistletoe bird, *Dicaeum hirundinaceum* Muralug, Nurupai (A), Thursday Island.

Yellow-breasted sunbird, *Nectarinia jugularis* Recorded from every island landed on except Waier. (Meriam, male - 'nareb-ti', female - 'ka-ka-ti'). Nesting - Waraber, Saibai. Lawrie (1970) has a painting of a male labelled 'kariskaris-ti'. Ses Baroona was adamant that this was the name for the spectacled flycatcher. Similarly there is a drawing of a female labelled 'nareb-ti'.

Pale silvereye, *Zosterops chloris* Waraber, Poruma, Iama, Waier, Dauar, Mer, Masig, Erub. One of the most common birds. Apparently the Meriam word for the female yellow-breasted sunbird, 'ka-ka-ti', is also used for this species.

*Brown honeyeater, *Lichmera indistincta* Saibai. Mangroves.

Dusky honeyeater, *Myzomela obscura* Nurupai (A), Mua.

Red-headed honeyeater, *M. erythrocephala* Nurupai (A), Waraber, Erub. Mangroves, one in coconut plantation on Waraber.

Lesser Lewin honeyeater, *Meliphaga notata* Muralug, Nurupai (A), Thursday Island, Kiriri. Monsoon forest, mangroves.

Varied honeyeater, *M. versicolor* Iama, Poruma. Mangroves, low thick vegetation. Despite much searching it was not found on Nurupai in January 1974.

Helmeted friar-bird, *Philemon novaeguineae* Muralug, Nurupai (A,B), Thursday Island, Kiriri. Very common. Five birds observed flying from Thursday Island to Kiriri.

Brown-backed honeyeater, *Ramsayornis modestus* Mua. Feeding around coconut palm blossoms.

Chestnut-breasted finch, *Lonchura castaneothorax* Nurupai (A), Mua, Iama, Masig, Erub. Common, grassy areas.

Shining starling, *Aplonis metallica* Mua.

Olive-backed oriole, *Oriolus sagittatus* Mer. One first heard 22 July; three observed on 2-3 August. I did not hear or see them later.

Yellow figbird, *Sphecotheres flaviventris* Muralug.

Spangled drongo, *Dicrurus bracteatus* Muralug, Nurupai (A), Mua, Waraber, Saibai. Very common on Nurupai in January 1975 and two pairs seen nesting.

White-breasted wood-swallow, *Artamus leucorhynchus* Nurupai (A, B), Thursday Island, Mua.

*Black butcher-bird, *Cracticus quoyi* Saibai.

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PIED HERON BREEDING AT AYR, NORTH QUEENSLAND

ALLAN EY

In February 1976 I discovered the pied heron *Ardea picata* breeding amongst a large colony of egrets located 22km north west of Ayr (19°34'S; 147°24'E). I first located this egret colony on 8 March 1953, and visited it again on 16 February 1955 and 14 March 1962, but did not see pied herons on any of these earlier visits. The colony is in mangroves near the mouth of Sheep-station Creek, and extends to an area of approximately 300m x 100m. The plumed egret *Egretta intermedia* is by far the commonest species in the colony, however there also were large numbers of the white egret *E. alba*, little egret *E. garzetta*, nankeen night heron *Nycticorax caledonicus*, white ibis *Threskiornis molucca* and little pied cormorant *Phalacrocorax sulcirostris*. Most nests of the plumed egret were about 3 to 5m above the mud and were 2 to 3m apart.

I made my chance observation of the pied heron among the many active or nesting egrets in the colony on 17 February 1976, and closely watched it for about 10 minutes when it returned to and sat on a nest in a very thin, dead mangrove sapling. The nest was 3m above the mud, and at the top of the mangrove tree. Other nearby mangroves were 6 to 7m tall, and their foliage almost completely shaded the pied heron's nest. The nest was in close proximity to those of the plumed egret and little egret.

The nest of the pied heron was made of mangrove sticks, was fairly deep bowl-shaped and lined with thinner sticks: it was a neater nest than those of the egrets. Two more nests were found within 20m of the original nest.

I visited the colony again on 20 February, 3 March and 23 March, and found 20 occupied nests over the four visits. Six nests each contained three young, five each contained four eggs, four each contained three eggs, three each contained two eggs and the remaining two each had a single egg. The pied herons nested in small communities with two to four nests located within 12 to 20m of each other, and the communities were centred about 50m apart throughout the egret colony. Two nests were within 4m of each other, however one had very large young and the other had eggs. All the nests were 3 to 4m from the mangrove mud.

Much of the surface of all the eggs of the pied heron was covered in mud, contrasting with the fairly clean eggs of the egrets, probably because the pied heron feeds in the mud of tidal creeks. The eggs were a fairly deep blue-green, and slightly darker in colour than those of the plumed egret. On the March visits I made the following measurements, in mm, of eggs from 5 clutches:

1. 40 x 30, 44 x 29, 43 x 30, 44 x 30.
2. 41 x 30, 41 x 30, 41 x 30, 41 x 30.
3. 40 x 31, 39 x 31, 38 x 30.
4. 40 x 30, 41 x 31, 41 x 30.
5. 43 x 31, 41 x 31, 40 x 30.

The colour and size of the eggs agree with those described from near the mouth of the Roper River, Northern Territory, by White (1917), who also noted that the colour is much darker than is usual with heron eggs.

DISCUSSION

This appears to be the first published record of the pied heron breeding in North Queensland. Although Storr (1973) notes that it is moderately common on the west coast and coastal plains of Cape York Peninsula, and is an irregular visitor south from Coen to Townsville, there are no Queensland breeding records. Lavery and Hopkins (1963) did however report a family of three near Townsville. It is possible, although unlikely, that I may have overlooked its presence in earlier years, because it is a very wary bird. However, colonies near this one have also been under observation by others (Seton 1973). Even though I located 20 nests in 1976, I do not believe there were 20 breeding pairs. I suspect that some pairs with fairly large young in nests were also brooding eggs in another nest.

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A HELPER AT THE NEST OF THE BROWN WARBLER

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On the 5 October 1975 the nest of a brown warbler *Gerygone mouki* was found in rain forest at Lamington National Park (28°21'S, 153°05'E). The nest was pendant shaped, approximately 19cm x 8 cm, with a tail about 11cm long built into it, and the entrance protected by a hood. It was made of filamentous lichens *(Roccellales)* and the chamber lined with moss and feathers. The nest was suspended from a small limb of a scrub tree about 2.5m above the forest floor. There were two young in the nest.

At 16:15 on 6 October, as well as being fed by the parents the chicks were being fed by a helper (Skutch 1961). (Skutch defines a "helper" as a bird that assists in the nesting of an individual other than its mate). The parents feed the chicks together (Elliot 1932), so I could recognize the parent birds. I easily recognized the extra bird because it had a claw missing from the hind toe. The parents were first seen 7m from the nest. They made their way to the nest calling to each other as they moved. On arrival each bird perched on a vine below the nest. The first bird to arrive flew up into the nest and fed the chicks. When this bird had left, the other bird did the same. At 16:27, five minutes after the parents had left, the helper arrived with food in its bill. It entered the nest and fed the chicks. On all three occasions that birds entered the nest the chicks responded by calling vigorously.

I saw the procedure repeated ten minutes later with the helper arriving about five minutes after the parents had left. Little is known about the social structure of the brown warbler. I could not determine whether or not the helper actually occupied a sub-ordinate position in the social system.

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EDITOR'S NOTE ON AN ARCTIC SKUA COLLECTED BY ANDRÉE GRIFFIN

A dead Arctic skua *Stercorarius parasiticus* was collected on Townsville Common (19°12'30"S, 146°44'30"E) on 1 January 1972, and was recorded by Griffin (1972).

Miss Griffin gave the bird to Dr. G. Heinsohn for the James Cook University of North Queensland, and it was made into a study mount (Ref. J.C.U.N.Q. 032) by Mr. W. Dowd, the museum curator. Mr. Dowd and Miss Griffin have provided the following additional details of the specimen.

The bird is considered to be an early adult, non-breeding, and in poor condition. Probably a female, but too decomposed for positive sexing. Weight - 232 g. Measurements (mm): total length - 470, wing span - 860 (dry, not completely extended), wing - 325, tail - 210, culmen without cere - 28, tarsus - 43, middle toe without claw - 39. Bill - black, or very dark brown. Legs and feet black. Plumage - sooty brown, slightly paler on the underside; some whitish mottling on the throat, sides of the neck and mantle; faint brown and whitish barring on the lower abdomen. Upper tail coverts had some broad white and brown barring. Primaries - first three on both wings were worn, and a lighter brown than the rest of the plumage, with white shafts. Moult was not determined.

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