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THE SUNBIRD

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BREEDING RECORDS OF THE SPANGLED DRONGO *DICRURUS BRACTEATUS*

K. A. WOOD

ABSTRACT

Fifty-three nest records of the Spangled Drongo *Dicrurus bracteatus* were available from the Royal Australasian Ornithologists Union in December 1993. Forty-three nests (81%) were north of the Tropic of Capricorn. Data from these records were analysed and supplemented with other breeding reports, mainly from Australian literature. Information is presented on nest site, habitat, nest building, clutch size, incubation, nestling and dependency periods, breeding season, breeding success, nesting associations and brood parasitism. The average clutch is estimated to be 3.4 eggs as follows: c/2 (9), c/3 (59), c/4 (46), c/5 (5), n=119. Incubation and nestling periods were 19±1 and 22±1 days, respectively. Most eggs were laid in the south of the breeding range in November-December and in the north of Australia from October to January.

INTRODUCTION

From March 1964 to December 1992, 53 nest records of the Spangled Drongo *Dicrurus bracteatus* were submitted to the Nest Records Scheme of the Royal Australasian Ornithologists Union (RAOU). Although Marchant (1974) and Marchant & Fullagar (1983) commented that a sample of less than 500 nests from the Scheme was too small to conduct a comprehensive analysis, these RAOU records contain quantitative data that have not yet been published. This report provides a preliminary analysis of the 53 RAOU records and refers to complementary breeding information, mostly from Australian literature.

METHODS

The analysis was performed in accordance with principles and guidelines established in previous reports (Marchant 1974, 1984; Marchant & Fullagar

1983). Forty-three RAOU nests (81%) were north of the Tropic of Capricorn, of which 22 (40% of total) were from Magnetic Island, Queensland (19°10'S, 146°50'E). Seven RAOU nests were from New South Wales and one was from the Northern Territory. Information about a further 25 nests from southern Queensland and northern New South Wales was kindly supplied by D. Davidson (15 nests), J. T. Willows (5) and S. G. Lane (5). Egg-laying is broadly ranked as early month from days 1-10, mid-month from days 11-20 and late month from days 21-31.

NEST SITE AND HABITAT

Notes on the nest itself and nesting materials were consistent with previous descriptions by Gould 1865, Campbell (1900), Le Souef (1902), North (1904, see fig. p.87), Lucas & Le Souef (1911, see photo p.410) and Beruldsen (1980). The mean nest height was 11.0 m (range 4 - 30 m, Fig. 1a) and the mean tree height 17.8 m (range 8 - 50 m, Fig. 1b). The tallest tree was a 50m Rose Gum (=Flooded Gum) *Eucalyptus grandis* at Mt. Glorious, Queensland (27°40'S, 152°40'E), in which the nest was 30 m above the ground. John Gilbert's nests near Darwin (Gould 1865) were not less than 9.1 m high. Longmore & Scoullar's (1989) nest at Brisbane was 15 m high, but most Brisbane nests measured by Vernon (1968) were between 9.1 m and 12.2 m. Three of Holland's (1967) nests at Woolgoolga were 24m high. Height was mentioned for 16 of the 25 nests from southern Queensland and northern New South Wales; 14 of these nests were 5-7 m high and two were 8-10 m above the ground (Davidson, Willows and Lane *in litt.*).

Of the 30 RAOU records that included the nearest distance to the edge of the nest tree, all reported an edge distance of less than 2 m (mostly 1 m). Nests at Dunk Island (Banfield 1908), Brisbane (Longmore & Scoullar 1989) and Woolgoolga (Holland 1967) were also at the end of a branch, a position considered usual by pioneer ornithologists (Gould 1865, Campbell 1900, Le Souef 1902, North 1904, Lucas & Le Souef 1911). Forty-three nest records were from altitudes of less than 100 m asl (Fig. 1c) and 42 of these were less than 50 m asl. The RAOU also holds 63 Atlas breeding records from eastern Australia (Blakers *et al.* 1984), of which 25 were less than 50 m asl and another 21 were at altitudes between 50 and 100 m asl. When pooled, 67 of these 116 nest and breeding records (58 %) were less than 50 m asl and a further 22 (19 %) were between 50 and 100 m asl. Twenty-four of the other 25 nests from southern Queensland and northern New South Wales were at altitudes of less than 100 m asl (Davidson, Willows and Lane *in litt.*). Within the breeding range it is probable that there are more observers at lower than higher altitudes, but the above results from various sources are consistent with the suggestion that drongos prefer to nest at altitudes less than 100 m above sea level.

Two RAOU nest records were south of latitude 30°S, the southernmost of which was 7 km north of Bowraville, New South Wales (30°34'S, 152°51'E). The southernmost of the 63 Atlas breeding records was from 30°45'S near Macksville.

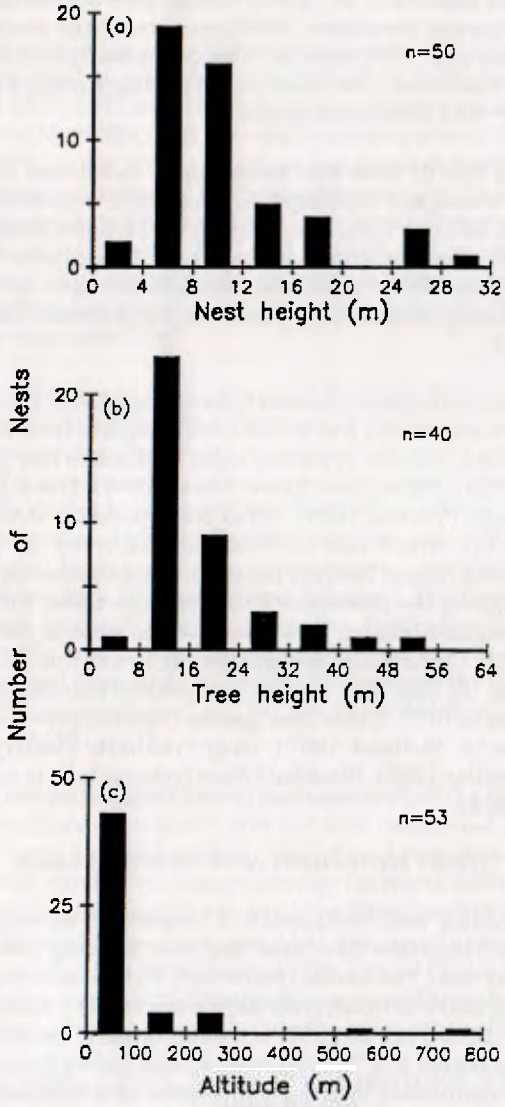

Figure 1. Distribution of nests from the RAOU Nest Records Scheme according to (a) height above ground, (b) tree height and (c) altitude above sea level.

Pizzey (1980) and Blakers *et al.* (1984) stated that the species rarely breeds south of 31°S, whereas Beruldsen (1980) considered the southern limit to be about 28°S. D'Ombrain (1918) reported breeding in the Sydney suburb of Gordon in 1915 although Hindwood (1948) later stated that the southern most "acceptable breeding locality" was Nambucca Heads.

Habitat listed in RAOU data was mostly open forest and woodland (public grounds, vacant blocks and clearings). Seven records were either at or near the edge of rainforest. At Cape York, MacGillivray (1914) noted that "they nest in the open forest usually, but sometimes in the scrub". In southern Queensland and northern New South Wales, most nests were in tall open forest, often beside creeks with adjoining areas of partly open eucalypt forest (Davidson, Willows and Lane *in litt.*).

Poplar-leafed Gum *Eucalyptus alba* and Moreton Bay Ash *E. tessellaris* were used for nesting in seventeen and five of the RAOU reports from Magnetic Island, respectively. There are earlier reports of nests in Moreton Bay Ash at Cape York (MacGillivray 1910), Bloomfield River (North 1904), Dunk Island (Banfield 1908) and Brisbane (Vernon 1968). Other tree species in RAOU reports were *Eucalyptus* spp. (3), Brush Box *Lophostemon confertus* (1), Blue Quandong *Eleaocarpus grandis* (2) and Native Frangipani *Hymenosporum flavum* (1). Two nests were located in the flowers or fruits of palm trees. Fifteen nests from southern Queensland-northern New South Wales were in the following trees: *Eucalyptus* spp.(3), Guioa *Guioa semiglauca* (3), Brush Box (3), Blue Quandong (3), Flooded Gum (2) and Kurrajong *Brachychiton populneus* (1) (Davidson, Willows and Lane *in litt.*). Other tree species reported previously in literature were Brush Box (2, Holland 1967), Grey Ironbark *Eucalyptus paniculata* (Longmore & Scoullar 1989), Blackbutt *Eucalyptus pilularis* and "Dwarf White Gums" (North 1904).

NEST BUILDING AND CLUTCH SIZE

Notes on nest building were contained in 12 reports. Both sexes were involved at three nests, and ten observers noted that nest building took more than four days. An observer near Townsville (RAOU ref. 7/1986) described nest building for ten days from start to finish (two days were windy). Another observer on Magnetic Island (RAOU ref. 25/1987) saw adult birds, presumably the breeding pair, tearing vine leaves in a "nearby tree" a week before building commenced. A further report mentioned that an adult "spent ages dropping a piece of vine then flying down and catching it" from the nest tree a few days before the nest became obvious. N. W. Longmore (in Longmore & Scoullar 1989) watched a nest being built at Mt. Nebo by two adults, and another at Brisbane being constructed by the breeding pair "occasionally accompanied by a third bird". At Mackay, Cornwall (1908) reported that about two weeks elapsed between completion of nest building and laying the last egg, which suggests that laying might have

been delayed after that nest was constructed.

New nests were built in the same house garden near Lismore in 1984, 1985 and 1986; and in the same trees at Magnetic Island in three instances (1985 and 1986, 1986 and 1987, 1983 and 1986). Recurrent nests were built previously at the same site near Murwillumbah for eight successive years (1958-1965, E. Pratt in Robertson 1967), and at Brisbane, where Longmore & Scoullar (1989) noticed that Spangled Drongos nested in the "immediate vicinity for at least two years". Near Coffs Harbour, New South wales, a large Brush Box was used for at least three of the four years between 1991 and 1994 (S. G. Lane *in litt.*). Beruldsen (1980) and Pizzey (1980), respectively, stated that "many pairs use the identical site for years if left undisturbed" and that the species shows a "tendency to return annually to the same nest-site".

Information on clutch size from the Nest Records Scheme should be used cautiously because it is likely that laying had not finished in some instances and eggs were miscounted in others. In 31 records that allowed a crude determination of clutch size, the mean number of eggs per clutch was 2.5 as follows: c/2 (19), c/3 (10), c/4 (2). In earlier literature (Campbell 1900, Le Souef 1902, North 1904) and from the Australian Bird and Bat Banding Schemes (ABBBS unpubl. data supplied by J. Pook), there are 43 clutches mentioned, one with two eggs, 33 with three eggs and nine with four eggs (mean 3.2 eggs). The Queensland Museum holds 49 clutches (mean 3.4 eggs), while the Australian Museum holds 27 clutches not already mentioned in the above literature, with a mean of 3.8 eggs (southernmost record from 30°42'S). When clutches from the three latter sources are pooled (RAOU data excluded, n=119), the mean clutch is 3.4 eggs as follows: c/2 (9), c/3 (59), c/4 (46), c/5 (5).

Some authors have stated that three to four eggs are laid (Le Souef 1902, Vernon 1968), whereas others considered that a clutch comprised three to five eggs (McGill 1976, Pizzey 1990). Cornwall (1908) found that clutch size at Mackay was generally four, rarely five. George Savidge (in North 1904) found that three or four eggs was the usual number in northern New South Wales. In summary, it appears that three or four eggs is usual but five are sometimes laid. A similar conclusion was reached by Beruldsen (1980). Frank Hislop's report to North (1904), in which it is stated that Spangled Drongos at Bloomfield River laid four and often five eggs, appears to exaggerate the prevalence of five-egg clutches.

INCUBATION, NESTLING AND DEPENDENCY PERIODS

Ten reports from north of 21°S (eight from Magnetic Island) provided information on which a confident assessment of incubation and nestling periods could be based. From these reports (RAOU refs. 3, 5, 7, 10, 12, 13, 15, 20, 24 and 26), the incubation period was judged to be 19±1 days and the nestling period 22±1 days.

One report from Whian Whian State Forest, near Lismore (RAOU ref. 8), indicated that post-fledging dependency was *ca.* 50 days, a duration which seems possible for a 90 gram passerine (Robertson & Woodall 1982), given that the Western Whipbird *Psophodes nigrogularis* (43-46 grams, Smith 1991) and Black-faced Cuckoo-shrike *Coracina novaehollandiae* (*ca.* 120 grams, Hardy 1986) both have post-fledging dependencies of about 60 days (Smith 1991, Wood 1993).

BREEDING SEASON

Assuming that incubation and nestling periods are as estimated above, 44 records could be used to assess when eggs were laid. A further six records contained dates on which nests were completed (or almost complete). When pooled, these 50 reports indicated that 58 percent of nests contained eggs which were, or would have been laid in either the last ten days of November or the first ten days of December (Table 1). All eggs south of 27°S (Bribie Island) were laid in either November or early December.

TABLE 1. Egg-laying dates for 50 nests from the RAOU Nest Records Scheme,north and south of Bribie Island (27°S).

	Early Nov.	Mid Nov.	Late Nov.	Early Dec.	Mid Dec.	Late Dec.	Early Jan.
North of 27°S	4	6	10	13	2	2	5
South of 27°S	1	1	3	3	0	0	0

Egg-laying dates were also assessed from literature reports, based on incubation and nestling periods of 19±1 and 22±1 days respectively. Such egg-laying dates are broadly similar to those from the Nest Records Scheme, although eggs have been previously reported as early as mid-October from Broadsound, central Queensland and as late as the end of January from far north Queensland (Table 2).

Most biologists define the breeding season as the months in which the first eggs of clutches are laid (Frith & Davies 1961, Lavery *et al.* 1968, Storr 1977, Marchant 1981, Storr 1984), yet it is often assigned more loosely as that period when birds "mate, build their nests, lay their eggs and rear their young" (Thomson 1965, Blakers *et al.* 1984, Campbell & Lack 1985). If incubation and rearing of young to independence takes about three months for the Spangled Drongo, as estimated herein, the latter definition provides a considerably longer breeding season than the former. Beruldsen (1980) limited the breeding season to those months when nesting usually takes place and gives the "nesting season" from September to

TABLE 2. Egg-laying dates assessed from literature, based on incubation and nestling periods of 19±1 and 22±1 days respectively. Localities are listed north to south.

Period	No. of nests#	Locality	Reference
Northern Territory			
Late Oct.	5	Darwin	Campbell (1900)
Late Nov-early Dec.	4	Near Darwin	Le Souef (1902)
Nov-Jan.	many	many	Frith & Davies (1961)
Oct-Jan.	many	many	Storr (1977)
Queensland			
Dec-Jan.	12	Cape York	Campbell (1900)
Oct-Nov.	n.s.	Cape York	Macgillivray (1910)
Oct-Dec.	n.s.	Cape York	Officer (1967)
Late Dec-late Jan.	n.s.	Far north Q.	Macgillivray (1918)
Oct-Jan.	many	North Q.	Lavery et al.(1968)
Nov-Jan.	many	Atherton	Bravery (1970)
Mid-Dec.	n.s.	Cardwell	Barnard (1926)
Dec.	many	Townsville	Garnett & Cox (1983)
Dec-Jan.	2	Cumberland Is.	Roberts (1957)
Nov-Early Jan.	n.s.	Mackay	Cornwall (1908)
Mid-Oct.	13	Broadsound	North (1904)
Dec.	many	Brisbane	Vernon (1968)
New South Wales			
Late Nov.	5	Murwillumbah	ABBBS(unpubl.)
Late Nov-Dec.	4	Woolgoolga	Holland (1967)

n.s. = not stated; many nests are likely at many locations in the two extensive studies listed.

January or February, occasionally March. Other authors assigned the following breeding periods without definition: October to February (North 1904), October to January (Campbell 1900), and September to March (McGill 1976). Wyndham (1986) estimated that the egg-laying season in Australia decreases by about one month for every 11 degrees increase in latitude. Accordingly, the egg-laying season in northern Australia would be expected to be about two months longer than in northern New South Wales. Data presented in Table 1 and the references cited in Table 2 seem consistent with Wyndham's estimate, and suggest that most eggs are laid in the south of the breeding range during November-December and in the north of Australia from October to January. I am unable to find supporting evidence that eggs in New South Wales are laid from November to February (Morris *et al.* 1981) or that the breeding season (undefined) is from August to May (Simpson & Day 1984).

Atlas breeding records were used to compare breeding rates north and south of Rockhampton (23°S). In eastern Australia, there were 34 Atlas breeding records and 1589 Atlas sight records north of 23°S, compared with 29 breeding and 1931 sight records south of 23°S. At the 5% level of significance, there was no difference between Atlas breeding rates (breeding record per sight record) north and south of Rockhampton ($X^2 = 1.48$, df = 1), suggesting that the detectability of breeding activity was reasonably constant throughout the breeding range.

BREEDING SUCCESS

Eighteen nests produced at least one fledgling and nine nests were known to have failed after completion. The overall success rate of 67 per cent should be treated with caution because the sample size is very small. Of the nine nests that failed, six were deserted just before laying and two were destroyed by falling branches.

NESTING ASSOCIATIONS

Seven nest trees at Magnetic Island contained active nests of both the Helmeted Friarbird *Philemon buceroides* and the Figbird *Sphecotheres viridis*, while five other nest trees at that location contained nests of only the Helmeted Friarbird. Nest trees from the RAOU scheme that contained active nests of other species elsewhere were at Cape York (one with Helmeted Friarbird, one with *ca*. 150 nests of Metallic Starlings *Aplonis metallica*) and Innisfail (one with Figbird). Nesting associations with Helmeted Friarbird and Figbird, and occasionally Metallic Starlings at or near Cape York, have been reported previously (MacGillivray 1910, Barnard 1911, F. Johnston in Bell 1967). Chisholm (1948) concluded that it was "common practice for the Helmeted Friarbird, Yellow Figbird (*S.v.flaviventris*) and the Spangled Drongo to nest in the same tree or trees that are close together".

NEST PIRACY AND BROOD PARASITISM

In northern New South Wales, Ramsay (1919) saw a Spangled Drongo take possession of a partly completed nest of an Olive-backed Oriole *Oriolus sagittatus* on at least two occasions, while at Murphy's Creek near Toowoomba, Lord (1956) reported that a pair nested in an "old mud structure" previously built by the Magpie-lark *Grallina cyanoleuca*.

There were no records of brood parasitism in RAOU nest records but Brooker & Brooker (1989) tabulated one instance by the Pallid Cuckoo *Cuculus pallidus* and four instances by the Common Koel *Eudynamys scolopacea*.

DISCUSSION

This analysis is preliminary because the RAOU sample size is small and dominated by records north of the Tropic of Capricorn (81%). Twenty-two reports (40%) were from Magnetic Island. As pointed out by previous authors (Marchant 1974, Marchant & Fullagar 1983), numerous detailed records from a wide variety of locations are required before such matters as laying interval, hatching success and variations in clutch size with latitude can be adequately assessed. Nevertheless, much of the information presented shows consistent trends. Incubation, nestling and dependency periods seem plausible when compared with corresponding data on other passerines of similar size. Given that Spangled Drongos breed at reasonably low densities, that their breeding range is somewhat restricted, that most breeding pairs probably lay only one clutch a season, and that only 53 RAOU nest records were completed in the last 29 years, it will be some time before a substantial pool of data is acquired. The various aspects of breeding reported herein provide valuable information on which future studies can be based.

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INSECTIVORY IN THE FIGBIRD IN NORTHERN NEW SOUTH WALES

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Recently, attention has been drawn to insectivory in the Figbird *Sphecotheres viridis*, a previously little recognised aspect of this species' behaviour (Chafer 1992, Johnson 1993, Frith 1993). This note documents further instances of insectivory by the Figbird, including evidence of significant insect content in the food of nestlings.

Between 1973 and 1992, Figbirds were observed on a number of occasions capturing cicadas (Cicadidae) in riverside vegetation in my backyard at Casino, New South Wales (153°02'E, 28°52'S). In each instance a Figbird was seen to engage in the aerial pursuit of a cicada (cf. Frith 1993) disturbed from River Oaks *Casuarina cunninghamiana*. Carl Gosper (pers. comm.), who witnessed similar behaviour several times whilst fishing nearby, reported that when a cicada was flushed from the cover of the fringing trees into the open spaces over the river the pursuit was sometimes joined by Dollarbirds *Eurystomus orientalis*.

On 11 October 1987, about 30 minutes before sunset, Figbirds were noted amongst an assemblage of four species of birds feeding on emerging flying ants (Formicidae) over a street in Casino. The ants (body length of alates 9-10mm, with wings folded 13-14mm) were swarming from nests in a lawn and taking flight. Once airborne the ants were being captured on the wing by two Pied Butcherbirds *Cracticus nigrogularis* from perches on a fence and from powerlines, three Black-faced Cuckoo-shrikes *Coracina novaehollandiae* and five Figbirds from perches on powerlines, and up to 14 Dollarbirds hawking overhead. The Figbirds engaged in flights of up to 30m, catching ants in the bill, and returning to the wires where the insects were swallowed. Sometimes ants were briefly manipulated in the bill. Feeding was still in progress when I left after 15 minutes but all birds had gone when I returned at sunset.

On 14 July 1993, at Goolmangar (153°14'E, 28°42'S) near Lismore at 1650h, ants were emerging from the ground in a paddock, and the flying alates (body length 11mm, with wings folded 16mm) were rising and dispersing over a nearby creek. Here, along a 150m section of the creek, six Noisy Miners *Manorina melanocephala*, five Pied Currawongs *Strepera graculina* and about thirty Figbirds were congregated on exposed perches at the top of dead and living River Oaks. The birds were making frequent short sorties, mostly of less than 5m, from the branches to take ants and returning. This activity was watched for 10 minutes. Johnson (1993) also reported an instance of Figbirds accompanying other species while taking flying ants.

During the period October 1993 to January 1994 the activities of Figbirds nesting in a loose colony in the grounds of Goolmangar Primary School were monitored. Examination of faeces and spilt food items from below all six nests which fledged young revealed numerous insect remains, primarily beetles (Coleoptera). At one nest, where faeces samples (n=146) were collected over the period from hatching to fledging, 44% contained insect remains visible to the naked eye. Fragments of Christmas beetle (Coleoptera: Scarabaeidae) exoskeletons were common, including larger whole parts such as wings, elytra, abdomens and legs. Ant heads, thoraxes and wings were also numerous. Faeces contained some whole insects, mainly a species of small beetle (6mm x 3mm).

As nestlings neared fledging, they were fed larger food items including whole Cockspur *Maclura cochinchinensis* fruits (13-19 mm in diameter) and whole and slightly dismembered Christmas beetles (up to 30mm x 16mm). Some items were lost over the side of the nest during regurgitation feeding, presumably because they were difficult to manage due to their size or being too big for the young to swallow. Chafer (1992) observed an adult Figbird consume only the soft internal parts of a Christmas beetle and then discard the exoskeleton. The contents of faeces collected at nests at Goolmangar show that all parts of beetles including whole insects over a range of sizes were fed to nestlings.

Much remains to be established concerning insectivory in the Figbird, both in terms of the bird's overall dietary requirements and the importance of insects in the diet of nestlings. Whether insects are regularly fed to the young or become a significant component only when locally abundant and easily obtained is unclear. Woodall (1980) and Crouther & Crouther (1984), who watched the feeding of nestlings, reported only one instance of insects (caterpillars) being fed to young. During nest watches at Goolmangar I was unable to identify individual items being fed to nestlings apart from some larger items, mainly brightly coloured fruits, being supplied in the last few days prior to fledging. This suggests that visual observation of regurgitation feeding alone may be of limited use in determining what is being fed to nestlings.

ACKNOWLEDGEMENTS

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FIRST RECORD OF SPOTTED WHISTLING-DUCK IN AUSTRALIA

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During a two month stay at Weipa (12°38'S,141°52'E) in northern Queensland, from March to May 1995, the area experienced abnormally high rainfall, and was on the fringes of tropical cyclone "Warren". On 19 March I investigated waterbirds at the Comalco Waste Water Treatment Plant, a series of large fenced ponds just north of the town. My attention was drawn to two pairs of quite unfamiliar ducks on one of the ponds, in particular by the large white spots on the birds' flanks. While they had the distinctive whistling-duck *Dendrocygna* spp. body shape, the general appearance was of a bird distinctly darker than either of the two Australian species of whistling-ducks.

The site is adjacent to the main road north from Weipa to Andoom, but the single-track rail line to Andoom separates and obscures the ponds from the road. The observations were made at about 10am at a distance of some 100 metres across the ponds with a pair of Nikon 10x50 binoculars under fine and calm conditions. Later I attempted to take some video of the birds, but the distance was too great for clear identification.

Shortly after my initial observations the birds flew to an adjacent bank where I noted another six birds of the same species, in the company of about forty Radjah Shelducks *Tadorna radjah*. All the whistling-ducks were resting, while the shelducks were either resting or engaged in their normal minor scuffling. The whistling-ducks were noticeably more nervous of my presence, and about six of them soon took flight and circled a few times before returning to the others. After about another five minutes the whole group took flight, and after circling the ponds about three times, they headed east out of sight over the trees. Their flight was similar to that of both Australian whistling-ducks, with the birds calling in flight. Their calls, however, were softer and more difficult to distinguish from the various shelduck noises. Inspection of video taken of the birds in flight shows at least eleven birds, with another noted at the same time flying into the top of a large tree behind the ponds.

DESCRIPTION

Appearing slightly dumpier than either of the Australian whistling-ducks, the birds were generally dark brown on the back and in a narrow strip up the nape and covering the small crest along the head. The sides of the head and down the front were paler, grading into a buff wash on the lower breast. Small white speckles on the upper breast and neck were difficult to see at a distance, but the larger white spots against a blackish background on the flanks were a good visual cue. A dark band through the eye, a paler area around the base of the bill,

and the small dark crest lying flat along the head were also noted. In flight a dull white band was visible on the rump. A more detailed description has been provided by M. Carter (pers. comm.), and it was obvious that most of the birds were paired.

I am quite familiar with both species of Australian whistling-ducks, and the lack of any plumes along the flanks was quite obvious, especially when the birds were sitting on the water. After obtaining details of other species which could be in this region, I found a good match with the Spotted Whistling-Duck *D. guttata* of Papua New Guinea and Indonesia. Subsequent observations enabled me to confirm the birds seen against the descriptions in Beehler *et al.* (1986) and Johnsgard (1978). Additional observations were made as follows:

21 March- at 2.30pm, only 3 birds seen, and these soon left when a train passed.
26 March- at 9am, there were 10 ducks and on a second visit at 11am they were all still there, possibly less nervous.
28 March- about 3pm, seven ducks.
2 April- in company with M.Carter and I.Williams at 9.30am, two ducks seen and photographed by M. Carter; and at 3.30pm, with P.Comben and I.Williams, the birds were again noted.
9 April- no whistling-ducks seen on afternoon visit.
11 April- at least five ducks at about 3pm.

The ducks were always seen resting or preening, although a pair on the water was seen to make a couple of short, vertical dives on one occasion. Individuals were usually standing on the bank, or on a metal hand-rail adjacent to the ponds.

Since my visit I have heard of a possible sighting of two pairs in July, but I did not see any birds during a subsequent visit of six weeks in November-December, my last visit to the lagoons being on 10 December. I have since been advised of a sighting of 39 birds at the ponds on 25 December by G.Holmes, W.Alexander and J.Watson (pers. comm.).

DISCUSSION

The only areas of wet grass in the vicinity of these ponds are freshwater swamps at Uningan Creek, a short distance to the east, and lawns around the town itself. Larger tracts of swampland to the north, at Mapoon and the Jardine River, and to the south near Aurukun could be more attractive environments, but these are quite remote and occurrences there could easily go unnoticed. During earlier visits in September 1993 and April 1994 no Spotted Whistling-Ducks were sighted. It is possibly noteworthy, however, that large numbers of Grey Teal *Anas gracilis* and Magpie Geese *Anseranas semipalmata* have been noted at the ponds, but never at the same time of year as the Spotted Whistling-Ducks (i.e. the wet season).

It is surprising that such a nomadic species of duck has not been seen on this side of the Torres Strait before now, especially as the adjacent area of Papua New Guinea appears to be a stronghold of the species. This unusual absence in Australia was noted previously by Draffan *et al.* (1983). These observations have been accepted by both the RAOU Records Appraisal Committee (Submission No 191 on 11 January 1996) and the QOSI Rarities Appraisal Committee (Case No 3).

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A SIGHT RECORD OF THE SINGING STARLING *APLONIS CANTOROIDES* IN AUSTRALIA

GREG ROBERTS

On 22 December 1987, I was birdwatching on Boigu Island, at the north-eastern end of the Australian territorial boundary in the Torres Strait, North Queensland, when I noticed a flock of six starlings feeding noisily in a *Ficus* tree. It soon became apparent that the birds were Singing Starlings *Aplonis cantoroides*, a species with which I was familiar in Papua New Guinea, where it is common and widespread in the lowlands. Two of the birds were adults with bright red eyes and glossy greenish-black plumage. The remainder were red-eyed juveniles, with creamy underparts heavily marked by dark brown streaking. All birds had short, blunt-tipped tails, a feature which immediately distinguishes the species from the Metallic Starling *A. metallica*. The birds were calling frequently. The high-pitched, musical note with a slight downwards inflection was also distinctive.

The feeding tree was in the midst of the island's village, which is surrounded on three sides by extensive areas of mangroves and fronts the southern shore of the Torres Strait. The mainland of Papua New Guinea is only about 6km from the village. During an hour of observation the birds showed no inclination to leave the tree, and were still feeding in it the following day.

Singing Starlings often visit offshore islands from bases on the Papua New Guinean mainland, so it is not surprising that they occur on Boigu Island. The species had not been recorded previously in Australia. This record was accepted unanimously by the QOSI Records Appraisal Committee in 1995, and although no details or descriptions have previously been published, it has been referred to by Mitchell (1988), Britton (1990) and Coates (1990). The date January 1988 was attached to the sighting by Mitchell (1988) and reproduced by Britton (1990).

On 18 and 19 July 1995, a flock of nine or ten Singing Starlings was seen at the same site on Boigu Island by a party of Victorian observers (M. Carter pers. comm.). The dearth of records is presumably because ornithologists rarely visit Boigu, Saibai and other islands close to Papua New Guinea.

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AN UNEXPECTED SIGHTING OF A SPANGLED DRONGO *DICRURUS BRACTEATUS* IN CENTRAL-WESTERN QUEENSLAND

GREG FORD

On a recent fauna survey in western Queensland, five days were spent in the vicinity of Forest Den National Park (22° 08'S, 145° 12'E), about 100 km north of Aramac. The dominant vegetation type in the survey area is Blackwood *Acacia argyrodendron* open woodland, with areas of Bull Mitchell Grass *Astrebla squarrosa* open tussock grassland and Coolabah *Eucalyptus coolabah* open woodland. The major drainage lines running through the park (Torrens and Paradise Creeks) support a eucalypt woodland dominated by Coolabahs and River Redgums *E. camaldulensis*. The climate of the area is semi-arid; average annual rainfall is 450mm; summer temperatures range from 22.8 to 35.2°C; and winter temperatures range from 7.4 to 22.8°C (Addicott 1994). During the period of survey (22-27 March 1995), the weather was fine and hot (temperatures ranged from 20.5 to 37.5°C). Some rain had fallen in the few days prior to the survey, and Torrens Creek was flowing.

On the morning of 26 March, at about 8am, I stopped to record the birds present in an area of Coolabah open woodland, with a ground layer of Bull Mitchell Grass and ephemeral forbs. I was alerted by the raucous behaviour of a number of woodswallows *Artamus* spp. and White-winged Trillers *Lalage suerii,* which appeared to be mobbing another bird. When the target of this harassment swooped up to a dead branch, about 15m above the ground, I was most surprised at what it was. The unmistakable fish-like forked tail, shining black plumage and red eye left no doubt that I was watching a vagrant Spangled Drongo *Dicrurus bracteatus*.

The Drongo remained on its high perch for a few minutes, still being mobbed by the trillers, although the half-dozen or so White-browed Woodswallows *A. superciliosus* and Black-faced Woodswallows *A. cinereus* became less perturbed. After three or four minutes, the Drongo flew off to the north of the track, briefly landing on another high perch, before disappearing behind the tree canopies, about 50m distant. At around 10am, I went back to the site with Al Young, both of us with cameras in hand. We quickly but thoroughly searched an area of about 800m by 400m around the initial sighting point, but to no avail. I passed through the area again that evening and also early and mid-morning the following day, but no further sightings of the Drongo were made.

It is unusual that a Spangled Drongo should be found so far inland. The species' usual distribution extends along the east coast, mostly north of Sydney, and generally east of the Great Dividing Range, as well as through the Top End of the Northern Territory and the Kimberley region of Western Australia (Pizzey

1980, Blakers *et al.* 1984). Pizzey (1980) regards the species as rare or accidental south of about Sydney, whereas Schodde & Tidemann (1986) list it as "...accidental in western New South Wales, Tasmania and South Australia". Blakers *et al.* (1984) indicate a reporting rate of less than 11% for a single 1° grid cell in central Australia and for most 1° cells south of 31°S.

The Queensland distribution of the Spangled Drongo, based on collections in the Queensland Museum (Longmore 1991), is essentially restricted to coastal areas, the relatively few records for the inland being confined to the southeastern corner of the State. Storr (1984) describes the species' western limit of distribution in northern and central Queensland as "...the middle Burdekin...Suttor Creek, Blackdown Tableland....In migration further west...Burra Range, Springsure....". Based on these descriptions, this particular individual was at least 100km west of the species' migratory range, and some 200km west of its regular range. It is reasonable to assume, therefore, that this extra-limital sighting constitutes a new distributional record for the Spangled Drongo in Queensland.

One can only speculate on the reason for the occurrence of this Spangled Drongo so far west in late March. While the Top End and Kimberley populations of the Drongo are sedentary, the eastern populations are nomadic and migratory (Blakers *et al.* 1984, Storr 1984, Schodde & Tidemann 1986). After summer breeding, mainly on the Queensland coast, the eastern population disperses both north and south between February and May (Storr 1984, Schodde & Tidemann 1986). Somehow the bird at Forest Den may have become disoriented during its navigation north from the central Queensland coast. It may well have been blown off course by strong winds, for there had been a number of thunderstorms in the region over the week leading up to our visit to Forest Den. It is improbable that the Spangled Drongo is resident in the area, having not previously been recorded this far inland.

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WHIMBREL FEEDING ON BLUE TIGER BUTTERFLIES

PETER F. WOODALL

The Whimbrel *Numenius phaeopus* is a migrant to Australia from eastern Siberia (Blakers *et al.* 1984). Little is known of its feeding habits in Australia (Lane 1987, Barker & Vestjens 1989), but in Europe it has been recorded as feeding on a range of invertebrates (including worms, molluscs, crustaceans and insects) and plant material (berries, seeds and leaves)(Cramp 1983).

On 24 September 1994, at Scawfell Island (20° 50'S, 149° 40'E), in the Cumberland Group north-east of Mackay, a lone Whimbrel was watched for three hours (1316 - 1716 h EST) and a record of all feeding behaviour was noted; some incidental observations were also made on the preceding and following days. This individual was very tame and would allow humans to approach to within 10 m, although most observations were made using 10 x 50 binoculars at a range of about 30-40 m.

Early in the first hour of observation (1325 h), the Whimbrel caught a small crab in a clump of Pig-face *Carpobrotus glaucescens* growing above the high-water mark, removed all of its legs and then, after several attempts, swallowed it. Next it walked down to the sea and, with its head and bill held horizontally, it apparently drank three times. It then walked up the beach and was inactive, dozing in the sun for 18 mins. Then it returned to the sea and again drank 24 times over the next 10 minutes before foraging in the damp sand along the beach.

In the following two hours, the bird drank 12 times and two types of foraging were observed.

(i) The Whimbrel made short probes in the sand with its bill , often directed around or into clumps of seaweed on the beach. When a prey item was caught it was flicked back into the mouth and swallowed. I could not be certain of the identity of these items, each about 1 cm long, but amphipods were often common under the seaweed and it is likely that they were the prey. A total of 167 probes was counted of which 40 (24%) resulted in a prey item being swallowed.

(ii) Blue Tiger Butterflies *Tirumala hamata* were common on the beach, drinking from the wet sand, and the bird made numerous attempts to catch either flying butterflies or those on the ground which were stalked in a crouched posture with the bill held horizontally. When a butterfly was caught, the bird "nibbled" at it, but if the butterfly was held by the wings this did little harm to it and often enabled it to escape. On one occasion a butterfly was caught, lost and recaptured three times before the bird carried it to the sea, dunked it in the water and finally swallowed it. A similar action was also seen the previous day. A summary of the success of the Whimbrel in catching and swallowing Blue Tiger Butterflies is given in Table 1.

TABLE 1. The success of a Whimbrel in capturing Blue Tiger Butterflies on the ground and in the air.

	Unsuccessful attempt at capture	Successful capture but butterfly then lost	Successful capture and butterfly swallowed
Butterfly in the air	7	1	0
Butterfly on the ground	16	12	14
Total (%)	23(46)	13(26)	14(28)

Whimbrels have previously been reported feeding on flying insects such as moths and dragonflies in Europe (Cramp 1983), but this seems to be the first report of a butterfly as a prey item. Blue Tigers are slow flying butterflies and the Whimbrel was quite successful at catching them, particularly when they were drinking on the wet sand.

These butterflies belong to the subfamily Danainae, which contains many poisonous or distasteful butterflies (Common & Waterhouse 1981, Ackery & Vane-Wright 1984) due to the storage of cardiac glycosides and/or pyrrolizidine alkaloids. Blue Tigers have been shown to contain high levels of the alkaloid lycopsamine (Edgar *et al.* 1979). The Whimbrel did not seem to be deterred by this and showed no obvious ill effects as a result of feeding on these butterflies over a period of at least five days. Other species of birds, including drongos *Dicrurus* spp. and woodswallows *Artamus* spp., have been reported to feed on Blue Tigers (citations in Ackery & Vane-Wright 1984). This may be possible due to variation in the levels of distasteful chemicals present in the butterflies at different times of the year or in different localities. The term "palatability spectrum" was used for such variability by Ackery & Vane-Wright (1984).

The Whimbrel observed in this study was very tame and was seldom seen to fly, unlike other small flocks of Whimbrel seen on the island which were quite wary, and this may suggest that it was not fully fit. Nevertheless, this observation demonstrates the bird's ability to exploit an unusual food source, and it is probably to be expected given the wide variety of items reported in the Whimbrel's diet (Cramp 1983).

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