

1

A NEW SPECIES OF AUSTRALIAN GRASS-WREN

By NORMAN J. FAVALORO

Honorary Associate in Ornithology

and ALLAN MCEVEY

Curator of Birds

Abstract

The current classification of Australian Grass-Wrens of the genus *Amytornis* is summarized and a new species *Amytornis barbatus* the Grey Grass Wren of the Bullooline in north-west N.S.W. is described. Descriptions of the nest and eggs, and general field notes on the species, are included.

Introduction

The several *Amytornis* species have been aptly referred to as 'one of the few truly desert groups in the Australian avifauna' by Keast (1958, p. 33), who has also remarked 'The genus is particularly rich in distinctive isolated forms that, though they have never had their true status tested by contacting the parental stocks, are nevertheless so different that, if normal taxonomic procedure be applied, they must be regarded as species' (ibid.).

Taxonomy

The most recent attempts to clarify the taxonomic relationships of the group have been those of Keast (1958, 1961), Mees (1961) and Condon (1951, 1962) and the reader is referred to these publications for taxonomic details. Acquaintance with this literature will reveal that, as Keast explains, the genus *Amytornis* falls ' . . . into two species groups, the *striatus* group, which has a rich and somewhat complicated colour pattern, and the *textilis* group, with a simple colour pattern. Behavioural differences between typical species in the two groups include a "sweet, rippling song" in *A. striatus* and the absence of song in *A. textilis*' (Keast 1958).

The distribution of the species and races as accepted by Keast are shown diagrammatically in fig. 1. The species comprise: (a) *striatus* group: *A. s. striatus*, *A. s. merrotsyi*, *A. s. oweni*, *A. s. whitei*, (*A. housei* of uncertain derivation), *A. woodwardi*, *A. dorotheae*. (b) *textilis* group: *A. t. textilis*, *A. t. macrourus*, *A. t. myall*, *A. t. everardi*, *A. t. purnelli*, *A. modestus modestus*, *A. m. inexpectatus*, *A. goyderi*. In connection with *A. modestus* Keast (1958) remarks 'Mr. N. Favaloro has informed the author that an *Amytornis*, presumably this species, occurs in the extensive cane-grass "triangle" to the south of Bulloo Lake, south-western Qld.'. Condon (1962) gives the range of *A. m. inexpectatus* as 'Extending from west and south of Lake Eyre, eastwards to SW. Queensland (Bulloo Lake), . . .', presumably on the basis of Keast's information. Specimens recently collected in this region have proved to be a new and distinctive species now to be described.

***Amytornis barbatus*, new species**

TYPE LOCALITY: Teurika, north-west N.S.W. (Fig. 2).

SPECIMENS: All from type locality and collected by N. J. Favaloro on July 7, 1967.

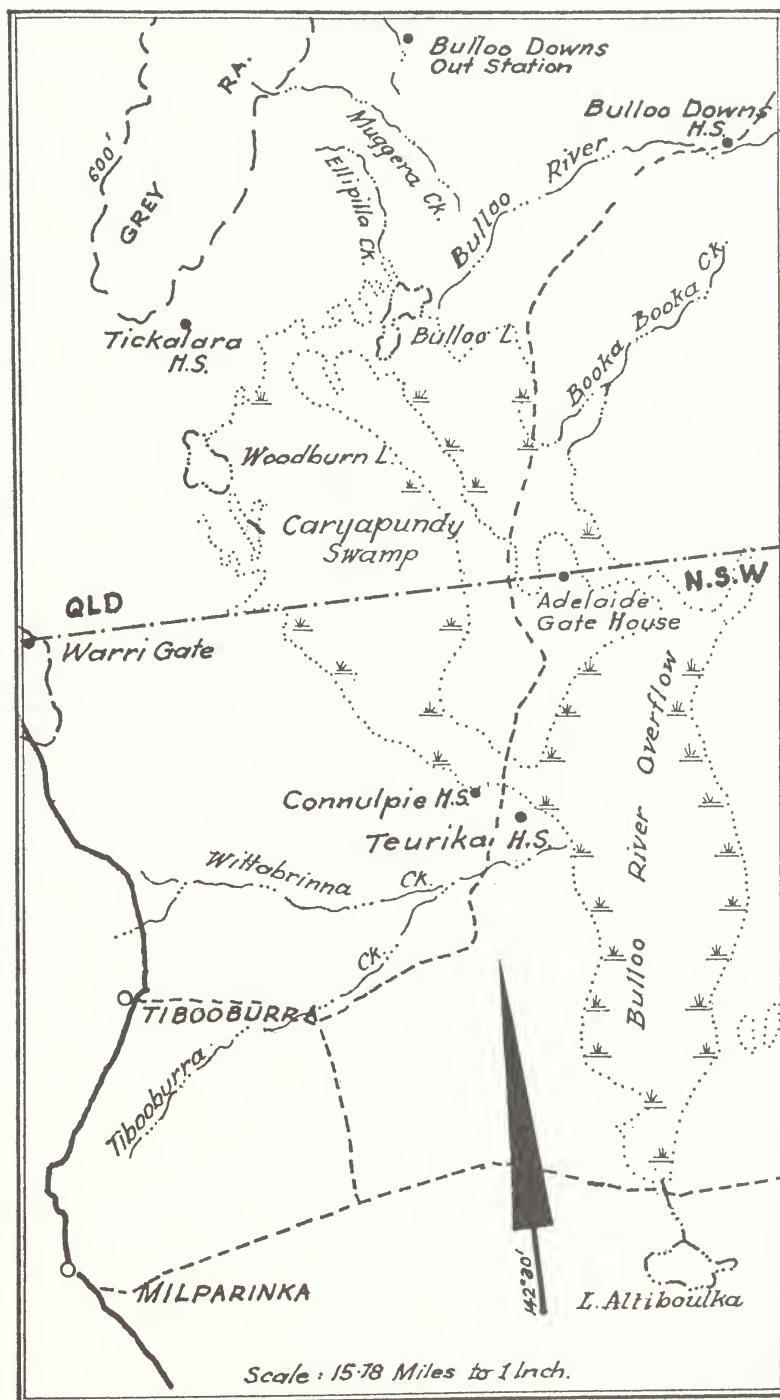


FIG. 2

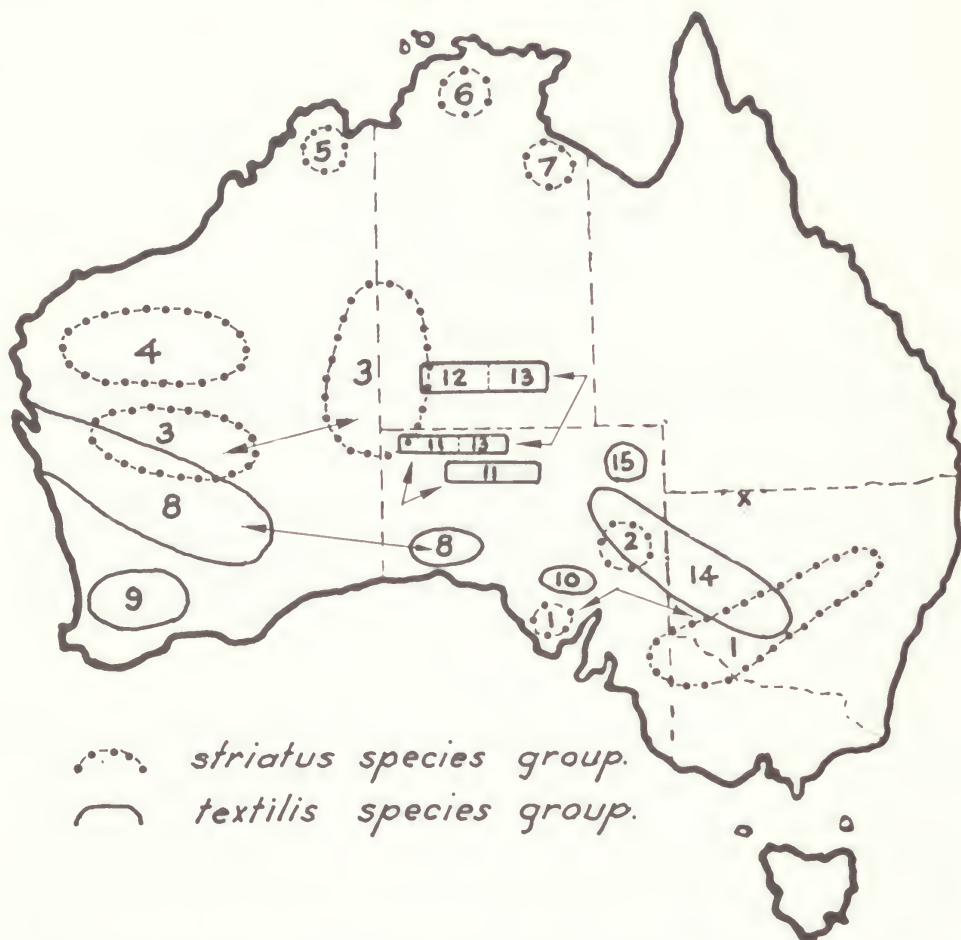


FIG. 1.—Diagrammatic distribution of *striatus* and *textilis* species groups. 1, *A. striatus striatus*; 2, *A. s. merrotsyi*; 3, *A. s. oweni*; 4, *A. s. whitei*; 5, *A. housei*; 6, *A. woodwardi*; 7, *A. dorotheae*; 8, *A. textilis textilis*; 9, *A. t. macrourus*; 10, *A. t. myall*; 11, *A. t. everardi*; 12, *A. t. purnelli*; 13, *A. modestus modestus*; 14, *A. m. inexpectatus*; 15, *A. goyderi*; X, New species.

1. Holotype. Skin. Nat. Mus. Vic. B8911 ♂.
Gonads enlarged, iris dark hazel, bill and palate black, legs and feet black.
2. Paratypes.
 - (a) Skin. Nat. Mus. Vic. B8912 ♂.
Gonads enlarged; soft parts as listed for holotype.
 - (b) Skin. Nat. Mus. Vic. B8913 ♀.
Gonads small; soft parts as listed for holotype.
 - (c) Skin. Nat. Mus. Vic. B8914 ♂.
Gonads enlarged; soft parts as listed for holotype.
 - (d) Skeleton (almost complete). Nat. Mus. Vic. B8910. Sex?
Bill black, legs and feet black.

Description

DORSAL: General colour gingery-brown (= Tawny Olive/Sayal Brown of Ridgway) suffused with grey and with white striations. Crown and forehead, narrowing to 'V' point at base of culmen, black with distinct white feather shafts giving the appearance of black striped with white; hind neck and mantle continuing these striations, the white shafts being narrowly edged with black and having gingery-rufous (= Sayal Brown of Ridgway) feather margins. Back and rump showing broad buff-white shafts, with the blackish shaft edgings more diffused; feather margins as on mantle but duller and with the dark grey of the feather bases emerging. Rump shafts much diffused. Tail shafts clear white, webs brownish-black fairly narrowly edged buff. Wing. Primary coverts blackish with cream-white shafts and narrow whitish feather margins. Secondary and lesser coverts, and scapulars, with broad buff shaft lines, blackish margins and pale buff edges. Primaries grey-brown with distinct cream-white shafts, narrow buff shaft margins, basal half of inner feather margins pale pinkish-buff (Ridgway) and basal portion of outer feather margin rufous (= Hazel of Ridgway). Secondaries darker and similarly but more distinctly marked and with more extensive buff inner margins.

LATERAL AND VENTRAL: Rictal bristles black, superciliary extending forward to nostril, white; lore and patch behind eye, black, creating a black line through the eye. Immediately below eye, white; auriculars white; chin and throat white; black feathering commencing in the malar region just anterior to auricular feathers and underlying them to provide a black margin posterior to auriculars, thence descending in a narrow band across lower throat sometimes meeting ventrally. Upper chest white. Mid-chest feathers white with dark grey bases and with longitudinal blackish stripes marginal to shaft, white edges and sometimes faint blackish tips, the marking being pronounced on sides of chest. Abdomen whitish, flanks pale buff. Under-tail coverts cream buff; ventral side of tail feathers similar to dorsal but duller and lighter. Wing, primaries and secondaries as for dorsal view but paler. Under wing coverts pale buff-white. Iris dark hazel, bill black, palate black, legs and feet black.

♀ Generally similar, probably a little smaller, and with chest markings less distinct.

DIAGNOSIS: Apart from the fact that it differs from all other *Amytornis* forms in its dorsal colouring, being more gingery-brown, the most striking diagnostic feature of the cabinet specimen is the black beard-like marking of the side-head and throat together with the general white colour of the under-parts. In the field however, as noted by one of the authors (N.J.F.) the head and throat markings are not distinctive and the most diagnostic feature of the species is its 'greyness' and upon this the common name, Grey Grass-Wren, is based.

MEASUREMENTS:

	Holotype ♂ B8911	Paratype ♂ B8912	Paratype ♂ B8914	Paratype ♀ B8913
	mm	mm	mm	mm
Length	183	185	196	178
Wing	58	58	59	57
Tail	109	111	118	103
Exposed Culmen	11	11	11.5	11
Tarsus (anterior)	22	22	24.5	23

Stomach contents from the specimens collected: mainly small seeds of several plant species, two small ants and remains of small Coleoptera. Several very small pebbles.

RANGE: Known to occur at Teurika and possibly occurring throughout the swamp-lands known as the Bulloorine, pronounced Bullareen, i.e. Caryapundy Swamp, Jerrira Swamp and Bulloo, pronounced Bulla, River Overflow, N.S.W.-Q'ld. (see Fig. 2).

HABITAT: Cane grass (*Eragrostis australasica*) clumps, and Lignum (*Muehlenbeckia cunninghamii*) thickets on the Bulloorine.

NEST SITE: See also Field Notes. Cane grass clumps and, less frequently, Lignum thickets.

NEST: See also Field Notes. The nest is bulky and very loosely constructed, varying in length overall from 8" to 8½" and in width from 4" to 4½". It is semi-domed with a large opening at the side. The size of the opening varies considerably, and is governed by the skill with which the individual building the nest constructs the hood. At times, the hood is so flimsy as to be almost non-existent, whilst other hoods appear to be almost detached from the main body of the nest itself. The majority of nests observed, however, have been well constructed, the entrance being 2" wide by 1½" in height. The interior of the nests are deep and cosy, 2" wide by 3½" in depth, lined with softer grass collected from the topmost portions of the cane grass, and a few small fibre-like rootlets. Parrot feathers and duck down are sparingly used, only two or three very small ones being found in any one nest.

Whether built in Lignum or in Cane Grass, the grass used to construct the outer walls of the nests observed was apparently from one species of *Panicum*. The colour of this grass noticeably, and, from the point of view of camouflage, effectively, showed marked variation.

In those built in Lignum and thereby exposed to sunlight, the grass, and therefore the nest, was from dark brown to black. But though exposed, the nest was extremely well camouflaged by matching its immediate environment. In those built in Cane Grass clumps the grass remained light brown but the nest was well-concealed by being placed in the centre of the Cane Grass clump.

EGGS: All sets collected were taken by N. J. Favaloro and William Adams, NW. of Teurika, N.S.W., July 7th, 1967, and are in the N. J. Favaloro Egg Collection. The eggs were fresh; four of them weighed 2.732 gr, 2.538 gr, 2.176 gr and 2.170 gr respectively. For oological notes on *Amytornis*, consult Campbell (1900), North (1901-1914, 1 : 248, 4 : 425), White (1914, 1924), and Whitlock (1924).

1. *First collected ('Type') set.* C/2. (a) Ground colour dull white without gloss and with a pale pink tinge evenly speckled all over with fine nutmeg brown markings, converging on the larger end to form a freckled brown cap. Measurements 19 mm × 14.7 mm (0.75 × 0.58 in.). (b) Ground colour lighter with a little gloss, sparingly marked with fine nutmeg brown markings, becoming more congested on the larger end to form a well defined zone, the markings within the zone being denser than those on the remaining portion of the egg. Measurements 19.5 mm × 14.7 mm (0.77 × 0.58 in.).

2. *Second set.* C/2. (a) Ground colour white unevenly but boldly speckled and blotched all over with heavy irregular nutmeg to reddish-brown markings. Measurements 18.2 mm × 15.5 mm (0.71 × 0.61 in.). (b) Ground colour dull white

with a slight gloss blotched with cinnamon brown somewhat lighter on the smaller end but concentrated on the larger end into broad dark brown cap of continuous colour with a few flecks of the ground colour emerging on the apex. Measurements $19.5 \text{ mm} \times 14.6 \text{ mm}$ ($0.77 \times 0.57 \text{ in.}$).

3. *Third set. C/2.* (a) Colour very similar to specimen (a) of Set 1 being uniformly speckled all over but lacking the zoned effect on the large end, notwithstanding a slight concentration of markings in that region. Measurements $20 \text{ mm} \times 14.1 \text{ mm}$ ($0.79 \times 0.55 \text{ in.}$). (b) Ground colour white with a pinkish tinge evenly blotched with cinnamon brown markings tending to form a small cap on the larger end. Measurements $17.9 \text{ mm} \times 14.6 \text{ mm}$ ($0.70 \times 0.57 \text{ in.}$).

It will be noted that the clutch in each instance consists of two eggs only and that there is considerable variation in colour and pattern, not only between eggs selected at random, but also between eggs of the one clutch. An evenly marked pair from a single nest would, on the limited information available at present, be regarded as unusual.

Also of interest is the range of variation in egg-size which, generally speaking, is smaller than that recorded for eggs of other species of *Amytornis*. The eggs are rounded-oval in shape, smooth, close grained and slightly glossy, especially where not heavily marked with blotches. A critical examination of clutches in the field and of the specimens collected has revealed an extraordinary variation from a dark and very heavily marked variety to lighter eggs delicately stippled with mauve undertones.

Even after making due allowance for changes in ground colour due to advanced stages of incubation, the eggs of *A. barbatus* are obviously more beautifully marked than those of *A. striatus*.

Ecology

(Based on field notes made by N. J. Favaloro, July 2nd-9th, 1967).

The source of the Bulloo River is near the northern extremity of the Grey Range in the far SW. of Queensland. The river flows in a general SW. direction along the entire length of the Range for approximately 375 miles to Bulloo Lake. In many places, the steep banks and the thick gum woodland remind one of the Darling River environs. The last fifty miles of the stream are still in their natural state. When Bulloo Lake overflows it spills out over an extensive area some 30 miles wide at its broadest point, and 70 miles in length. On very rare occasions, major flooding forces the water into Lake Altiboolka (known locally as Salsbury Lake) in New South Wales approx. 50 miles S. of the Queensland border.

The vast expanse of swamplands S. of the Bulloo Lake is known locally as the 'Bulloorine'. It is shown on the accompanying map as Caryapundy Swamp, Jerrira Swamp and the Bulloo River Overflow. The whole area is traversed by a series of broad and narrow channels, many deep enough to sustain permanent water holes, others so shallow that they dry out quickly after the flood waters recede. Some sections of the Bulloorine are so overgrown with giant *Lignum* bushes that it is impossible to drive a car between them, but on the more open flood plains, Cane Grass (*Eragrostis australasica*) and small *Lignum Meuhlenbeckia cunninghamii* make travelling possible and more pleasant.

Apart from the major and minor flooding of the Bulloo River from time to time, Lake Woodburn and Caryapundy Swamp receive a plentiful supply of fresh water from local rains in normal seasons. The result is that the Bulloorine is a rich

isolated habitat surrounded by arid stony country where desert conditions predominate. It was on a remote section of the flood plains where *Acacia* sp. dotted the landscape and the Cane Grass and Lignum grew in association with a herb/shrub flora of Nightshade (*Solanum lacunarium*), Bluebush (*Chenopodium auricomum*) and Mitchell Grass that the Grey Grass Wren was discovered.

Favaloro's first encounter with *Amytornis* in the vicinity of the Bulloo was accidental. When returning from a short visit to the Onobootra Water Hole on the 24th September, 1942 in company with Mr A. Storer, an *Amytornis* was flushed from a dense clump of Lignum. Only a dorsal view was obtained and he noted that it was much lighter in colour than *A. striatus* with which he had had considerable experience. Some years later, he discussed this sight record with Dr A. Keast who subsequently referred to it (Keast 1958) under the heading of '*A. modestus*'.

The opportunity of returning to the locality did not come again until July, 1967, when in company with Mr William Adams, Favaloro made an attempt to visit the area known as 'the island' bounded on the east by the Caryapundy Swamp, on the west by the Jerrira Swamp and on the south by the Bulloo River Overflow. However the Bulloo was in flood and local rains had aggravated the position, thus making it impossible to cross the western channels by car. As Mr Adams had a thorough knowledge of the intricate and complex system of sandridges and channels to the SW. of the Lake, it was possible to reach similar habitats within a 25 mile radius of the Teurika homestead.

About 9.30 on the morning of 7th July, 1967. Favaloro and Adams were examining an isolated section of Cane Grass in which clumps of Lignum were growing, when Favaloro saw five greyish birds about the size of House Sparrows (*Passer domesticus*) perched on the topmost canes of the Lignum. No difficulty was experienced in approaching close enough to identify the birds as being members of the genus *Amytornis*, and even without the aid of binoculars, it was apparent that the colour and the pattern of the birds' markings were distinctive and different from any other known species of this genus.

After being observed for some time, the birds descended into the interior of the Lignum bush where they kept up a prolonged twittering, the notes being soft double syllabled and high pitched. The birds were difficult to flush, but when this was done, they flew rapidly with their tails trailing horizontally in a manner resembling members of the *Malurus* group. Although observed on many occasions running and bouncing along in typical *Amytornis* fashion, they more frequently flew from bush to bush and from one Cane Grass tussock to another. The bird's preference for flight has probably been developed as the result of the habitat in which it lives.

In the habitat of *A. striatus*, Porcupine Grass clumps grow so closely together that it is both safe and easy for this species to pass quickly on the ground from one tussock to another. The Grey Grass Wren, on the other hand, has by comparison considerable distances to travel between patches of vegetation for food and shelter. When flushed, individuals of this species fly quickly from cover to cover at a height of approximately one foot from the ground, but when making a voluntary journey they usually launch themselves into the air from a vantage point at a height of two or three feet, and fly swiftly in a direct line to the base of their objective where they quickly take refuge in the undergrowth or seek the protection of the Cane Grass.

Although the breeding season was at its height, there was no indication of any nuptial song similar to that of the Striated Grass-Wren. Whenever the Grey Grass Wrens were located, their double notes could be heard as they twittered and called to each other from the interior of the dense Lignum thickets. Here again, the

contrast between the two species is noteworthy. Noise or movement not only causes *A. striatus* to take cover but also results in the bird remaining quiet and out of sight for a long period. On one occasion early in the morning while two birds were observed sunning themselves on top of a Lignum bush, they were joined by a third. All three were calling intermittently as the latest arrival approached and eventually took up a position close to the bird near the end of the branch. After a short interval, but without further ceremony or display, mating took place. The female remained to preen herself as the male returned to the centre of the Lignum. An extensive and methodical search was then made for the nest. The first one discovered contained two eggs slightly incubated. It was found in Lignum at a height of 18 in. from the ground in an exposed position, and was not hidden or protected in any way. Three other nests found in Lignum were all in similar situations, varying from 12 in. to 2 ft 6 in. from ground level, and built on the N. or NE. side of the clump. With one exception, all were facing towards the outside of the bush. The exception was a small poorly constructed nest with its entrance facing the centre of the Lignum. The acute angle of its hood so concealed the entrance that it would have been difficult to see in any event. This nest contained two very heavily incubated eggs.

The most favoured nesting sites were in the Cane Grass tussocks, but the majority of these nests were either old or just being built. Some were as easy to find as others were difficult. Debris left behind in the Cane Grass by the rise and fall of flood waters made the task harder and every clump had to be carefully examined. Three nests found in Cane Grass had been built on the remnants of previous nests. It was noted too that those built in Cane Grass tussocks were invariably upright, whereas nests built in Lignum tended to deviate from the perpendicular, and were more flimsy in structure, particularly the hood which was so frail that it was impossible to remove the nests or move the Lignum itself without causing considerable damage. Nests with flimsy hoods and enlarged openings lost the half-domed appearance characteristic of the more typical examples.

Conclusion

The fact that an *Amytornis* so different from every other known form of the genus should remain undiscovered for so long raises two important questions. Firstly, what is the extent of its distribution generally, and secondly, what is the numerical strength of the new species?

The present observations revealed four colonies scattered over a distance of 25 miles from Teurika to a point approximately five miles over the Queensland border. The number of individual birds seen totalled 45, giving an average of five or six pairs per colony in each instance.

The plumage of juveniles has still to be recorded and there is not sufficient information available to establish with certainty whether the small differences between the male and female as described in this paper are constant. It is indeed possible that there are no substantial plumage differences between adult males and females. The extent of the breeding season also calls for investigation. The question arises as to whether this is influenced by seasonal conditions associated with the arid nature of the country on the one hand, or by the more regular flow of water from the Bulloo River on the other. If by the former, then the breeding season would be irregular as it is with most of the resident inhabitants of and migrants to the adjacent stony rises and plains, but if by the latter, then the Grey Grass-Wren

may be expected to nest more regularly during the months of July, August and perhaps September each year, except during periods of extreme drought.

TAXONOMIC RELATIONSHIP: Morphologically *Amytornis barbatus* clearly belongs to the *striatus* group on the basis of its bold and complicated plumage pattern. One might therefore expect it to possess a song approaching or surpassing that of *A. striatus*. No such song however has yet been recorded. Its bill, reflecting its chiefly seed-eating habit (see stomach contents), is more robust than that of *striatus*. In these features therefore it is more akin to the *textilis* group. But to go beyond this comment on present information would be no more than speculation.

Acknowledgements

Grateful acknowledgement is made to Mr Noel Connard for preparation of the maps and to Mr R. T. M. Pescott, Director, Royal Botanic Gardens and National Herbarium for identification of plant species.

References

- CAMPBELL, A. J., 1900. Nests and eggs of Australian birds. Melbourne. pp. 1102.
 CONDON, H. T., 1951. Notes on the birds of South Australia: occurrence, distribution and taxonomy. *S. Aust. Orn.* 20: 26-68.
 ———, 1962. A handlist of the birds of South Australia with annotations. *S. Aust. Orn.* 23: 85-150.
 JACKSON, S. W., 1910. Description of two new nests and eggs. *Emu* 9: 136-7.
 KEAST, A., 1958. Speciation in the genus *Amytornis* Stejneger (Passeres: Muscicapidae, Maluri-nae) in Australia. *Aust. J. Zool.* 6: 33-52.
 ———, 1961. Bird speciation on the Australian continent. *Bull. Mus. Compar. Zool.* (Harvard) 128: 305-495.
 MEES, G. F., 1961. An annotated catalogue of a collection of bird-skins from West Pilbara, Western Australia. *J. Roy. Soc. W.A.* 44: 97-143.
 NORTH, A. J., 1901-1914. Nests and eggs of birds found breeding in Australia and Tasmania. Sydney: 4 vols.
 WHITE, H. L., 1914. Descriptions of new Australian birds' eggs. *Emu* 14: 57-9.
 ———, 1924. Descriptions of some new nests and eggs. *Emu* 23: 241-2.
 WHITLOCK, F. L. 1924. Journey to central Australia in search of the Night Parrot. *Emu* 23: 264-73.

Explanation of Plates

PLATE 1

Approximately $\frac{2}{3}$ natural size

Fig. 1-3—*Amytornis*. Ventral view: (1) *A. barbatus* (holotype); (2) *A. t. purnelli*; (3) *A. s. striatus*.

PLATE 2

Approximately $\frac{2}{3}$ natural size

Fig. 1-6—*Amytornis*. Lateral view: (1) *A. barbatus* (holotype); (2) *A. t. purnelli*; (3) *A. s. striatus*. Dorsal view: (4) *A. barbatus* (holotype); (5) *A. t. purnelli*; (6) *A. s. striatus*.

PLATE 3

Nest of *A. barbatus* (with cotton-wool inserted) in Cane Grass clump. Inset shows entire clump, approximately four feet high, the arrow indicating position of nest.

PLATE 4

Fig. 1-4—Habitat: (1) General view; (2) Cane Grass clump containing a nest; (3) Lignum containing a nest; (4) Nest in Lignum disclosed.

