

Sexual Interactions by Australian Brush-turkeys away from the Incubation Mound

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Virtually all we know of the behaviour of the Australian Brush-Turkey *Alectura lathami* is based on observations made of birds on their incubation mounds under wild or captive conditions. In the wild, observations have usually been made in rainforest where birds are difficult to follow and observe after they leave a mound. Copulation can be seen at the mound, usually quite early in the day, and the assumption implicit in the literature is that copulation does not occur away from the mound.

Some authors (e.g. Fleay 1937; Flieg 1970) reported copulation as rarely seen, even at the mound; but not all agree (Jones 1979, 1985).

I have previously indicated (Dow 1980) that Australian Brush-turkeys, while typical of rainforest in some areas, are by no means restricted to it. My study area at Upper Brookfield in Brisbane comprises 18 ha of fairly open dry-sclerophyll woodland, where Brush-turkeys are common. The mounds of these birds are more exposed to sunlight and because the woodland is more open, the birds are easier to follow and observe than in rainforest.

I have notes on 13 observations of copulations occurring away from mounds, sometimes several hundred metres from the nearest known one. I did not see most sequences of copulation from their onset but the following extraction from my tape-recorded notes is probably typical. The female was colour-banded, the male unbanded.

On 5 November 1984 at 0935 h I watched the male actively peck the ground and sweep his head from side to side as he slowly traversed a fairly steep hillside. This sweeping behaviour was similar to that used by Australian Brush-turkeys in stripping seeds from a grass stalk in one smooth motion. He stopped where the slope was less steep, crouched on the ground with wings half extended and, resting on the substrate, began to peck vigorously in a short arc in front of his breast. The ground cover was mainly dried leaves and leaf litter with sparse grasses covering no more than 50% of the area. The female approached him from the front. Both of these birds had been dust-bathing earlier in the morning and still had much dust visible on their feathers. The male continued pecking and scattering the litter in an arc about 35 by 5 cm. He appeared to be ingesting material found there. The female approached

well within a body length of the male. On one occasion he leapt to his feet and chased her, but soon returned and crouched again in the same manner.

The female returned. She approached with feathers fluffed and head and neck withdrawn. Peering close to the ground, but very wary, she seemed interested in what the male was pecking. When the male's head pointed towards her, she would sweep her head round, looking away from the male and orienting her body at 90 degrees to his. She persistently returned to her initial fluffed posture for a period of three to four minutes.

The female then elevated her tail and drooped her wings slightly so they were close to the ground. She continued to stand in this posture in front of the male. The male rose from the ground and walked away from the female. At that moment she ran toward him, carpal joints still held away from the body and wings still drooping. She held this posture for several seconds standing most conspicuously with drooped wings and fluffed body plumage. She now moved faster, maintaining a parallel track with the male and about three metres from him.

She continued for about 20 sec then suddenly crouched, wings slightly spread and touching the ground. The male immediately ran toward her. He approached from behind, mounted and copulated for about 15 sec. He then jumped forward off the female's back and ran quickly for about two metres, where he stopped and turned back. The female got up, shook, and the two birds walked off together. Neither uttered any sound during the interaction.

The behaviour shown by both male and female in this mating sequence was not unlike that used at the mound. When working his mound, a male normally crouches and pecks the substrate, often vigorously when a female is nearby. The drooped wings and fluffed feathers are typical of a female's pre-copulatory posture as she approaches the male at the mound. The male often grasps the neck of the female quite roughly. The sequence I described is perhaps unusual in the low level of aggression shown by the male. This may have been because the bird was away from his mound, which is normally the principal focus of defence.

The unbanded male was probably one that I had seen

working the mound nearest the site of copulation — about 120 m. I had banded the female nearby as an adult on 24 October 1976; hence she was at least nine years old. I had watched her copulate previously with at least two other males, but no more than one in any breeding season.

This copulation occurred well within the breeding season while there were several active incubation mounds in the area. Most copulations I have seen at mounds occurred early in the morning often in semi-darkness and never as late as 0935 h.

I have often thought that copulation at the mound may be used by the female as a means of gaining access to an egg-laying site of which there may be few to choose from. The copulation I described could possibly be interpreted in the same way, i.e. it allows the female access to some other resource, perhaps food. But access to the mound is usually for no longer than the duration of egg-laying, while feeding is obviously more protracted.

Whatever the explanation for such isolated sexual interactions, the displays and sequence of behaviour leading to copulation appear similar to those used at the incubation mound, suggesting that these copulations may be equally functional. Whether copulations away from the immediate sites of incubation mounds tend to be more frequent in more open habitats or in less dense populations than those occurring in rainforest must await the results of systematic and comparative field observations.

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Distributional Notes on North Queensland Birds

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From 10 August to 8 October 1986 I carried out field work between the Georgina River in the west and Cooktown in the north-east of Queensland. I was accompanied by J. Nielsen and M. Burke, graduate assistants at Curtin University of Technology. Some of our observations and specimens allow me to amend the ranges of 42 species and subspecies as delimited by Storr (1984).

Haliaeetus leucogaster White-bellied Sea-Eagle. One at Iffley extends its known range up the Norman River from 'beyond Glenore'. It was also observed on the Yappar River upstream to Esmeralda.

Alectura lathami Australian Brush-turkey. Storr (1984, p. 37) indicates that the nominate race extends north in the highlands of north-east Queensland to Mt. Finlay and after a break of 40 km it is replaced in the lowlands around

Cooktown by the purple-wattled race *A. l. purpureicollis*. However, the single bird I saw near Cooktown had red and yellow bare skin on the head and neck, as in the nominate race; it was in rainforest on the ridge running west from Mt. Cook.

Coturnix australis Brown Quail. A covey of eight (one collected) in long grass beside the upper Yappar at Glenora helps to define its inland limits.

Grus antigone Sarus Crane. One at a pool on the Alexandra River east of Talawanta is the southern-most record for the Gulf drainage.

Geopelia humeralis Bar-shouldered Dove. An observation at Walkers Bend on the lower Flinders helps to fix its southern limit in the Gulf drainage.