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Nesting activity of Wallace's Wren *Sipodotus wallacii* in Crater Mountain, Papua New Guinea

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The passerine family Maluridae is comprised of five genera and thirty species restricted to the Australo-Papuan region (Rowley & Russell 1997). The monospecific genera *Clytomyias* and *Sipodotus* and three species of *Malurus* are confined to New Guinea. The other twenty-five species occur in Australia and are relatively well-studied compared to New Guinea species (Schodde 1982, Rowley & Russell 1997).

Although the distribution of Wallace's Wren *Sipodotus wallacii* is locally patchy, it is typically found throughout mainland New Guinea in a narrow zone of foothill

rainforest between 100 and 800 m above sea level and also on Misool, Aru, Yapen and possibly Goodenough Islands (Rand & Gilliard 1967, Coates 1990). Occasionally, it has been recorded in lowland forests below 100 m (e.g. the Trans-Fly) and in lower montane forests up to 1,200 m (Coates 1990, Rowley & Russell 1997). Breeding is only known from lowland rainforests near Port Moresby (Bell *et al.* 1979).

S. wallacii typically forages in groups of 3-8 individuals, thought to be family parties (Bell *et al.* 1979, Mack & Wright 1996). Co-operative breeding is common among the Maluridae, but has not been confirmed for *Sipodotus* (Rowley & Russell 1997).

The phylogenetic placement of *Sipodotus* is unknown (Rowley & Russell 1997). However, the most recent systematic treatment of the Maluridae supports the monophyly of *Malurus*, suggesting a basal position for *Sipodotus*, but the absence of biochemical samples precluded the inclusion of *Sipodotus* in the phylogenetic analysis (Christidis & Schodde 1997).

Here we present the second record of nesting activity in *Sipodotus* and report differences in nest construction, proportion and site from previous accounts. We also present data on parental activity at the nest and report both geographic and altitudinal breeding range extensions for the genus.

Study area and observations

Our observations were made at the Crater Mountain Biological Research Station (CMBRS), 10 km east of the Haia airstrip in southern Chimbu Province, Papua New Guinea. The station is *c.* 900 m above sea level (145° 05' 34.5"E, 6° 43' 26.2" S) and its surrounding study area extends from 850 m to 1,250 m elevation. The flora is very diverse and includes the transition from lower hill forest to lower montane forest (Wright *et al.* 1997).

In early August 1999, *Sipodotus* individuals were occasionally seen at *c.* 1,250 m. On 14 August, we observed a single individual in this area with vegetation in its bill, but no nest was found. On 9 September, we searched the area and located an active nest.

The nest was centrally located in a shrub (*Medinilla* sp.: Melastomataceae) *c.* 1.5 m tall clinging to the top of a rocky cliff face and above a *c.* 30 m vertical drop. Cliff face vegetation was epiphytic (Poaceae, Melastomataceae, Orchidaceae, *Schefflera*: Araliaceae, Pteridophyta). The nest was well concealed in vegetation hanging over the precipice and its entrance faced away from the rock, making it difficult to examine the contents.

The nest was domed, *c.* 130 mm tall by 90 mm diameter, with a wide side entrance near the top. The roof over the entrance may have projected slightly over the entrance, but no obvious overhang or awning was visible. The top of the nest was attached to several small branches and twigs with no major branches or limbs supporting it from below. The nest was of grasses and fibrous strips, perhaps from palm, *Pandanus*, and/or bamboo leaves. The interior was lined with finer plant fibres while the outside

was well concealed with bits of mosses and epiphytes inserted or bound to the structure with spider webs. In outward appearance the nest was visually similar to many tangles of epiphytes and leaves growing on the cliff.

Despite being well concealed, we were able to locate the nest due to the incessant begging of nestlings within. By carefully pulling the branches with the nest toward the cliff edge we were able to peer inside briefly. The nest contained two nestlings that we estimated to be roughly one week old.

We observed the nest for 3 h on each of 9 and 10 September, between 1000-1400 h during which the nestlings did not stop begging. Begging notes were high, thin, and insistent. When parents approached the nest begging became louder and more insistent. Sometimes approaching adults gave a quiet chip that heightened begging from the nestlings.

Between 1200 and 1330 h on 9 September, the attending adults made 38 feeding visits (mean interval = 2.8 minutes, SD = 2.3). They foraged in the forest canopy below the nest, usually within *c.* 75 m horizontal distance of it. Prey were mostly unidentified insects, but included green Lepidoptera larvae, *c.* 10-15 mm long, captured in the canopy of a tree (*Trema* sp., Ulmaceae). Upon capturing prey, birds flew to the cliff below the nest, to then make short flights up the cliff-side vegetation.

We watched the feeding activity of the attending adults for evidence of cooperative nestling care. We could often keep track of two birds simultaneously as they foraged in the forest canopy below, but at no time were more than two individuals seen.

In early September 2000, we revisited the site where *Sipodotus* had nested in September 1999 to find no evidence of active nesting, nor any *Sipodotus* in other parts of the CMBRS study area.

Discussion

Until recently, *Sipodotus* had not been recorded in eastern New Guinea between Mt Bosavi and Port Moresby (Mack & Wright 1996). Diamond (1972) did not record the species on nearby Mount Karimui nor for the Eastern Highlands region. Our findings reconfirm the occurrence of *Sipodotus* in south-eastern New Guinea, and confirm breeding there.

During a period of intensive fieldwork at the CMBRS from 1989-1993, *S. wallacii* was not commonly found; groups of approximately 3-5 individuals were only occasionally seen in thick secondary growth and vine tangles, 7-20 m above ground around 900-1,000 m elevation (Mack & Wright 1996). The groups did not remain in the area for very long, leading Mack & Wright (1996) to surmise that they were semi-nomadic, moving between islands of appropriate regrowth in a vast matrix of primary forest. Our observations support to those of Mack & Wright (1996) and Bell *et al.* (1979) that *Sipodotus* are transient and that breeding does not necessarily occur in the same area over consecutive years.

Our observations of nest proportions and placement differ somewhat from the only previous account (Bell *et al.* 1979). Although the species is recorded locally to 1,200 m, our findings indicate breeding at its upper altitudinal range, well above the only other breeding record. The previously described nests were located in vine tangles 5 and 8 m above the ground, whereas the one we observed was on a cliff face c. 30 m. above the ground. The nest we observed was shorter and wider than the two Brown River nests, which measured 150 x 55 and 155 x 85 mm respectively. In addition, the nests described by Bell *et al.* (1979) apparently lacked a mossy exterior.

The only clutch described for *S. wallacii* (Bell *et al.* 1979) contained two eggs, but it was not known if this number represented the entire brood. Our finding of two nestlings supports the observation of Bell *et al.* (1979) and suggests that brood size is two.

Most malurids exhibit some co-operative breeding and/or delayed dispersal of offspring (Rowley & Russell 1997). In *Sipodotus*, evidence for helpers at the nest, and co-operative breeding is relatively weak. The occasional observation of small group, hypothesized to be family parties, supports the possibility of delayed dispersal of offspring, but neither our observations nor those of Bell *et al.* (1979) provide convincing evidence that more than two individuals provision nestlings. In addition, because of the possibility that *Sipodotus* is a basal lineage, it is reasonable to expect that a derived behaviour such as co-operative breeding might be absent. However, the extent of co-operative breeding in malurids varies by location, time and species (Rowley & Russell 1997), and so it is not possible to draw explicit conclusions on the extent, if any, of co-operative breeding in *Sipodotus* with the limited available data.

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The Pennant-winged Nightjar *Macrodipteryx vexillarius* (Caprimulgidae), its generic status, synonyms and types

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The Pennant-winged Nightjar *Macrodipteryx vexillarius* is a distinctive, Afrotropical caprimulgid, which is currently treated as congeneric with another Afrotropical species, the Standard-winged Nightjar *Macrodipteryx longipennis* (Fry *et al.* 1988, Cleere 1998, 1999, Holyoak 2001). It is a monotypic species, despite having a breeding range covering much of southern Africa, and its taxonomy contains four synonyms, all of which are over 100 years old. As a result of literature and museum studies, the systematics and taxonomy of the Pennant-winged Nightjar are now reviewed, errors in the nomenclature are corrected and the type material identified and documented.

Generic status

Originally named *Semeiophorus* (*Macrodipteryx*?) *vexillarius*, the species was described with a general structure precisely the same as *Macrodipteryx africanus* Swainson (now = *M. longipennis*), but with the form of the wing very different (Gould 1838). *Cosmetornis* was published as a *nomen novum* by Gray (1840), who considered *Semeiophorus* to have been previously used in herpetology and entomology. The Pennant-winged Nightjar was first considered congeneric with *M. longipennis* by Gray (1846), and then continued by Gray (1848), even though no specimens of it were held in the collections of the British Museum (Natural History) (BMNH, now the Natural History Museum) during that period. Recognition of the genus *Cosmetornis* by subsequent authors then varied, but Hartert (1892) listed the structural differences of the wings of *Macrodipteryx* and *Cosmetornis* in a key and recognised *Cosmetornis* on the basis that the differences between the two genera were so important that they could not be united into one. Four years later, the same