

seen incubating eggs first on 11 April 2009 in a nest in a eucalyptus tree, and subsequently four newly hatched chicks were seen on 7 May 2009. On 18 May 2009, the female adult (told by her yellow eyes) brought a five-striped palm squirrel *Funambulus palmarum* to the nest and fed pieces of the squirrel to all four chicks. The following evening there was a dust storm that damaged the nest. The next day, only one chick could be seen in the nest and a male Shikra (told by his red eyes) was seen feeding on one of the chicks near the nest. The female called loudly as the chick was being eaten, and the male flew to the nest tree after eating the chick. This suggested that the male in question was the chick's parent. It was not clear if the chick had been killed by the male or had died during the storm and was subsequently eaten, but we think the latter more probable. The other two missing chicks were not found; since they had not yet fledged, they had clearly been killed during or after the storm. The surviving chick fledged from the nest on 29 May 2009, and continued to use the damaged nest infrequently until 2 June 2009.

Cannibalism by raptors in any form is thought to be rare and incidental to brood reduction (Mock 1984). It may however be deliberate in response to reduced food resources (Roulin *et al.* 1999). During our observations, the area near the Shikra nest had good populations of squirrels and birds, and resources did not appear limiting. Instead, inclement weather appears to have killed the chick. This therefore appears to have been a case of weather-induced chick mortality leading to cronism. While weather-induced mortality of chicks has been documented in other raptor populations (Dawson & Bortolotti 2000), cronism (or scavenging) following such deaths appears to be rare (Moss 1979). Cronism by raptors appears to be far commoner following fratricide (siblings killing each other: Ingram 1959). Published observations of Shikra at the nest are restricted to two nests (Naoroji 2006), and more work is needed on the

species to assess if cronism is commoner than suggested by the literature.

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Swati Kittur, 59 Mandakini Enclave, Alakananda, New Delhi 110017, India. Email: kittur.swati@gmail.com
K. S. Gopi Sundar, Research Associate (India), International Crane Foundation, E-11376, Shady Lane Road, Baraboo, WI 53913, USA

The song of the Dulit Frogmouth *Batrachostomus harterti*

DENNIS YONG and BEN KING

Smythies (1960) stated that 'frogmouths seem to be incapable of making any sound'. At that time, however, few ornithologists, let alone birders, had ever seen an Asian frogmouth and practically nothing was known about them. Joe T. Marshall, Jr., did extensive nocturnal fieldwork in South-East Asia in the 1960s and 1970s, making the first tape-recordings of the Asian frogmouths, which he published in his paper and 33¹/₃ LP record (Marshall 1978). Subsequently, all the other Asian frogmouths have been tape-recorded except for

Dulit Frogmouth *Batrachostomus harterti*, and they have proved to be among the most vocal of nocturnal birds.

In early September 2004, we spent a week in the Kelabit Uplands of north-eastern Sarawak, Borneo, in an attempt to find and tape-record the Dulit Frogmouth. At c.1,060 m, about 04h00 on 4 September 2004, we heard a loud, trumpeting *whoooooooooaaah* which we both knew instantly was the frogmouth. Fortunately, the bird called again and we got a good recording (see Fig. 1)

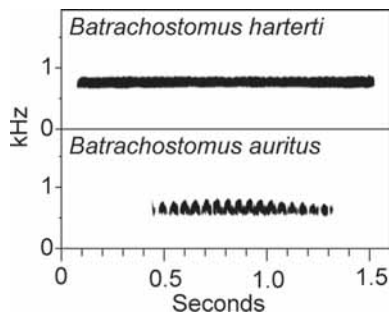


Figure 1. Sonograms of songs of Dulit Frogmouth *Batrachostomus harterti* and Large Frogmouth *B. auritus*. The song of Dulit (recorded by BK at an undisclosed site in the Kelabit Uplands, Sarawak, 4 September 2004) is a loud trumpeting monotone, *whoooooaaah*, quite distinct from the rapid, sonorous, hollow tremolo, *whowhowhowhowhowwhoohooo*, of Large, which is reminiscent of some *Strix* spp. owls (example here recorded by BK at 60 m c. 1 km from headquarters of Gunung Mulu National Park, Sarawak, on 31 March 1978).

as well as good views at about 15 m with 10× binoculars. The following morning we obtained more recordings.

Altogether we tape-recorded eight song-bouts consisting of 1–8 notes each, as well as several other calls uttered in response to song playback. The spacing between songs in a bout was 0.98–2.7 seconds, with most spaces in the lower end of this range, and the few longer spaces at the end of a bout. We heard two birds close at hand, which we presume were a pair, one of which we saw. A third bird was heard in the distance.

The frogmouth was identified by a combination of size, voice, altitude and locality. First, the large size eliminated all the known Asian frogmouths except Dulit and Large *B. auritus*. Second, the two of us have heard a total of around 25 individuals of Large Frogmouth in Borneo, Sumatra and Peninsular Malaysia, and have never heard a vocalisation like this one; further, the birds uttered the vocalisation without apparent provocation, suggesting that it was the song and thus comparable to the known song of Large Frogmouth. Third, the known altitudinal range of Dulit Frogmouth is 300–1,200 m (Smythies & Davison 1999), while Large Frogmouth has been found only in lowland forests in Borneo ('lowlands ... below the

steep boundary': Smythies & Davison 1999), and it is also known only from lowland forests in Sumatra (van Marle & Voous 1988, MacKinnon & Phillipps 1993) and the Malay Peninsula (Wells 1999). Fourth, the Dulit Frogmouth has been collected in the Kelabit Uplands while the Large Frogmouth has not. All this does not prove beyond every doubt that the bird we tape-recorded and observed was a Dulit Frogmouth, but the evidence is highly indicative. A voucher specimen of a tape-recorded individual is, however, desirable.

Smythies (1960) pictured both Dulit and Large Frogmouths and some differences in the two birds can be seen in the paintings. However, BK looked at specimens of the latter and found that extensive plumage variation covered all the differences (and more) seen in the Smythies plates. AMNH has no specimens of Dulit Frogmouth. It may be that vocalisations and perhaps altitude will turn out to be the only way to distinguish these two species in the field.

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Ben King, Ornithology Dept., American Museum of Natural History, Central Park West at 79th St., New York, NY 10024, USA

Dennis Yong, Kingfisher Tours Sdn. Bhd., Suite 1107, 11th Fl., Bangunan Yayasan Selangor, Jalan Bukit Bintang, 55100 Kuala Lumpur, Malaysia

Notes on the roost sites of the Sulawesi Masked Owl *Tyto rosenbergii*

JAMES A. FITZSIMONS

The ecology of most of Sulawesi's owl species is poorly known (Bishop 1989, Holmes & Phillipps 1996, Bruce 1999, Marks *et al.* 1999, Debus 2002, 2009, König & Weick 2008). The recent discovery of new species (Rasmussen 1999, Indrawan & Somadikarta 2004),

limited distributional details on rare or cryptic species (e.g. Mauro & Drijvers 2000) and only recent publication of basic ecological information on widespread and common species highlight this point. This note provides some details on the roosting (and potential breeding)