Observations of Flores Scops Owl *Otus alfredi* on Flores, Indonesia, with a first description of its vocalisations

ROBERT HUTCHINSON, JAMES EATON, BRAM DEMEULEMEESTER and FRANK E. RHEINDT

Flores Scops Owl *Otus alfredi* is a little-known species endemic to the island of Flores, Indonesia. Following uncertainty regarding the taxonomic validity of *O. alfredi* (e.g. Sibley and Monroe 1993), which resulted in omission from world lists of threatened birds and conservation plans (Collar *et al.* 1994), the species status of this taxon has now been confirmed (Widodo *et al.* 1999).

Prior to our observations, Flores Scops Owl was known from only six records: three specimens collected by Alfred Everett in October and November 1896 at Gunung Repok 'and other hills' at c.1,050 m in the Todo mountains of south-west Flores; a single juvenile male mist-netted and collected on 15 May 1994 at 1,400 m on the northern slopes of Poco (= Mt) Mandasawu in the Ruteng mountains; an adult mist-netted on 9 March 1994 near Danau (= Lake) Ranamese at 1,200 m in the Ruteng mountains (and subsequently held in captivity); and a single individual observed at a height of 15 m in the sub-canopy of a tree on the forest fringe of Danau Ranamese in September 1997 (Pilgrim *et al.* 2000). The species's vocalisations have thus far remained unknown.

OBSERVATIONS

Prior to dusk on 20 June 2005, close to the headquarters at Danau Ranamese (8°38′S 120°33′E; Fig. 1) at 1,200 m, RH, JE and BD heard a series of calls. Although distant, we instantly recognised them as being similar to calls recorded by Raf Drijvers during a PHPA/BirdLife/WWF survey during September and October 1998. Although R. Drijvers had not observed those birds, they were believed to be Red-legged Crake *Rallina fasciata*, since the vocalisations matched the description given by Coates and Bishop (1997) and Schmutz (1977, 1978).

At least two birds continued to call distantly; then at c.18h30, shortly after dusk and perhaps in response to playback of R. Drijvers's recordings, they suddenly moved close to our vantage point on the road. A short time later one of the birds was located calling from a small bushy tree c.3 m off the ground; we were surprised to find that the vocalisations were from a small rufous scops owl *Otus* sp.

Over the next 1.5 hours the birds called almost continually and were observed well four times in isolated tall trees close to the roadside at heights of 10–15 m and for 2–5 minutes on each occasion. The birds were identified as Flores Scops Owl based on the following features, all of which conform to the morphological distinctions given by Widodo *et al.* (1999): a small compact scops owl; short, rounded ear tufts; solidly rufous face with distinct white eyebrows but no black border to the facial disk; rufous-brown on the breast and flanks becoming finely vermiculated on the lower flanks and belly; underparts lacking black streaking; solidly rufous upperparts; and rufous-brown wing feathers with distinct white scapular markings and small, well-spaced, pale

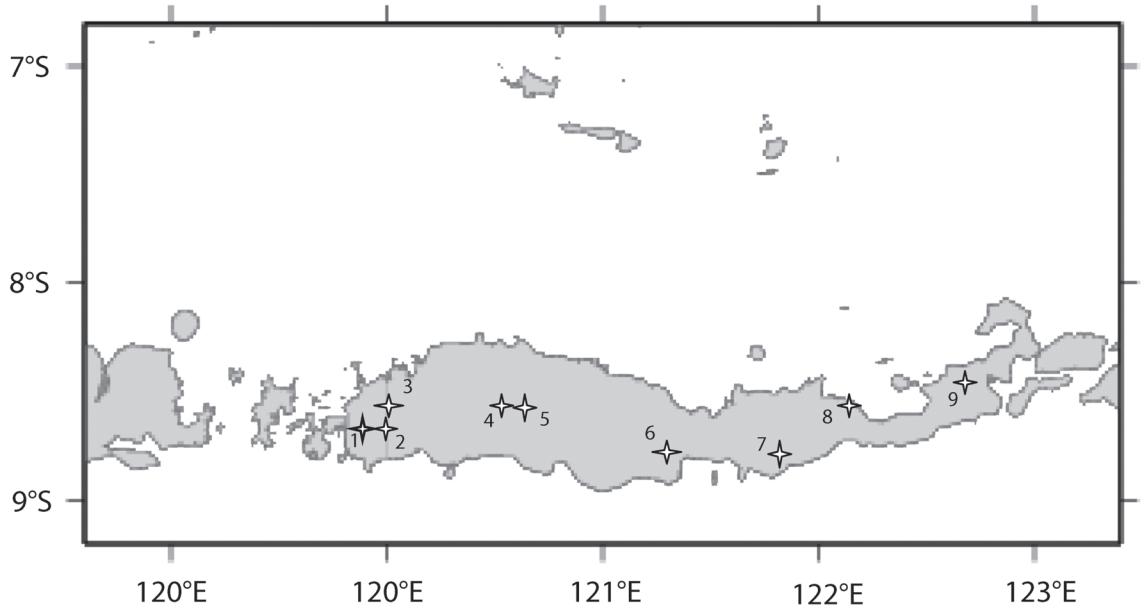

Figure 1. Map of Flores, showing all the localities mentioned in the text; 1: Cerang, 2: Paku, 3: Puarlolo, 4: Poco Mandasawu and Ruteng, 5: Danau Ranamese, 6: Aegela, 7: Keli Mutu, 8: Maumere, 9: Ili Wengot.

notches on the primaries. Additional characters noted include yellow irides, legs and feet.

Our observation took place in the few remnant large trees close to the roadside in an area dominated by scrub and tall grasses. The birds appeared to favour an area of intact primary montane forest on steep slopes c.300 m to the south of the road. Following our initial observations overnight on 20–21 June, we never recorded the birds away from this primary forest during two subsequent visits. On the evening of 20 June and early morning of 21 June, we heard at least one additional bird vocalising distantly. Perhaps the same bird was heard c.500 m along the road in the direction of Ruteng on the evening of 21 June. We had previously heard identical vocalisations c.2 km along the road towards Ruteng at dawn on 17 June. We did not record the species on a visit to the Puarlolo area (c.900 m, Fig. 1) on 23 June where R. Drijvers recorded the vocalisations described above. The species involved in this record remains unknown (see discussion below), but further searches in the area are needed to determine the true distribution and altitudinal range of Flores Scops Owl.

Following our observations, and armed with the vocalisations we had recorded, a minimum of two pairs (four individuals) were heard by other observers during 23–27 August 2005. These included the pair we had previously observed, one of which was seen by the roadside c.300 m towards Ruteng (M. Bauer *in litt.* 2005). On 4 September 2005, one was heard and briefly seen in trees between the headquarters and Danau Ranamese, with another individual heard on the same evening at c.1,350 m near Poco Mandasawu (8°38′S 120°27′E; Fig. 1), c.5 km south of Ruteng and in the same central range of mountains as Danau Ranamese (M. Schellekens *in litt.* 2005).

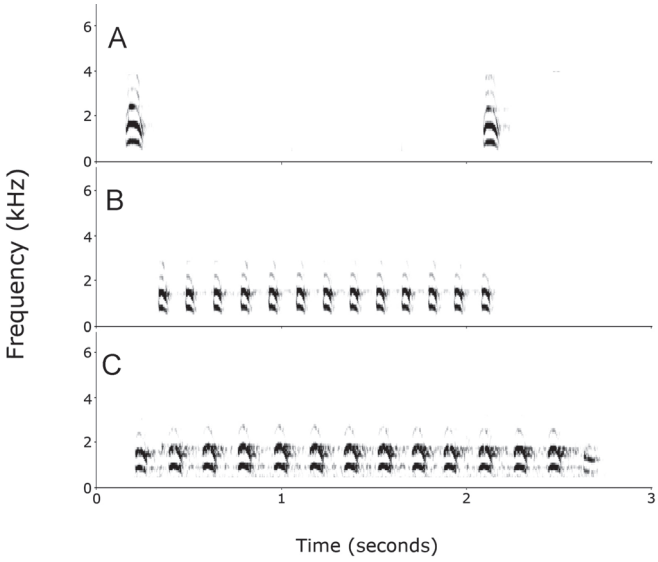

Figure 2. Sonograms generated from three recording made on Flores. (A) Single note calls of Flores Scops Owl *Otus alfredi*, recorded at 1,200 m near Danau Ranamese, Flores, on 20 June 2005 (RH). (B) A series of territorial calls from Flores Scops Owl, recorded at 1,200 m near Danau Ranamese, Flores, on 20 June 2005 (RH). (C) Calls of unidentified species (either Flores Scops Owl or Red-legged Crake *Rallina fasciata*) recorded at c. 900 m near Puarlolo, Flores, on 5 October 1998 (R. Drijvers).

VOCALISATIONS

The vocalisations we recorded can be split into two main types.

Single calls: a single, short sharp call note, transcribed by us as *UH!* was given at intervals of 1.5–2.5 seconds (Fig. 2). Its fundamental frequency is at 0.6–0.9 kHz, with harmonics ranging from 1.5 to 4 kHz. It was often repeated for several minutes at a time, and often by both members of the pair in a duet. Occasionally the call was given by one of the birds and the second would respond with a set of soft clucking notes. Single calls were occasionally interspersed with territorial calls.

Territorial calls: these were the most commonly heard vocalisations and comprised a very distinctive short burst of loud, rapid staccato notes, transcribed as *UH-UH-UH-UH…* (Fig. 2). Each 'phrase' contained 5–13 notes (mean±S.D. = 11.3±2.5, N = 48 phrases) delivered at a rate of 8–10 notes/second (9.1±0.7 notes/second, N = 48 phrases). In fundamental frequency, the individual notes of the territorial call closely resemble the single calls (see above), though they are characterised by less distinct harmonics which range up to only 3 kHz. The phrases were repeated at intervals of 1.5–3.0 seconds for periods of up to 15 minutes.

The territorial calls were often given in duet, sometimes with both birds giving apparently identical calls, although frequently one would give a variation of this call. This was usually a softer version delivered at a lower volume, with both the volume and timing of the individual notes varying within each phrase such that the phrase seemed more stuttering or jumbled. Occasionally the phrase would be given very quietly, sounding like a series of fast clucking sounds.

The calls of Flores Scops Owl are undoubtedly very similar to those of Red-legged Crake. On Flores, pairs of the latter apparently duet at night at intervals of c.5 minutes at least during the breeding season (October–January), and their vocalisations have been described as a staccato series of *gogogogogogogogo* notes, an aggressive and very sharp *girrrr R! R! R! R! R!* and 'a cacophony of scolding sounds when two individuals meet' (Schmutz 1977, 1978). In mainland South-East Asia the territorial call is a loud rapid hard 6–9 note *UH-UH-UH-UH-UH-UH…..* and is often given during the night (Robson 2000, Rasmussen and Anderton 2005).

In 1998, R. Drijvers heard vocalisations similar to those described above at four sites in West Flores: 2–3 birds at c. 350 m near Paku (8°40′S 119°56′E) on 8 October; six birds at c.550 m at Cerang (8°40′S 119°54′E) on 9 October; 5+ heard at c.900 m along the road leading down from the telecommunications tower at Puarlolo in the direction of Labuanbajo (8°35′S 119°57′E) on 5 October; and an unspecified number of birds close to the headquarters and 0.5–1 km along the main road towards Ruteng at c.1,200 m at Danau Ranamese (8°38′S 120°33′E) on 26, 27 and 28 September.

Unfortunately the original sound recordings made by R. Drijvers were lost, but some had already been added to a compilation cassette. A number of these had been recorded at Puarlolo (see Fig. 2), and others are of uncertain provenance: either Danau Ranamese or

Puarlolo. The recordings from Paku and Cerang were lost completely.

In the Puarlolo recordings (Fig. 2), each series comprised 7–18 notes (mean±S.D. = 13.5±2.4, N = 26 series) delivered at a rate of 6–9 notes/second (mean = 7.16±0.9, N = 26 series). This is very similar to our recordings of Flores Scops Owl. Equally, these recordings are almost identical in frequency parameters to those of the territorial call of Flores Scops Owl as taped by us around Danau Ranamese. In most of the recordings from Puarlolo the first and/or last notes of the series were distinctly quieter and softer than all the other notes in the series, i.e. *uh-UH-UH-UH-UH-….-UH-UH-UH-uh*. Single notes were also recorded at Puarlolo; these seem to match exactly the single notes of Flores Scops Owl from Danau Ranamese in both frequency and time parameters.

Recordings of Red-legged Crake made by Craig Robson at Khao Pra Bang Khram, Trang province, Thailand on 1 May 1987 appear to have the quieter notes described above in some of the series, but the recordings are of insufficient quality to confirm this or to analyse the length and rate of the series.

Further study is therefore required to confirm the differences in vocalisations between the two species, and the identity of the birds heard at Puarlolo remains undetermined. Unlike those at Danau Ranamese and Puarlolo, the birds heard at Paku and Cerang made calls described as 'a cacophony of sounds including screeches' reminiscent of *Amaurornis* spp.; therefore, we suggest that these records refer to Red-legged Crake.

ANALYSIS

Despite considerable effort by several ornithologists, the vocalisations of Flores Scops Owl have not previously been recorded. The only prior field observations involved a silent individual (Pilgrim *et al.* 2000), and it had been speculated that the species may be largely silent, or silent during the dry season when most attempts to locate it had been made (Butchart *et al.* 1996).

Red-legged Crake is locally distributed on Flores, occurring up to 650 m (Coates and Bishop 1997). Other than the vocal records described above, the species is known from a single bird collected in December 1888 near sea level at Maumere (8°37′S 22°12′E) by Weber, and several subsequent records below 700 m and all during the period 22 November to 22 March (Schmutz 1978, Butchart *et. al.* 1994, Mees 2006). All the known records of Flores Scops Owl are at c.1,050–1,400 m in the Ruteng and Todo mountain ranges in western Flores. It therefore seems likely that there is no overlap in the elevational ranges of Red-legged Crake and Flores Scops Owl.

It has been suggested that the restricted range of Flores Scops Owl may be due in part to interspecific competition with Moluccan Scops Owl *Otus magicus albiventris* (BirdLife International 2001). In central and eastern Flores, Moluccan Scops Owl has been recorded at higher elevations: up to 1,000 m on Aegela (='Aegila'; 8°45′S 121° 21′E), 1,500 m on Keli Mutu (8°45′S 121°48′E), and 1,000 m at Ili Wengot (8°29′S 122°40′ E) (R. Drijvers *in litt.* 1999). In western Flores it was previously considered to occur up to only 500–600 m in the Ruteng area (Ranamese, Poco Ranaka, Golo Lusang). However, on 27 and 28 June we recorded the vocalisations of at least two Moluccan Scops Owls at c.940 m at the Puarlolo telecommunications tower. Thus if there is competitive exclusion between the two species, Flores Scops Owl might be restricted to the wetter, western part of the island above c.1,000 m.

Our sightings were made in remnant large trees up to 300 m from untouched forest. These trees appeared to form part of the birds' territory, suggesting that Flores Scops Owl may be tolerant of disturbed habitat where it adjoins primary montane forest. However, it is important that increased protection is afforded to the Ruteng Nature Recreation Park (which encompasses Danau Ranamese) and other areas of remaining forest in West Flores. We echo the recommendations by Butchart *et al.* (1996) for the establishment of an upper-elevation evergreen rainforest reserve on Flores, to protect the endemic species (and distinctive subspecies) including 19 of the 25 restricted-range bird species known from Flores (Stattersfield *et al.* 1998, BirdLife International 2001).

It seems likely that a lack of knowledge of the vocalisations of Flores Scops Owl has led to the species being under-recorded. Now that the vocalisations have been described, it is hoped that surveys can be carried out to establish the true status and distribution of this enigmatic bird.

ACKNOWLEDGEMENTS

We would like to thank Raf Drijvers for providing sound recordings from his surveys on Flores, useful references and detailed records of all relevant sightings. Craig Robson kindly provided sound recordings of Red-legged Crake. Both Mikael Bauer and Mark Schellekens provided details of their successful searches following the initial discovery of the birds. We are indebted to two anonymous reviewers for helpful comments.

REFERENCES

BirdLife International (2001) *Threatened birds of Asia*. Cambridge, U.K.: BirdLife International.

Butchart, S. H. M., Brooks, T. M., Davies, C. W. N., Dharmaputra, G., Dutson, G. C. L., Lowen, J. C., and Sahu, A. (1994) Preliminary report of the Cambridge Flores/Sumbawa Conservation Project 1993. Unpublished report.

Butchart, S. H. M., Brooks, T. M., Davies, C. W. N., Dharmaputra, G., Dutson, G. C. L., Lowen, J. C., and Sahu, A. (1996) The conservation status of forest birds on Flores and Sumbawa, Indonesia. *Bird Conserv. Internat.* 6: 335–370.

Coates, B. J., and Bishop, K. D. (1997) *A guide to the birds of Wallacea: Sulawesi, the Moluccas and the Lesser Sunda Islands, Indonesia*. Alderley, Australia: Dove Publications.

Collar, N. J., Crosby, M. J., and Stattersfield, A. J. (1994) *Birds to watch 2: the world list of threatened birds*. Cambridge, U.K.: BirdLife International.

Mees, G. F. (2006) The avifauna of Flores (Lesser Sunda Islands). *Zool. Med. Leiden* 80–3: 1–261.

Pilgrim, J. D., Leadley, J. D., and Saifuddin (2000) *Bird surveys and conservation status of four forests on Flores, Indonesia.* Cambridge, U.K.: CSB Conservation Publications.

Rasmussen, P. C., and Anderton, J. C. (2005) *Birds of South Asia: the Ripley guide*. Washington, D.C. and Barcelona: Smithsonian Institution and Lynx Edicions.

Robson, C. (2000) *A field guide to the birds of South-East Asia*. London: New Holland.

Schmutz, E. (1977) *Die Vögel der Manggarai (Flores)*. Ruteng, Flores: privately published.

Schmutz, E. (1978) *Addenda and corrigenda*. Ruteng, Flores: privately published.

Sibley, C. G., and Monroe Jr., B. L. (1993) *A supplement to the distribution and taxonomy of birds of the world.* New Haven: Yale University Press.

Stattersfield, A. J., Crosby, M. J., Long, M. J., and Wege, D. C. (1998) *Endemic Bird Areas of the world: priorities for biodiversity conservation*. Cambridge, U.K.: BirdLife International.

Widodo, W., Cox, J. H., and Rasmussen P.C. (1999) Rediscovery of the Flores Scops Owl *Otus alfredi* on Flores, Indonesia, and reaffirmation of its specific status. *Forktail* 15: 15–23.

Robert Hutchinson, c/o 26 Sutton Avenue, Chellaston, Derby, DE73 6RJ, U.K. Email: robhutchinson@birdtourasia.com
James Eaton, 17 Keats Avenue, Littleover, Derby, DE23 4EE, U.K. Email: jameseaton@birdtourasia.com
Bram Demeulemeester, Koningin Astridlaan 154, 9000 Gent, Belgium. Email: bram_dm@yahoo.co.uk
Frank E. Rheindt, Genetics Department, University of Melbourne, Victoria, Australia. Email: frankrheindt@yahoo.com.au