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The song of Cinnabar Hawk Owl *Ninox ios* in North Sulawesi, Indonesia

BEN KING

Cinnabar Hawk Owl *Ninox ios* was described by Rasmussen (1999) from a specimen mist-netted by F. G. and C. Rozendaal on the night of 5–6 April 1985 at 1,120 m near Clark's camp (Hill 1,440) in the east-central part of Bogani Nani Wartabone National Park, North Sulawesi, Indonesia (c.0°40'N 123°0'E). Subsequently, a second bird was mist-netted by Lee and Riley (2001) at 19h00 on 14 November 1999 in primary forest at 1,420 m in the Gunong Ambang Nature Reserve in North Sulawesi, about 30 km east of the type locality. The second individual was measured, photographed and released, but no further observations of the species were made. Mauro (2000) recorded one at 1,700 m in Lore Lindu National Park in central Sulawesi on 18 December 1998.

With Jon Riley's help, I visited the site in Gunong Ambang Nature Reserve on 13 and 15 September 2000 with the hope of tape-recording the owl. The species appeared to be common and I tape-recorded one of ten individuals heard on 15 September. Tape playback attracted one individual to within 5 m, where it called repeatedly and allowed excellent views at eye-level through 10× binoculars. The owl was entirely bright rufous with yellow eyes, no distinct facial pattern, and no ear-tufts. It appeared smaller than Ochre-bellied Hawk Owl *N. ochracea*, which has much darker and browner plumage, with a contrastingly paler ochraceous belly.

The song was a hard *wruck-wruck*, the two notes of the couplet being c.0.5 seconds apart (Fig. 1). The individual notes sounded very much like (and were initially mistaken for) the alarm call notes of Large-tailed Nightjar *Caprimulgus macrurus* (and other species in this complex), and harder than the territorial calls of species in that complex. In contrast, the song of Ochre-bellied Hawk Owl is a mellow hollow couplet, *whoo-whoooo*, with c.0.15 seconds between the notes, with the second note being longer and with a rasping quality (see Fig. 1). These vocal differences lend further support to the separation of Cinnabar Hawk Owl from Ochre-bellied Hawk Owl.

Both Rasmussen (1999) and Lee and Riley (2001) expressed some concern that Cinnabar Hawk Owl might be rare. My estimate of ten individuals heard in one night suggests that at this site at least it appears not to be rare. Further, the habitat was a mosaic of primary forest, cleared areas and cultivation, suggesting that the

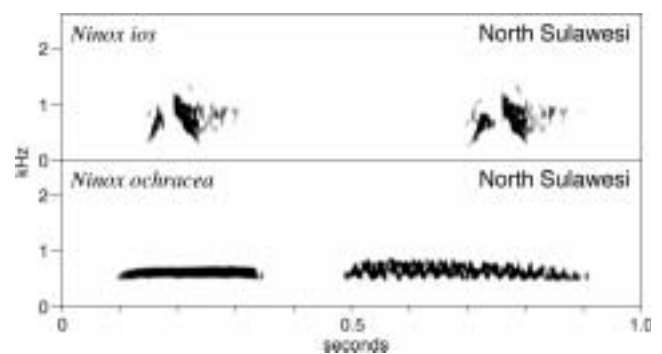


Figure 1. Sonograms of songs of Cinnabar Hawk Owl *Ninox ios* (recorded on 15 September 2000 in Gunong Ambang Nature Reserve, Sulawesi, Indonesia) and Ochre-bellied Hawk Owl *N. ochracea* (recorded in August 1985 in Dumoga-Bone National Park, Sulawesi, Indonesia). The song of Cinnabar Hawk Owl is a hard couplet, *wruck-wruck*, while that of Ochre-bellied Hawk Owl is a mellow, hollow couplet *whoo-whoooo*, the second note with a raspy quality.

species may be able to tolerate degraded habitat to some degree. This would improve the prognosis for its survival.

I believe that 'hawk owl' is a misnomer for the owls of the genus *Ninox*. With their forward-looking eyes, large rounded heads and short tails, they are obviously owls and bear no resemblance whatever to hawks. I prefer the Australian appellation 'boobook' for the smaller members of the genus. Further, I suggest that 'rufous' is preferable to 'cinnabar' as the entire bird is a rich rufous colour, while cinnabar is the mineral from which the pigment vermilion was originally made, which is a different colour to that of the plumage of *Ninox ios*.

ACKNOWLEDGEMENTS

Jon Riley was very helpful in sharing his knowledge of the site. Jeff Groth prepared the sonagrams. I wish to thank John Fitzpatrick and Greg Budney of the Macaulay Library of Natural Sounds at the Cornell Laboratory of Ornithology for the use of tape-recording equipment.

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Cattle Egret *Bubulcus ibis* habitat use and association with cattle

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Cattle Egret *Bubulcus ibis* has a worldwide distribution. In India it is common in a variety of habitats, especially wetlands, throughout the peninsula. Freshwater marshes and paddy fields were identified as the most important foraging habitats by Meyerricks (1962) and Seedikkoya (2004), although there are pronounced seasonal variations in the usage of these habitats. Cattle Egrets are often found associated with cattle and occasionally with pigs, goats, and horses, and also with moving vehicles such as tractors. The birds appear to exploit their 'beating effect' whereby insects and other prey are disturbed by the larger animal (or vehicle) and hence are easier to detect and/or capture.

METHODS

We studied habitat use, association with cattle, and foraging behaviour of Cattle Egrets in Malappuram and Kozhikode districts, Kerala, India, as part of a larger study on the ecology and biology of wetland birds during 2000–2001. Although seven habitats were studied (Table 1), hillock and riverine were excluded from the analysis of habitat use as very few birds were recorded in them.

In each habitat we walked along a fixed route every week, counting all egrets within a 100×100 m area. We

made five counts per day from 06h00 to 18h00. Egrets were defined as associated with cattle if they were found <1 m from an animal and were alert to its movements. We carried out focal observations on randomly selected foraging egrets, during which we recorded number of strikes, successful captures (identified by the characteristic head-jerk swallowing behaviour: Heatwole 1965, Dinsmore 1973, Grubb 1976, Scott 1984) and number of steps in a two-minute period. Assuming that the size and quality of food gathered by egrets associated with cattle or alone is the same, we used the number of steps taken for each successful capture to assess the energy expenditure per capture of foraging egrets. Means are shown with ± 1 standard deviation. One-way ANOVAs were used to test the significance of differences between capture rates, strike rates and steps per capture for foraging egrets associated with cattle or alone.

RESULTS

In the study area Cattle Egrets mixed with Intermediate Egret *Mesophoyx intermedia*, Little Egret *Egretta garzetta* and Indian Pond Heron *Ardeola grayii* in groups of hundreds of individuals, roosting at night in large rubber plantations. They left roosts at

Table 1. Salient features of habitat types.

Habitat	Location	Features
Paddyfield	Mampad, Malappuram district, 11°14'24"N 76°11'47"E	10 ha; first crop: Jun–Sep; second crop: Oct–Feb
Grass	A: Vadapuram, Malappuram district, 11°15'21"N 76°11'58"E; B: Mampad College, Malappuram district, 11°14'17"N 76°11'47"E	A: 10 ha; abandoned paddyfield overgrown with grass; floods in monsoon; B: 10 ha, unirrigated, uncultivated dry open land; wetter in monsoon
Jheel (shallow water body)	Azhinjilam, Malappuram district, 11°11'56"N 75°52'5"E	30 ha; flooded Jun–Nov; max. 2 m deep
Plantation	Pongallur, Mampad Panchayath, Malappuram district, 11°14'6"N 76°10'24"E	10 ha; rubber plantation, sparse ground vegetation
Hillock	Pongallur, Mampad Panchayath, Malappuram district, 11°14'1"N 76°10'20"E	5 ha; grass, shrubs and trees used for grazing cattle Oct–Jan
Riverine	Karimpuzha River, Nilambur Panchayath, Malappuram district, 11°18'20"N 76°15'8"E	10 ha; scanty vegetation on exposed banks maximal in Mar–Apr
Waste dump	Njaliyanparambu, Kundayithode, Kozhikode, 11°12'2"N 75°48'60"E	15 ha; municipal waste-dumping site; waterlogged Jun–Sept