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Ma Ming, *Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, 40 Beijing Road, Urumqi 830011, Xinjiang, People's Republic of China. Email: maming@ms.xjb.ac.cn*

Kwok Hon Kai, *Hong Kong Bird Watching Society, G.P.O. Box 12460, Hong Kong, People's Republic of China. Email: hkbws@hkbws.org.hk*

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Unexplored Philippine forests as revealed by point-locality mapping

N. A. D. MALLARI, M. J. CROSBY and N. J. COLLAR

The Philippines has extremely high levels of both endemism and endangerment in its fauna and flora (Mittermeier *et al.* 1999), and in many respects it is relatively well-explored and documented, at least in ornithological terms (see Dickinson *et al.* 1991). Even so, while almost all islands have received some coverage, many parts of the larger islands have received little or no attention. A number of tracts of forest—the habitat in which the great majority of terrestrial biodiversity resides, and which has suffered the most catastrophic contraction in extent—fall into this category, and our aim in this paper is to highlight certain among them which are likely to prove important for threatened birds and other species.

As part of the process of identifying key areas for bird conservation from data on the distribution of threatened species, an outline map of the Philippines was overlaid with (1) all point-localities where threatened species have been recorded (from Collar *et al.* 1999, including, for convenience, and since it would not impact on the result, non-forest localities), and (2) areas of remaining forest cover as identified by satellite in 1987 and published in SSC (1988)—the same source as used for Plate 4 in Dickinson *et al.* (1991). The result is given in Fig. 1. We identify unexplored forests (boxed areas) wherever the map indicates forest but few or no point-localities.

We acknowledge three potential drawbacks to this very simple exercise. First, threatened species records are a biased sample of all bird records. However, since the 70 threatened bird species in the Philippines occur on all major islands, and since they are in general likely to remain remote from centres of human economic activity, occupying the least-disturbed habitats, the bias

is probably insignificant with respect to areas of remaining forest. Moreover, although many threatened species are 'rare' in the sense of being uncommon even within intact habitat, this is not universally the case. Therefore we feel fairly confident that areas of forest that possess no records in Collar *et al.* (1999) have probably never or only fleetingly been surveyed for birds. Second, the forest cover map data are today 17 years out of date, and subsequent deforestation has been rapid but uneven, so we cannot know if all the forest areas identified on Fig. 1 remain. Moreover, the quality of remaining forest is hard to predict. Even so, we know that some of it, at least, is still standing and in reasonable condition, because (a) as part of the process of selecting Important Bird Areas (IBAs)—most of which these sites are—information on habitat quality in the least-known areas was sought from local officials and IBA status only conferred where quality was reported as high (Mallari *et al.* 2001: 44), (b) we checked the areas against modern road maps and found little evidence of new access, and (c) recent Haribon surveys of Balbalasang, Samar and the Mt Kaluayan–Mt Kinabalian complex confirm that all three remain very largely as mapped in 1987. Third, we would not wish to minimise the potential importance of much smaller areas of forest which may never have been visited by an ornithologist (or may only have been visited in the distant past), as for example occur on Jolo, Basilan, Masbate and Burias.

We discriminate 15 forested areas which show up as ornithologically neglected and which seem to us to be of considerable significance, mainly on the basis of their size and also often because of their isolation. All of them are at least partly montane, but some are at

least partly lowland—a crucial factor, since many threatened Philippine birds are lowland forest specialists which disappear or become much rarer above certain elevations (generally 1,000–1,500 m). Here we provide brief profiles of them (as numbered in Fig. 1) based in part on Mallari *et al.* (2001). IBA code numbers are given where they exist; CENRO-Ipil, DENR, GEF, PAWB and PICOP stand respectively for the Community Environment and Natural Resources Office in Ipil, Department of Environment and Natural Resources, Global Environment Facility, Protected Areas and Wildlife Bureau, and Paper Industries Corporation of the Philippines.

1. Mt Aqualama–Mt Lambayo complex, Cordillera Central, extreme north-west Luzon, covering Ilocos Norte, Kalinga, Apayao and Abra provinces. We are unaware of any study of this very substantial area, and cannot confirm either quality or quantity of remaining forest (see Mallari *et al.* 2001: 451).

2. Balbalasang area, Cordillera Central, north-west Luzon (IBA 3). Despite the existence of a national park in part of it (Balbalasang-Balbalan National Park, 178 km²), this area of the northern Cordillera Central remained almost entirely unknown until the year 2000, when, prompted by the original exercise reported on here, several visits were made by various groups, one of them a Haribon Foundation team, confirming the existence of major tracts of evergreen forest starting from around 700 m. Fauna was sampled on different elevational and disturbance gradients (at 900 m in open areas; at 1,025 m in mature lower montane forest; at 1,050 m in mixed dipterocarp and pine; and at 1,800 m in mature transitional montane-mossy forest; see the photographs in Delgado and Oshima 2001: 140–159). Several bird species recently deemed threatened, such as Philippine Eagle Owl *Bubo philippensis*, Whiskered Pitta *Pitta kochi*, Luzon Water Redstart *Rhyacornis bicolor* and White-browed Jungle

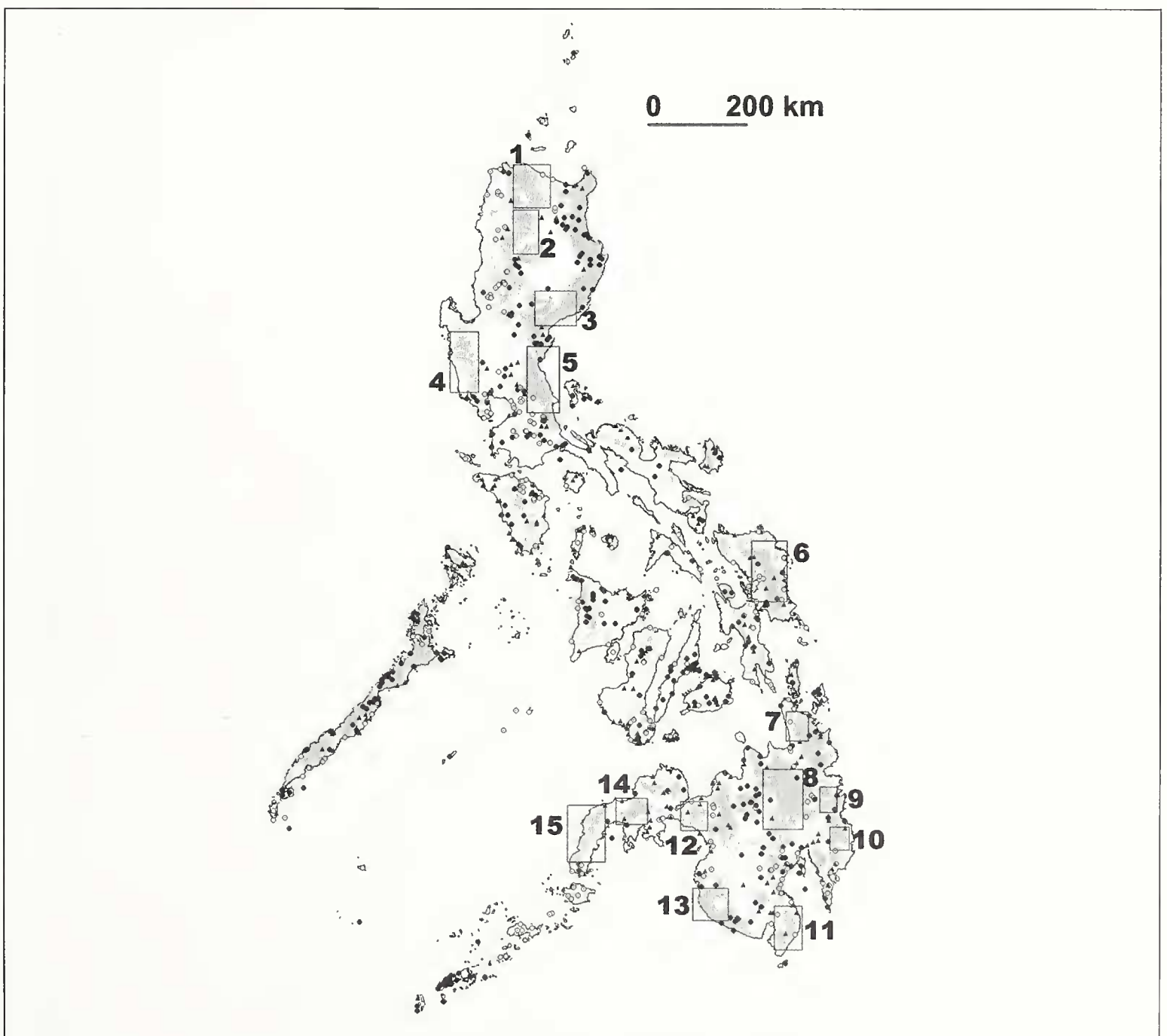


Figure 1. Map of the Philippines displaying (1) point-localities for threatened bird species and (2) forest cover (grey-shaded areas) based on SSC (1988) (records since 1980 are black dots; from 1950 to 1979 black triangles; and before 1949 open circles) based on Collar *et al.* (1999). Numbered rectangles refer to areas listed in text.

- Flycatcher *Rhinomyias insignis*, were found to be common, as were certain others that elsewhere in Luzon are considered rare or uncommon, including hornbills, racquet-tail parrots, Philippine Trogon *Harpactes ardens* and, most notably of all, the Philippine Eagle *Pithecophaga jefferyi*—the first record from the main body of the Cordillera Central (Heaney *et al.* 2000). Other biological revelations included five new species of amphibian, two new species of reptile, 20–25 new species of earthworm, and a probable new species of rodent (Heaney *et al.* 2001, A. C. Diesmos verbally 2002, L. R. Heaney verbally 2002).
3. Central Sierra Madre in the provinces of Quirino and Aurora, Luzon. We are unaware of any study of this extensive area other than in Maria Aurora Memorial Park (IBA 17; see Mallari *et al.* 2001: 161–168, 452). From the map, it seems that lowland forest comprises a substantial proportion of the area.
 4. Zambales Mountains, western Luzon (IBA 5). Some valuable observations on birds were made during a preliminary biodiversity survey in 1992 (Kennedy and Ruedas 1992) but these were not published or followed up. The survey took place shortly after the Mt Pinatubo eruption (in 1992), when the area was highly impacted by ash deposition. On the north slope of the High Peak range, the habitat at 800–1,100 m was lower montane; on the south slope the team made camp at 1,550 m in upper montane or mossy forest where ‘virgin timber predominated and very little bamboo or other secondary or disturbance-indicator species were observed’ (Brown *et al.* 1996; see the photographs in Delgado and Oshima 2001: 56–65).
 5. Mt Irid–Mt Angilo (IBA 20). Lying east of Angat Dam (IBA 19) and south of Mt Dingalan (IBA 18), this very substantial area, although mostly lowland, constitutes the southernmost reaches of the Sierra Madre spine. However, mountaineers and hikers report that much of it may have been logged.
 6. Central Samar (IBAs 73–74). The Philippine Eagle account in Collar *et al.* (1999) revealed a surprising lack of recent information from Samar, although we were aware that the persistence on the island of both extensive forest and a communist insurgency was a quasi-symbiotic phenomenon. In July 1998, a Haribon Foundation expedition to confirm the survival of the eagle on Samar found an active nest of the species (Mt Nahulupan, Barangay San Rafael, Eastern Samar, 11°51'N 125°17'E), and recorded the threatened Mindanao Bleeding-heart *Gallicolumba criniger*, Philippine Dwarf Kingfisher *Ceyx melanurus* and Little Slaty Flycatcher *Ficedula basilanica*, plus the Data Deficient Miniature Tit Babbler *Micromacronus leytensis* (Haribon Foundation 1998a), although these data have yet to be formally published. Overlays of topographic features, land-use patterns, vegetation cover and threatened bird range maps showed much of central Samar to be covered by continuous lowland forest (the highest point being below 1,000 m), yet, discounting the tiny Sohoton Natural Bridge National Park (basically highlighting a rock formation), this large tract was entirely missed in the initial government programme that identified areas for protection in the early 1990s (see also Collar and Rudyanto 2003). This evidence, plus the Haribon eagle survey report, induced the Philippine authorities (PAWB-DENR) to establish the GEF-backed Samar Island Biodiversity Project, with the faunal study component led by the Haribon Foundation.
 7. Northern slopes of Mt Hilong-hilong (IBA 83). Much of this area is presumed to be montane forest, but some lowland tracts could also remain. Little is known about the extent of forest cover and no information exists on the fauna of the area.
 8. Mt Kaluayan–Mt Kinabalian complex (IBA 92). This is at once the largest and least-known tract of forest on Mindanao and its identification through the mapping work was deemed so interesting that action was taken even before the publication of Collar *et al.* (1999). A baseline biodiversity survey was conducted in October 1998. The base camp was located on the north-western side of Mt Kaluayan (Lumot) that is part of Gingoog City at 1,172 m (8°41'N 125°02'E). Primary forest with montane vegetation occupies the lower to mid-slopes, with mossy forest (*lumot* is the local word for moss) at the top, and most of the Philippine and Mindanao endemics encountered proved common, especially the Philippine Eagle Owl and (Near Threatened) Mindanao Lorikeet *Trichoglossus johnstoniae* (Haribon Foundation 1998b). Relatively little forest reaches lower elevations, but even so, several extremely important tracts of lowland dipterocarp may exist (one such was discovered in 1998; Mallari *et al.* 2001: 373).
 9. Mt Agtuuganon–Mt Pasion complex (IBA 87). This area is a mix of rather flat, low-lying terrain and rugged terrain. Most of the lowland forests to the north-east (which includes the ornithologically important PICOP concession) is probably severely degraded owing to logging, plantation farming and nearby mining (Diwalwal), but the avifauna of this part of Mindanao, whose easternmost areas receive the highest annual precipitation, is notably rich, and remaining pristine forest is likely to be of great importance in future conservation.
 10. Mt Puting Bato–Kampalili complex (IBA 88 excluding Mt Mayo). This area is rugged terrain which would consist mostly of montane forest, but we can only infer its importance from our knowledge of adjacent Mt Mayo.
 11. Mt Latian complex (IBA 106). Most of the bird information associated with this area derives from D. S. Rabor’s 1966 unpublished collecting expedition on Mt Tuduk in Datal-Bukay, Glan Cotabato, although this was also the area where Gonzales (1968) made his pioneering study of a Philippine Eagle nest. Gonzales (1968) referred to widespread timber-cutting near his nest in the mid-1960s; even so, and despite its relatively small size, the block may yet include a fair proportion of lowland forest.

12. Forest around Lake Lanao, including Munai/Tambo (IBA 96) and Mt Piagayungan (IBA 98). Munai/Tambo is presumed to hold considerable lowland forest but the Piagayungan area is probably montane. Very little is known about the faunal composition.
13. The Daguma Range (including IBA 103 and part of 105). This area lies immediately north-west of Mt Busa, Mt Parker and Mt Three Kings. Several peaks reach over 1,000 m and Mt Busa reaches over 2,000 m. Lake Sebu lies on the flank of the mountains, but although this and the nearby village of Sitio Siete are popular if remote birdwatching sites, the area in general is very poorly known.
14. The Sugarloaf–Pinukis complex (IBA 109). Most lowland forest may have been degraded through logging and kaingin. The immediately adjacent Mt Pinukis, covering more than 20,000 ha, seems to have better forest cover (Haribon Foundation 1998a).
15. Lituban–Quipit watershed (IBA 111). Most of the area here is relatively low-lying, just a few hundred metres above sea-level, but one peak reaches over 1,000 m. Recent forest cover maps show several substantial tracts in this area, and CENRO-Ipil (undated) report that the forest covers a huge area there and starts from within 5 km of the highway. Much of it must be lowland in type, with some montane areas around the highest peaks.

It is obvious that the forest cover map does not need point-locality data to reveal important areas of forest, and that experienced Philippine researchers will know at a glance whether many such areas are explored or not. Even so, assumptions about the status of species, based passively on low numbers of records, are often made and often mistaken: absence of evidence is not evidence of absence. In the Philippines this is best illustrated by the case of the Cebu Flowerpecker *Dicaeum quadricolor*: in the absence of evidence of surviving forest in the 1950s, the species was judged extinct, with the unfortunate result that by the time of its rediscovery in 1992 its forest habitat, actually quite extensive but simply overlooked in the 1950s, had dwindled to near-zero (Collar 1998; also BirdLife International 2001). Discounting other taxa from Cebu generally considered subspecies—a few of which remain lost to sight despite new interest in Cebu forest birds (see Brooks *et al.* 1995, Magsalay *et al.* 1995, Mallari *et al.* 2001)—there are only two other cases in the Philippines where the long loss of a species is based on the presumed long loss of its habitat, namely Negros Fruit Dove *Ptilinopus arcanus* and Sulu Bleeding-heart *Gallicolumba menagei* (Brooks *et al.* 1991, Collar *et al.* 1999), and even these may yet be found to survive in very small numbers.

The forest patches disclosed by this exercise are therefore not going to reveal 'lost' species. Moreover, they are unlikely to hold new species of bird to science, although isolated areas such as the Zambales Mountains and Zamboanga Peninsula might hold a few taxonomic surprises. For the most part, however, the interest in these forests is that they probably all sustain significant populations (and in some cases,

given their size and relative isolation from human settlements, they may be strongholds) of threatened species. All areas, apart from the Zambales Mountains, are within the known range of the Critically Endangered Philippine Eagle *Pithecophaga jefferyi* (see map in Collar *et al.* 1999: 118), and it is greatly to be hoped that this species will prove to be present in all of them (but accepting that it is likely to be absent or transient in tracts above c.1,200 m). Resident and visiting birdwatchers, biologists and conservationists are warmly encouraged to consider visiting these areas to determine and report on the status of the habitats and of the biota they contain.

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N. A. D. Mallari, Haribon Foundation for the Conservation of Natural Resources, 4/F Fil Garcia Tower, 140 Kalayaan Avenue and corner of Mayaman Street, Diliman, Quezon City 1101, Philippines.

Email: naldrin_mallari@yahoo.com

M. J. Crosby, BirdLife International, Wellbrook Court, Girton Road, Cambridge CB3 0NA, U.K.

Email: mike.crosby@birdlife.org

N. J. Collar, Conservation Biology Group, Department of Zoology, Downing Street, Cambridge CB2 3EJ and BirdLife International, Wellbrook Court, Girton Road, Cambridge CB3 0NA, U.K. Email: nigel.collar@birdlife.org

Description of the nest and nestling of Great Eared Nightjar *Eurostopodus macrotis* from Luzon, Philippines

J. S. STRIJK

During March and April 2002, I conducted fieldwork 6–7 km north-east of Masipi-East, Barangay Masipi-East, Cabagan municipality, Isabela province, on north-east Luzon, Philippines (17°38'N 121°87'E). The area is submontane (100–300 m) and characterised by extensively grazed grasslands with gallery forest fragments. Fragments are heterogeneous in composition as well as structure and have a mean canopy cover of 70%, a mean canopy height of 13 m, and c.20% cover at a height of 1.5 m.

On April 2, in a small area of semi-closed forest, I flushed a nightjar from the ground, which I identified as Great Eared Nightjar *Eurostopodus macrotis*, a species that I am very familiar with in the Philippines. This particular fragment was open on two sides, with clear access to the surrounding grasslands. Close examination of the leaf litter on the forest floor revealed a single nightjar chick lying motionless amongst dead and dry leaves.

The nest consisted of dead leaves, but was barely distinguishable from the surrounding leaf litter. The chick measured c.9 cm from bill to tail. The throat, breast and cheeks were covered with a warm chestnut-brown down, and the upperparts and nape with beige to yellowish-brown down. The back, upperwing and tail were light brown. The bill was greyish with a black tip. The nestling made no sound or movement, and kept its eyes almost closed. The head was slightly tilted backwards, with the bill pointing up at a 30–40° angle (Plate 1).

Great Eared Nightjar is a common resident in the Philippines, easily identified from other nightjar species in the Philippines in flight by its size, ear-tufts and the lack of white patches in wing and tail (Cleere

and Nurney 1998, Kennedy *et al.* 2000). However, its nest, eggs and chicks had not been previously described.

On a separate note, the species is commonly reported to be crepuscular i.e active at dusk and dawn. It is indeed active at twilight, but it is also active during the night. Its characteristic call (a sharp 'tsiik', followed after a short pause by a two-syllable 'ba-haaaww') was heard every evening and night.



Plate 1. Great Eared Nightjar *Eurostopodus macrotis* chick, Masipi-East, Isabela province, Luzon, Philippines, April 2002.