

ANALYSIS FROM *THREATENED BIRDS OF THE PHILIPPINES (1999)*

The biological richness of the Philippines

The Philippines is a relatively small country of some 300,000 km²—astonishingly, this is slightly smaller than the islands of Britain and Ireland together—but is one of the planet's most significant “biodiversity hotspots” and priority areas for conservation (Mittermeier 1988, Myers 1988a,b, 1990). The biotic richness of the 7,100 islands is exceptional; large numbers of species occur in the Philippines which are found nowhere else in the world.

The level of biological endemism in the Philippines is without equal even within the Indomalayan biogeographic realm, itself one of the most biologically rich and distinct regions in the world (Oliver and Heaney 1996). Of the 8,500 identified plant species, 3,700 (44%) are endemic to the country (Tan *et al.* 1986, Madulid 1987). Of the 180 native terrestrial mammal species in the Philippines, 110 (61%) are endemic (in Madagascar the equivalent numbers are 100 native and 80 endemic mammals, distributed in twice the Philippines' land area) (Heaney *et al.* 1997). As many as 63% of its 252 species of reptile and 53% of its 96 species of amphibian are endemic (IUCN 1996). Amongst the birds (here counted according to Dickinson *et al.* 1991, with minor taxonomic modifications based largely on Sibley and Monroe 1990, 1993), of the Philippines' 576 recorded species the number that are found nowhere else in the world is 192 (33%): the equivalent figure for Britain and Ireland combined, discounting a few taxonomically disputed forms, is zero.

Avian endemism between islands and island groups in the Philippines has been examined in detail, and again reveals the remarkable global significance of the country. In an exercise intended to identify critical areas for biodiversity conservation, BirdLife has plotted the distributions of all bird species in the world with ranges of less than 50,000 km² (“restricted-range” species); and wherever these ranges overlap they have been combined to establish the limits of an “Endemic Bird Area” or EBA (ICBP 1992, Stattersfield *et al.* 1998). Altogether seven EBAs exist in the Philippines. This is not the largest number of EBAs for any country (in fact the Philippines ranks only eleventh in the world on this factor), but the total number of restricted-range species identified by this exercise is 126, which takes the Philippines into seventh place in the world, and if only those restricted-range species are counted (121) which are *endemic to one country* then the Philippines moves into second place.

Trends and factors in the endangerment of Philippine birds

Unfortunately, the endangerment of the Philippine fauna is similarly almost without equal. Thirty-two percent of the country's mammals are under threat of extinction; only seven countries have more globally threatened mammals (IUCN 1996). Fifteen percent of the country's total avifauna face the same threat, a higher rate than any other country in the world (IUCN 1996). As E. O. Wilson (1992) has remarked, “This island nation is at the edge of a full-scale biodiversity collapse”.

In *Birds to watch 2* (Collar *et al.* 1994) the Philippines was ranked third in the world in terms of the number of globally threatened species it holds. The country's total of 86 threatened species—also listed in Tabaranza and Mallari (1997)—was lower only than Indonesia (104) and Brazil (103). When consideration was given to the upper levels of endangerment within the threatened species list (i.e. those taxa considered Critically Endangered and Endangered), the Philippines moved up to second in the world, with 45 such species, only marginally behind Brazil (47 species) and some way in front of Indonesia (20 species). And when attention was

focused on which of these most endangered species are single-country endemics, the Philippines emerged as *the world's most important country*, with 40 endemic bird species listed as Critical or Endangered, a total 25% higher than second-placed Brazil with 32 species. Similarly, when the number of "restricted-range" species that are also threatened is compared with other countries, the Philippines comes out top of the global list, with 66 such species (Stattersfield *et al.* 1998).

The point of such an analysis is to identify the countries of the earth which have the most urgent bird species conservation tasks before them and the "ultimate responsibility" for undertaking them. In this regard the Philippines emerged as facing the most unenviable of challenges: 40 highly threatened birds needing immediate attention, and no other nation to share the burden. This is very considerably worse than the equivalent situation facing the USA, with all its wealth of financial resources, technical advancement and broad expertise.

With the start in 1995 of the BirdLife Asia Partnership project to produce a Red Data Book, *Threatened birds of Asia*, it was immediately apparent that attention should first be given to the Philippines, in order to clarify and document in greater detail the listings in *Birds to watch 2*, which only provided outline data on the species it treated. Indeed, such was the importance of the Philippines and the plight of its avifauna that a separate volume devoted to the country was decided on (although it should again be emphasised that this is still part of the global series of BirdLife Red Data Books, and all the species that are treated herein are judged by IUCN's global criteria).

Analysis of this volume reveals that since 1994, with the gathering of old information in much greater depth, and with the influence of much new information from workshops and correspondence, the number of threatened species in the Philippines and the intensity of their status has very slightly diminished. This is not particularly surprising: as already noted, it is a principle of the IUCN Red List that precaution should govern decisions on the listing of borderline species, and it is inevitable that a proportion of such species will prove to have been commoner and more secure than feared, once fuller data have been assembled. The 1998 situation is, of course, welcome but it cannot be interpreted as an improvement resulting from conservation achievement.

Changes in species classification 1988–1998

Ten years ago, in a very preliminary review of the situation in the Philippines, Collar and Andrew (1988) listed a total of 42 species of bird threatened with extinction, 34 (81%) of them endemic. These numbers more than doubled in the second edition of this global review (Collar *et al.* 1994), with a total of 86 species, 75 (87%) of them endemic.

The cause of this fluctuation in estimated numbers of threatened species in the Philippines lies in fairly dramatic changes in the information base. In 1987 when the first *Birds to watch* was drafted, the Philippines were still very little known to birdwatchers, and no satisfactory recent list of the avifauna existed; so Collar and Andrew (1988) were compelled to rely very heavily (and very gratefully) on information and judgements from two main correspondents, T. H. Fisher chiefly for the northern islands and R. S. Kennedy chiefly for the southern islands. The publication of Dickinson *et al.* (1991) made a considerable difference, generating enormous new interest in the Philippine avifauna both inside and outside the country. Bird tours began regular visits, and much new scouting of areas was undertaken by an increasingly confident and broad constituency of observers. Moreover, the combined effect not only of Dickinson *et al.* (1991) but also of Sibley and Monroe (1990) was to indicate that many more species with apparently highly restricted ranges and probably highly endangered habitats were present in the Philippines than had been considered in the first *Birds to watch*. The timing of *Birds to watch 2*, when the new wave of ornithological investigations was gathering momentum, was such that knowledge of these many new additional candidates for treatment was still in its infancy: on a precautionary basis, given that few observers seemed to be able

to make contact with them, many of these species were listed, entirely legitimately, as at risk of extinction. Now, however, after another four years in which much more fieldwork and much more consultation has taken place (notably within the Philippines themselves), the information base has begun to broaden out, with the consequence that precaution over conservation status has steadily been replaced by confidence.

Most species affected by this process have dropped from threatened to Near Threatened: the Luzon Wren-babbler *Napothera rabori*, which tape-recording has shown to be fairly common, is a case in point. However, at least two species, Cryptic Flycatcher *Ficedula crypta* and Bagobo Babbler *Trichastoma woodi*, have been found, by mist-netting and small-mammal trapping respectively, to be extremely common (CMNH register data), and therefore drop out of threatened listings altogether. This does not mean they should never have been red-listed: on the contrary, it is always appropriate to red-list a species which is poorly known, when there are reasonable grounds for believing that their elusiveness might reflect real rarity caused by man, and in all three of the above cases it was not at all clear that habitat destruction might not have lain behind their poor encounter rates with observers.

One other important factor affecting numbers treated as at risk is taxonomy. The trend towards a general “unlumping” of taxa has continued through the 1990s, and indeed has been fuelled by field experience of certain forms. Thus there were more species to review in 1994 than in 1988 as a result of taxonomic splittings, and there were more still in 1998 than in 1994. It is therefore again a measure of the influence of knowledge in replacing the precautionary principle that, despite this trend, the number of threatened species actually fell rather than rose in this most recent review.

Distribution of threatened Philippine birds

This book reveals 73 Philippine species to be under global threat of extinction. Nine (12%) of these are merely vagrants or nationally extirpated species. If these anomalous cases are discounted we are left with 65 threatened species naturally and regularly occurring in the country, of which 58 (89%) occur nowhere else in the world and 53 (81%) have a “restricted range” of 50,000 km² or less (Stattersfield *et al.* 1998). The six non-endemic threatened species include one breeding bird, and five species for which the Philippines provides important winter quarters. An additional 56 Near Threatened species, 40 (71%) of which are endemic, almost qualify under the IUCN criteria, and will surely do so soon should the destruction and degradation of the country’s natural habitats continue at their present rate.

About one-third of all bird species recorded in the Philippines are endemic, and of these around half are classified as threatened or Near Threatened (see Figure 1). In contrast, the vast majority of widespread species that occur in the country are in the Low Risk category. Endemic species are thus the primary focus of conservation in the Philippines.

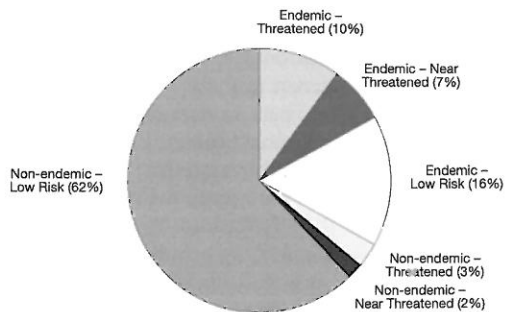


Figure 1. The relationship between endemism and endangerment. The full list of birds recorded in the Philippines is first separated into endemic and non-endemic species, which are then divided according to their conservation status.

Endemic Bird Areas (Stattersfield *et al.* 1998) are useful ways to assess distribution patterns of threatened birds: all but one of the country's threatened endemics (Streak-breasted Bulbul *Ixos siquijorensis*) occurs in one or more EBA. Mindanao (plus the Eastern Visayas) and the Western Visayas have the highest number of threatened endemic species (see Table 1), and thus justify considerable conservation effort. If the degree of endangerment is considered, the importance of Cebu, Mindoro and the Sulu archipelago becomes apparent: they contain particularly high proportions of critically threatened species (see Table 1) whose survival depends on immediate and effective protection. The small size and heavy degradation of these EBAs underlie this trend. Species endemic to Luzon and Palawan tend to be more secure, a reflection of the greater total area of natural habitat remaining on these islands.

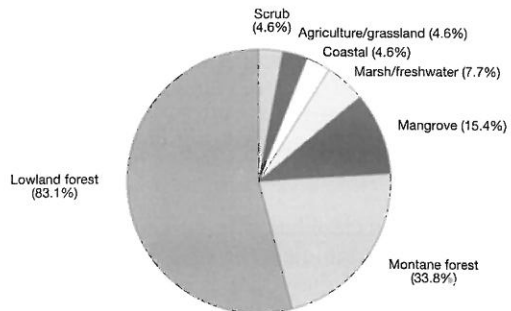
Endemic Range	Total	Threatened species			Data Deficient
		Critical	Endangered	Vulnerable	
Luzon only	7		1 (14%)	4 (57%)	2 (29%)
Mindoro only	4	2 (50%)	1 (25%)	1 (25%)	
Western Visayas only	10	3 (30%)	5 (50%)	2 (20%)	
Cebu only	2	1 (50%)	1 (50%)		
Mindanao and Eastern Visayas	11		1 (9%)	9 (82%)	1 (9%)
Palawan only	5			5 (100%)	
Sulus only	5	3 (60%)	1 (20%)	1 (20%)	
Wider Philippines	15	2 (13%)		12 (80%)	1 (7%)

Table 1. The distribution of threatened birds endemic to the Philippines, with breakdown by IUCN classifications.

Habitats of threatened Philippine birds

An analysis of the habitat preferences of threatened birds in the Philippines indicates the overwhelming significance of forest habitats for their conservation (see Figure 2). Fifty-nine of the 65 threatened species (91%) occur mainly in forest habitats. The great majority of the native birds of the Philippines depend on the country's forests for their survival; only two threatened or Data Deficient endemics (Brown-banded Rail *Lewinia mirificus* and Luzon Buttonquail *Turnix worcesteri*) are known or believed not to be forest birds, although their habitat requirements remain a matter of speculation. Fifty-four threatened species inhabit lowland and mid-altitude forest (roughly below 1,000 m), 37 (57%) of them exclusively; 22 species inhabit montane forests (roughly above 1,000 m), six (9%) of them exclusively; and 17 (26%) species occupy altitudinal ranges that encompass both zones. These figures reflect the distribution of remaining habitat. As lowland forest has been destroyed at a much higher rate than montane forest, species reliant on the former tend to be rare. Many have already been pushed to the upper limit of their known altitudinal range, occupying what may for them be suboptimal habitat at reduced densities. *It is thus on the protection of lowland forests that conservation resources should chiefly be targeted.*

Figure 2. The proportion of threatened birds (discounting vagrants and introduced species) occupying different habitats on the Philippines. Note that these are not necessarily exclusive: some species utilise several habitats whilst others are confined to just one.

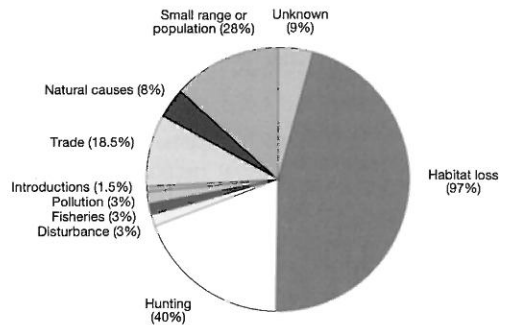


Non-forest habitats are clearly of secondary importance for threatened birds (see Figure 2). Those utilised include mangroves (ten species), freshwater habitats (five species), non-mangrove saltwater areas (three species), scrub (three species) and grassland/agricultural areas (two species).

Threats to Philippine birds

The threats most pertinent to birds are given in Figure 3 along with the proportion of threatened Philippine birds to which they apply. They may not always operate in isolation but often do so in tandem, such that a species is often not threatened by habitat loss alone (although this is by far the most important factor), but by a combination of factors. It is clear that habitat loss, hunting and trade are the anthropogenic threats with most influence in the Philippines, and these frequently overlap, greatly magnifying the pressure exerted on threatened species. In addition, when birds occupy small ranges or survive in tiny populations, biogeographic, behavioural and genetic complications arise. These factors are relevant to over a quarter of threatened species in the Philippines (see Figure 3) and necessitate a careful approach to their conservation. The influence of disturbance, fisheries, pollution and the introduction of diseases (in this case borne by released Philippine Cockatoos *Cacatua haematuropygia* and contaminating the wild population) is relatively minor, each factor applying to only a handful of species.

Figure 3. The proportion of threatened birds subject to different types of threat on the Philippines, following the categories presented by Collar *et al.* (1994). Note that these categories are not necessarily exclusive: some species are assigned to a single threat whilst others are subject to a combination of several.



Hunting, trapping and wildlife trade

Hunting and trapping of birds for food or sport, and their collection for commercial trade, are direct threats to many species. The resulting depletion of populations tends to compound the effects of habitat loss. Forty percent of the Philippines' threatened birds are thought to be affected by hunting, and 18.5% are traded (see Figure 3). Larger game species and those favoured by aviculturists (e.g. Philippine Duck *Anas luzonica*, Palawan Peacock-pheasant *Polyplectron emphanum*, pigeons, parrots and hornbills) are particularly susceptible. The previously abundant Philippine Cockatoo has suffered most conspicuously at the hands of traders: huge numbers have been trapped in the past few decades, and its populations have plunged towards extinction in the wild.

Seven threatened species (six endemic) are among the 13 listed on Appendix I of the Convention on International Trade in Endangered Species (CITES); trade in these species is strictly prohibited. Fourteen threatened species are listed on Appendix II, which permits strictly regulated trade (DENR-PAWB 1993). Hunting of all bird species is illegal, but the mechanisms for real enforcement, as in every other country in the world, are lacking.

Habitat loss

Habitat destruction has affected 97% of threatened birds in the Philippines (Figure 3) and is the most important factor in their decline and potential future demise. As indicated here, the vast majority of these species rely on forest habitat and it is reasonable to conclude that deforestation is the greatest single threat to their survival.

The Philippines were originally covered almost entirely by trees, with only small scattered areas of marsh and natural grassland in the valley bottoms and montane plateaus (enough grassland, however, for Luzon to possess five endemic buttonquail taxa: see Remarks 2 under Luzon Buttonquail *Turnix worcesteri*). On each main island, tropical lowland evergreen rainforest extended up to 400 m, gradually giving way to lower-stature montane forest at c. 650–1,000 m, with mossy forest in the cloud belt, usually above 1,200 m (Collins *et al.* 1991, Dickinson *et al.* 1991, Stattersfield *et al.* 1998). The clearance of this habitat to create open expanses of agricultural and pastoral land is not a particularly recent phenomenon, however. Coming to Negros in 1877 the explorer naturalist A. H. Everett found it already profoundly altered: “The southern extremity of Negros, which is the most mountainous part of the island, and where I hoped to find accessible virgin forest, is simply one vast field of maize, sugar-cane, and hemp, perfectly cleared, even far up the steep sides of the mountains, and is a poor district indeed for birds” (Tweeddale 1878c). Similarly, he found the interior of Bohol to be “a country covered with grass 12 feet high, and with no forest except on the tops of a few hills” (Tweeddale 1878g). Cebu, too, has long been notorious for its deforestation, at least among ornithologists. Over a century ago it was noted that “the small amount of forest remaining on the island is rapidly being cleared away” (Bourns and Worcester 1894), and a decade later almost exactly the same comment was made: “the little forest remaining along streams and on steep hillsides is rapidly disappearing” (McGregor 1907).

While the long history of habitat alteration in the Philippines is worth bearing in mind, the twentieth century certainly saw an expansion and acceleration of these activities. In the century’s first decade, the island of Polillo was “heavily forested”, and McGregor (1910a) stated that he had never seen an island with “so large a proportion of the area covered with trees”; but when collectors from the National Museum revisited in the 1950s, fieldwork had to be confined to the north-east of the island where patches of primary and secondary forest still remained “compared to an almost entirely cultivated area in other places, particularly the southeastern part” (Manuel 1957). In the five decades separating these visits the landscape of Polillo had been altered unrecognisably by a process that affected every island in the Philippines: thus, in similar fashion, Ticao was well-wooded in 1902 (McGregor 1905b), 20–30% forested in 1971 (duPont 1972a), and virtually denuded by 1993 (Curio 1994).

Today, forest cover varies considerably across the archipelago but is everywhere drastically reduced. Unless otherwise stated, the following figures (themselves superseded by a decade of massive forest clearance) were published by SSC (1988) (and subsequently reproduced by, e.g., Dickinson *et al.* 1991 and Stattersfield *et al.* 1998), i.e. are already at least a decade out of date. Palawan appeared to be the most forested of any Philippine island, retaining 54% cover, but it is now littered with logging and mining concessions (Quinnell and Balmford 1988, Collins *et al.* 1991). Twenty-four percent of Luzon was judged to be covered by forest, although the 40,000 km² of forest estimated to survive in the Sierra Madre mountains during the 1930s has dwindled to 6,850 km², a reduction of 83% (Mallari and Jensen 1993, Poulsen 1995). On Mindoro only 120 km² of forest (8.5% of the island) remained, of which only a quarter was closed-canopy. In the Western Visayas, only tiny fractions of Negros (4%) and Panay (8%) retain forest cover while Guimaras is believed to be completely deforested. In the Eastern Visayas, satellite data showed forest covering 33% of Samar, 14% of Leyte, 6% of Bohol and 29% of Mindanao, although these are considered likely to be overestimates, with most of the lowland forest leased to logging concessions (Collins *et al.* 1991, Stattersfield *et al.* 1998). In 1992, Samar retained 724 km² of closed-canopy forest and Leyte retained 236 km² (Development Alternatives, Inc. 1992). In the Sulu archipelago aerial observations in 1991 indicated that virtually no forest remained on Sulu itself, and the only substantial tracts located were in eastern Tawitawi (Lambert 1993). Some large areas of very degraded, recently logged forest were found there in 1994 (T. M. Brooks and G. C. L. Dutton *in litt.* 1994), but in 1996 there were plans to replace these with large oil-palm plantations (Allen 1998).

Despite this unremitting inventory of habitat loss, nowhere is deforestation more evident than on Cebu, with tangible consequences for the island's fauna. The early development of Cebu City and the island's low topographic profile (a central ridge reaching only 1,018 m) have contributed to the almost total destruction of its natural forests to provide land for sugarcane plantations. About 99.7% of the original forest cover have been removed, leaving at most 15 km² of degraded dipterocarp forest, apart from which even scrubland is scarce and under pressure (Dutson *et al.* 1993, Brooks *et al.* 1995; also Collar 1998c). This has resulted in the mass loss of the island's original forest avifauna: 39 (49%) of the 79 forest species that have been recorded on Cebu are apparently now extirpated there and 47% of the 38 Philippine endemics known from Cebu have been feared locally extinct (Brooks *et al.* 1995a). The remaining forest species (including two single-island endemics: Black Shama *Copsychus cebuensis* and Cebu Flowerpecker *Dicaeum quadricolor*) are very close to true (total) extinction. The lesson is incontrovertible: forest loss means biodiversity loss.

The factors that underlie the continuing processes of habitat destruction appear to be relatively straightforward, but they reflect a deeply intractable situation. The Philippines, like virtually every emerging economy in the world, ran into serious international debt some 20–30 years ago, and is compelled to seek income from its natural resources. It also has an obligation of stewardship towards its rapidly expanding human population (eight million people in 1900, 42 million in 1975: McEvedy and Jones 1978). So at the national level, a logging concession is sold to a powerful corporation; at the provincial level, a new road is built, providing access for logging interests; and at the local level, agriculturalists, pastoralists and timber collectors follow the logging roads and cut their own holes in the forest, simply in order to survive. Everyone denies responsibility for the resulting environmental degradation, and in many ways it is understandable that they should (see Kummer 1992, Robles and Severino 1997). Of course it is perfectly possible to identify *some* blameworthy targets—logging interests operating inside protected areas are the most obvious—but the conservationist seeking to reinstate the value of a national park or obtain new legal status for a major area of biological richness quickly learns that the greater blame for habitat destruction lies further off, in a haze of forces and movements over which no-one has complete control and for which no single person, group of people, institution or industry can take ultimate responsibility. Understanding and attempting to counter at least the immediate political, commercial and social elements in this steady process of erosion is a major dimension to the work of the modern conservationist.

The land-use practices which began the process of deforestation in the Philippines still exert a strong influence on the environment today. *Kaingin* farming (otherwise termed “slash-and-burn” or shifting cultivation), fire-maintained pasture and the harvesting of non-timber forest products (such as rattans and other palms) are very common rural practices in the lowlands and highlands alike and are major causes of deforestation and degradation. The expansion of agriculture into forested lands is driven by the demands of the growing human population, widespread poverty, and the political economy of lowland agriculture (Kummer 1989, 1992).

Despite the damage caused by *kaingin* and pasture, perhaps the most destructive influence on primary forest has been commercial logging (World Bank 1989, Kummer 1992, Robles and Severino 1997). The World Bank (1989) considered that “it is mainly due to logging (licensed or illegal) that old-growth dipterocarp forests, the most valuable commercially, have shrunk from 10 million hectares in the 1950s to only one million today”. Logging concessions have been granted both as a legitimate governmental desire to foster development and as political favours to the Philippine elite and/or multinational corporations (Ofreno 1980, Palmier 1989). The distinction between politicians and loggers is difficult to define, since loggers contribute heavily to political campaigns and many politicians control logging concessions. What cannot be denied is the impact that legal and illegal logging has had on the forests of the Philippines over the last few decades.

The experiences of Goodman and Gonzales (1990) inside Isarog National Park poignantly illustrate this fact: "The extent of logging in the area has been ecologically devastating. In August 1983 the government posed (*sic*) a complete logging ban in the region, apparently to no avail... During our spring 1988 field season, the drone of chain saws could be heard from before sunrise to after sunset in forested areas within the national park boundaries. With alarming frequency we could feel the ground tremble as the remaining large dipterocarps came crashing down. These illegal, large-scale cutting operations were not conducted independently by slash and burn agriculturalists, but rather by well-financed commercial operators." Such inexcusable incursions into protected land are the beginning of the end for the Philippine environment: almost all valuable timber has now been extracted from the country, such that although the Philippines still exports wood, it is now a net importer of timber, the value of such imports being almost US\$100 million in 1993 (ITTO 1996). However, companies with the machinery and the technical expertise exist all over the country, and it is hardly surprising that, given their self-created redundancy, some of them will attempt to steal directly from the patrimony represented by the national protected area system (a system which, of course, has already been subject to crippling dismemberment and downsizing over the decades since 1945).

Clearly, therefore, the situation is extremely problematic. The current international investment in NIPAS and in other major conservation areas through FPE recognises this and represents a major bid to begin to resolve the crisis. However, the biological richness of the Philippines is greater still than can be catered for by the system of sites now under development, and it will take still more investment, internal as well as external, social and educational as well as financial, before the full panoply of diversity in the Philippines is securely managed for the perpetual benefit of the country's unborn generations.

The Philippine Eagle and the concept of flagship species

The Philippine Eagle *Pithecophaga jefferyi* is the national bird of the Philippines, but it is classified in this book as Critically Endangered, the highest degree of threat accorded by the new IUCN criteria. It is therefore of paramount importance to the nation that an effective conservation strategy should immediately be drawn up and implemented for each of the four eagle populations that are known to exist (Luzon, Samar, Leyte and Mindanao). Despite many years of study the true status of the eagle remains unclear, but it is possible that there are fewer than 250 mature birds altogether, and very certain that numbers are constantly declining. To halt this trend there must be a full enforcement of forest protection throughout the species's range, and to reverse it there must be a campaign to eliminate hunting of birds through intensive local programmes of environmental education. However, the Philippine Eagle Conservation Strategy (PECS) proposed in this book has many other dimensions, including detailed biological and ecological research on populations in the wild, leading to a clearer, more robust delineation of numbers, needs and threats; the extension of the protected-area system to include many new forested areas where eagle populations survive; the promotion and implementation of habitat management schemes in other areas; the integration of practices beneficial to eagles in modern forestry plans; the protection of nests; and the development of a major *national* campaign to advocate and explain this entire programme to the Filipino people.

Some years ago it was observed that "making sure that the Philippine Eagle... is still with us 100 years from now is perhaps the most challenging conservation objective in the Philippines [and] If enough habitat can be protected in Mindanao and Luzon to perpetuate the eagle populations of these two islands, it seems probable that a majority of all Philippine vertebrates will be secure along with them" (Hauge *et al.* 1986). This idea cannot be commended too highly or too emphatically, except to add that Samar and Leyte *must* be included in the package, since it is now more clearly understood that the Eastern Visayas also possess an important endemic fauna and flora. Conservation of major tracts of forest within the range of the eagle would not only save the Philippine national bird, but would also virtually guarantee the survival

of every threatened landbird that occupies the same land area. The status of the eagle as the mightiest flagship for forest conservation in the Philippines is unchallenged: among the birds, the future of as many as 27 threatened (and roughly twice as many endemic) species will be secured by the full implementation of a forest conservation programme to conserve the eagle on all four islands. The number of mammals, reptiles, amphibians, fish, invertebrates and plant species that will be secured into the bargain cannot be computed but must run into thousands.

This is not to suggest that other work is less important. As it happens, forest on non-eagle islands in the Philippines is proportionally more depleted, with a consequence that bird species on Mindoro, the Western Visayas, Cebu and Tawitawi are particularly badly threatened. Several other flagship species exist on these and other islands, notably the Palawan Peacock-pheasant and Palawan Hornbill *Anthracoceros marchei* on Palawan, the Visayan Wrinkled Hornbill *Aceros waldeni* on the Western Visayas, and the Sulu Hornbill *Anthracoceros montani* on Tawitawi; these are birds from families which are of enormous interest and appeal to many people around the world, and of course the Philippine Cockatoo has huge potential to promote the values of conservation on many islands other than Palawan, where it is currently the focus of an education campaign. The sensationally beautiful Celestial Monarch *Hypothymis coelestis* could also serve as a rallying point for conservation interests if it could be widely used in illustrations, for example on stamps: it is known from the eagle's range but also from important islands such as Sibuyan, Negros, Basilan and Tawitawi.

Towards an extended, effective protected area system in the Philippines

In the struggle to preserve the biological diversity of the planet, no more concrete strategy exists than the national protected area system—areas in which natural processes and phenomena, from species to ecosystems, are allowed the opportunity to continue to function and interact with minimal or controlled interference from human agency. It is very obvious from this book that the protected area system in the Philippines is by no means adequate for the size of the task of preserving species from extinction. Some sites may not be adequate simply because they are not placed so as to capture the maximum complement of biodiversity on an island or in a region. Some sites, such as Mt Data National Park on Luzon and Central Cebu National Park, have been almost entirely cleared of forest. Others, as noted in the quotation above about Mt Isarog, are currently being cleared, with a total disregard of their legal status, by major logging interests. Indeed, there have even been cases of government promotion of reserve destruction in the past, such as at Mt Apo National (now apparently Natural) Park, where in the mid-1980s 56% of its area was almost arbitrarily assigned to human settlement under the Marcos regime (see Threats *Habitat loss: Mindanao* under the Philippine Eagle). Clearly there can be little hope for the preservation of original levels of biological diversity in the Philippines if the government cannot prevent the clearance of forest even inside its own protected areas. However, in the 1990s there were several initiatives which provided new power not only to give real protection to existing parks and reserves but also to extend the protected-area network to include some crucially important sites. These initiatives fall under the general umbrella of the National Integrated Protected Areas System (NIPAS) Programme, which includes four major elements relevant to bird conservation: the NIPAS Law, the Conservation of Priority Protected Areas Project (CPPAP), the National Integrated Protected Areas Project (NIPAP), and the Foundation for the Philippine Environment (FPE) programme.

The NIPAS Law

On 1 June 1992, the NIPAS Law replaced Republic Act 3915 of 1932, otherwise known as the National Parks Law. It attempts to address the problems of protected area management in the Philippines by espousing the twin objectives of biodiversity conservation and sustainable development. The fundamental structure of this new legislation was summarised by Caleda

(1997), who listed several protected-area categories (strict nature reserve, natural park, natural monument, wildlife sanctuary, protected landscape and seascape, resource reserve, natural biotic area, etc.) and stressed the standardisation of the management planning process for each area and their buffer zones. By establishing an integrated protected-area trust fund and clear administrative protocols along with stricter penalties for offending parties, the law seeks to strengthen and redevelop the protected-area system in the country.

CPPAP (Conservation of Priority Protected Areas Project)

This seven-year project is funded by a World Bank Global Environment Facility (GEF) fund and deals with the establishment and management of 10 sites (Batanes Protected Landscape and Seascape, Northern Sierra Madre Natural Park, Subic-Bataan Natural Park, Apo Reef Marine Natural Park, Mt Canlaon Natural Park, Turtle Islands Marine Natural Park, Mt Kitanglad Natural Park, Mt Apo Natural Park, Siargao Island Protected Landscape and Seascape and Agusan Marsh Wildlife Sanctuary). The total grant involves US\$20 million, of which US\$17.1 million is transferred directly to a consortium of local NGOs to cover technical assistance. The Philippine government donates roughly 10% of the GEF contribution and is mainly responsible for administration of the project and infrastructural development.

NIPAP (National Integrated Protected Areas Programme)

Funded by the European Commission and implemented by DENR, this project is designed to deal with management planning, boundary delineation, law enforcement and socio-economic issues at eight sites (Mt Pulog National Park, Mt Isarog National Park, Mt Iglit-Baco National Park, Sibuyan Island, Coron Island, El Nido Marine Reserve, Malampayas Sound and Mt Malindang National Park). The combined influence of NIPAP and CPPAP thus covers 18 protected areas.

FPE (Foundation for the Philippine Environment)

With an endowment fund of US\$20 million this foundation provides grants to local NGOs for biodiversity conservation in priority sites, 11 of which were identified in 1994 (Mt Banahaw/Tayabas Bay*, Bucaso-Tubo watershed, Mt Bulusan*, Mt Talinis/Twin Lakes, Sohoton*, Mts Baloy/Madja-as range, Samar north coast, Mt Matutum, Tawitawi/Sulu coast, Mt Malindang* and Dinagat Island) and 10 in 1995 (Mt Balbalasang*, Northern Sierra Madre*, Lake Buhi, Taal Basin, Bohol north-west coast, Siquijor*, Pinamungahan-Cabiagon watershed, Pulangi watershed, Lake Lanao and Liguasan Marsh*). The eight sites denoted by asterisks (*) are already protected areas of one type or another, while the remainder await evaluation for funding.

“Key sites” for the conservation of Philippine birds

A preliminary analysis has been completed to identify “key sites” for the conservation of globally threatened birds in the Philippines, using data presented in the distribution and population sections of species accounts in this book. The 57 “key sites” outlined below are all known (or, on the basis of nearby records, judged very likely) to support (or have supported) several threatened species, and are believed to retain sufficient areas of natural habitat for these birds to survive there. Some of them already receive a degree of protection as NIPAP or CPPAP sites, or through the FPE programme, but many others are unprotected and are likely to be damaged or even destroyed in the near future unless action is taken to conserve them. In the following sections, brief details of the size, status and significance of all these sites are presented, from north to south by EBA, and with all species referred to by scientific name only.

The Haribon/BirdLife Programme is continuing to develop this analysis in its ongoing Important Bird Areas (IBA) Project, which will result in an inventory of sites selected to cover the full range of habitats, birds and other biodiversity in the archipelago. This programme

works closely with DENR/PAWB to help ensure that many IBAs are designated under the NIPAS legislation. Some extensive areas of forest in the remotest parts of the Philippines have also been selected as IBAs, for example the majority of the subprovince of Quirino on Luzon, and parts of the extensive lowland and mid-montane areas of southern and western Agusan del Sur on Mindanao. Such places have remained inaccessible to ornithologists, and there are therefore few (if any) records of threatened and endemic birds. However, they have also remained inaccessible to loggers and shifting cultivators, and many of them are likely to prove to be amongst the most important sites for conservation in the country. The list of "key sites" below does not include these poorly known areas, and it is important to emphasise very strongly that the list is therefore both *incomplete and preliminary*, but it serves as a starting point. Moreover, it has to be said that some sites listed in the species accounts but not included below may in due course prove to be as or more important than those that *have* been included.

In addition to the "key sites" for threatened species, and as noted in an earlier section, IBAs will be selected for restricted-range bird species and congregatory waterbirds and seabirds. The IBA inventory will include detailed information on the location, protected-area status and biodiversity of each site plus outlines of the conservation issues which will affect them.

The information presented in the following sections is derived in part from the threatened species accounts and in part from a variety of sources which have not been referred to directly, such as correspondence with local experts and the incomplete IBA database. The provenance of specific details will be cited fully in the forthcoming IBA review.

Luzon and satellites “key sites”

Twenty-two threatened species have been recorded at 15 “key sites” on Luzon and its satellites. Three of these are included in NIPAP, two in CPPAP, one receives FPE funding and two are national parks.

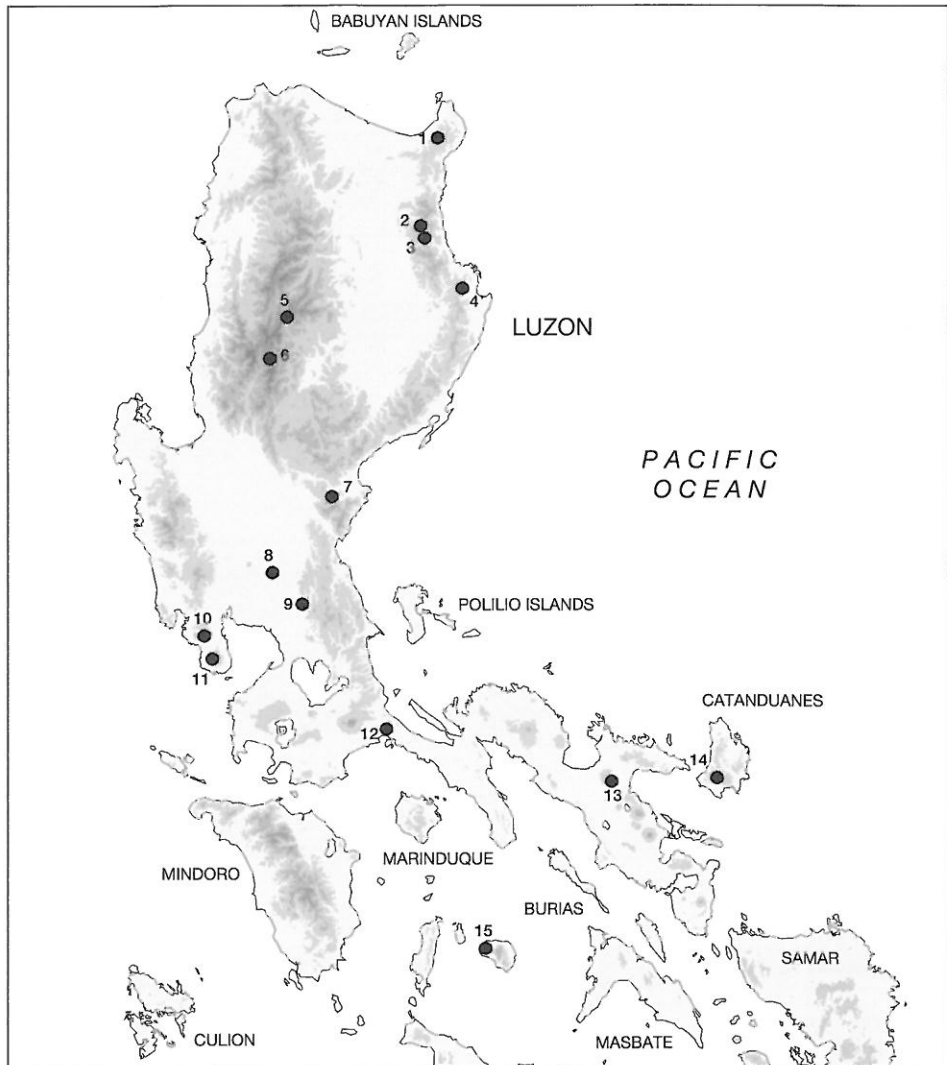


Figure 4. The distribution of “key sites” on Luzon and its satellites arranged from north to south. (1) Mt Cagua, Isabela; (2) Mt Cetaceo, Cagayan; (3) Mt Los Dos Cuernos, Isabela; (4) Northern Sierra Madre Natural Park, Isabela; (5) Mt Polis; (6) Mt Pulog, Nueva Vizcaya; (7) Maria Aurora Memorial National Park; (8) Candaba Marsh, Pampanga; (9) Angat Watershed, Bulacan; (10) Bataan Natural Park/Subic Bay; (11) Mariveles Mountains, Bataan; (12) Quezon National Park, Quezon; (13) Mt Isarog, Camarines Sur; (14) Central Catanduanes, Catanduanes; (15) Mt Guiting-guiting, Sibuyan. It is important to note that these are not the full suite of sites requiring protection, and that many more, particularly in the Sierra Madre, will be identified during Haribon/BirdLife’s current IBA project.

Table 2. The occurrence of threatened species at “key sites” on Luzon and its satellites. Species in bold are endemic to this EBA and sites in bold are incorporated within the NIPAP or CPPAP systems. Cumulative data refer to this geographical unit only.

Species	Mt Cagua	Mt Cetaceo	Mt Los Dos Cuernos	Northern Sierra Madre NP	Mt Pulog NP	María Aurora Memorial NP	Candaba marsh	Angat Watershed	Mt Polis	Bataan NP/Subic Bay	Mariveles Mountains	Quezon NP	Central Catanduanes	Mt Isarog	Mt Guiting-guiting	Total key sites for species
<i>Acrocephalus sorghophilus</i>							•									1
<i>Anas luzonica</i>		•				•	•			•			•			5
<i>Bubo philippensis</i>				•				•				•	•			4
<i>Cacatua haematuropygia</i>													•	•		2
<i>Ceyx melanurus</i>	•	•	•					•				•	•	•		7
<i>Collocalia whiteheadi</i>					•											1
<i>Ducula carola</i>				•		•	•	•				•				5
<i>Erythrura viridifacies</i>		•	•	•				•		•						5
<i>Gorsachius goisagi</i>												•				1
<i>Hypothymis coelestis</i>	•	•	•					•			•					5
<i>Lewinia mirificus</i>																0
<i>Muscicapa randi</i>			•	•				•								3
<i>Oriolus isabellae</i>		•	•								•					3
<i>Phylloscopus ijimae</i>											•					1
<i>Pithecophaga jefferyi</i>		•	•			•										3
<i>Pitta kochi</i>	•	•	•	•	•	•		•	•					•		9
<i>Prioniturus luconensis</i>	•		•	•	•	•		•		•	•					6
<i>Ptilinopus marchei</i>		•	•	•	•	•			•							5
<i>Rhinomyias insignis</i>			•	•					•							3
<i>Rhyacornis bicolor</i>				•	•	•			•							4
<i>Spizaetus philippensis</i>			•	•	•	•		•	•	•	•	•	•	•		9
<i>Todiramphus winchelli</i>															•	1
<i>Turnix worcesteri</i>																0
<i>Zoothera cinerea</i>			•	•				•				•				4
Total species for key site	4	8	5	14	6	8	2	10	6	4	5	6	4	4	1	

Mt Cagua (Luzon)

Protected area status: No protection.

Size: Primarily montane forest in a block centred on the summit.

Conservation importance: Four threatened species are known from the site (see Table 2) although little fieldwork has been conducted recently.

Conservation issues: No conservation initiatives are known. Difficulty of access protects the montane forests somewhat from encroachment by *kaingin* farmers. Nevertheless, logging operations are common, ranging from small-scale illegal timber poaching to intensive timber extraction with heavy machinery.

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
Mt Cagua					•
Mt Cetaceo					•
Mt Los Dos Cuernos					•
Northern Sierra Madre NP		•	•	•	
Mt Pulog NP	•			•	
Maria Aurora Memorial NP				•	
Candaba marsh					•
Angat Watershed					•
Mt Polis					•
Bataan NP/Subic Bay		•		•	
Mariveles Mountains					•
Quezon NP				•	
Central Catanduanes					•
Mt Isarog	•			•	
Mt Guiting-guiting	•			•	

Table 3. The protected area status of "key sites" on Luzon. PA = protected areas, referring to status as national/natural park (NP) or forest reserve.

Mt Cetaceo (Luzon)

Protected area status: No protection.

Size: A relatively large block of closed-canopy evergreen forest remains in the area (contiguous with the Mt Cagua site).

Conservation importance: Eight threatened species have been recorded (see Table 2).

Conservation issues: No projects are known to focus on these forests, which remain seriously threatened by road development and the burning of clearings and adjacent pasture. Hunting and trapping are also frequent.

Mt Los Dos Cuernos (Luzon)

Protected area status: No protection.

Size: A large block of forest is apparent on 1992 forest cover maps.

Conservation importance: This site has been visited frequently by ornithologists in the last few years and populations of five threatened species are known to survive (see Table 2).

Conservation issues: Forests on the mountain are being cleared at their lower fringes to make way for agriculture. Hunting pressure is intense. No initiatives to save the remaining habitat and wildlife are known to be in place, although the site lies close to the Northern Sierra Madre Natural Park and a strong case exists to extend the boundaries of this NIPAS site in order to incorporate the forests on Mt Los Dos Cuernos.

Northern Sierra Madre Natural Park (Luzon)

Protected area status: Also known as the Palanan complex or Wilderness Area: GEF CPPAP site and FPE site (1995).

Size: 255,945 ha, of which 240,229 are terrestrial and 15,716 marine.

Conservation importance: Fourteen threatened species are documented for the area (see Table 2) including a significant population of *Pithecophaga jefferyi*. Most of the endemic forest birds of Luzon are present in good numbers and it is the most important site on the island in terms of biodiversity conservation.

Conservation issues: High levels of encroachment and exploitation are rapidly reducing the area of natural forest surviving in the Sierra Madre, and there is a constant threat from new plans to construct roads into and across it, which would open it up for irreversible fragmentation and degradation. However, this is also an area in which a wide variety of conservation organisations have a stake, and there is a clear challenge to combine their forces

so as to produce a coherent integrated overall strategy for the permanent management of this major tract of land as old-growth forest.

Mt Pulog National Park (Luzon)

Protected area status: National Park (1987); EU-DENR NIPAP site.

Size: 11,500 ha.

Conservation importance: Six threatened species have occurred (see Table 2) and the area is an important watershed for central Luzon.

Conservation issues: Forests in the park have been protected to some extent by their remoteness and the civil unrest prevalent in the region. Increasingly large areas of habitat are being destroyed to make clearings for *kaingin* farming or as a result of fires in adjacent pasture. Bird trapping is rife and there is general overuse of fertilisers, herbicides and pesticides in local agriculture. The park functions as a watershed reserve and a tourist destination, factors that will become increasingly important in the future. WWF leads an intensive conservation programme focused on Mt Pulog.

Maria Aurora Memorial National Park (Luzon)

Protected area status: National Park.

Size: 5,676 ha.

Conservation importance: Eight threatened species have been recorded (see Table 2) but the extent of natural forest has been steadily dwindling. If this trend can be halted (and cleared areas reforested), the site will continue to be of great importance.

Conservation issues: At present, the rate of deforestation is very high. Most habitat has been converted to agriculture and pasture, and remaining blocks of forest are continually being eroded by shifting cultivators and fires. Protection of the site is currently ineffective and would benefit from an injection of funds and manpower.

Candaba Marsh (Luzon)

Protected area status: No protection, although proposed for classification as a Ramsar site.

Size: 32,000 ha, but this no longer refers to the extent of the remaining wetland.

Conservation importance: Two threatened species have been recorded (see Table 2) although others were present historically. It is the only known wintering site in the world for *Acrocephalus sorghophilus*. Huge numbers of waterfowl used to occur, including many *Anas luzonica* and up to 50,000 Garganey *A. querquedula*.

Conservation issues: The value of the site has declined dramatically with its conversion for agri- and aquacultural uses and heavy disturbance by hunters. Only scraps of natural marsh remain, but this could be rectified fairly rapidly through appropriate management. The cultivation of rice instead of watermelon entails draining the marshes in December or January instead of March or April (Lambert 1993c), which has a negative effect on wintering waterfowl populations, as does the conversion of parts of the marsh into fishponds (Scott 1989). WBSJ and DENR have proposed Candaba Marsh as a Ramsar site: a workshop was conducted to this effect with the participation of the local government of Pampanga and community leaders in December 1994, and education material has subsequently been prepared.

Angat watershed (Luzon)

Protected area status: Forest receives some protection as watershed for the Angat Hydroelectric Dam.

Size: Areas of original habitat are clearly small and declining.

Conservation importance: Ten threatened species have been recorded (see Table 2) although several of these may have disappeared following continued reduction in the extent and quality of habitat. The area is well known as it is frequently visited by ornithologists.

Conservation issues: Despite the watershed protection programme small areas of forest are being clear-felled illegally. Parrot trapping, hunting and the uncontrolled collection of forest products are common, causing further concern for wildlife and habitat at the site.

Mt Polis (Luzon)

Protected area status: No protection.

Size: Unknown, although forest is no longer very extensive at the site.

Conservation importance: Six threatened species have been recorded (see Table 2).

Conservation issues: Forest clearance is a severe threat as significant remaining areas are being converted to vegetable farms on the slopes.

Bataan Natural Park and Subic Bay (Luzon)

Protected area status: Natural Park (1945); GEF CPPAP site.

Size: The former covers 23,688 ha and the latter 10,000 ha. Between 3,000 and 5,000 ha of primary forest remain.

Conservation importance: This area includes the last known primary lowland forests in southern west Luzon. Four threatened species have been recorded here (see Table 2).

Conservation issues: In the past the US Navy has provided strict protection to the Subic Bay Forest Reserve. Although encroachment in much of the area is relatively slight, fires in adjacent pastures have been steadily eroding forest habitat. A major issue that has recently come to light is the potential impact of a new road development which has already increased the incidence of illegal logging along its current length and provided a corridor of access for hunters and timber smugglers.

Mariveles Mountains (Luzon)

Protected area status: No protection.

Size: 23,688 ha.

Conservation importance: A large block of forest remains according to 1992 forest cover maps. Five threatened species have been recorded in the area (see Table 2) but further fieldwork is required so that faunal and floral inventories can be accurately compiled.

Conservation issues: No conservation initiatives are known to exist. The area is threatened by potential mining projects which await formal permission.

Quezon National Park (Luzon)

Protected area status: National Park.

Size: 983 ha.

Conservation importance: Six threatened species have been recorded (see Table 2) although a few of these must be (almost) extinct at the site given the small areas of forest remaining.

Conservation issues: Forest, virtually none of it now primary, is under intense pressure from *kaingin* farming, charcoal production, timber poaching, illegal logging, quarrying, incursion by settlers and tourism. These factors will eliminate this habitat in the near future unless they can be controlled. There are no patrols to protect the area and no effective management of the park due to insufficient funding, omissions which urgently need to be addressed.

Central Catanduanes (Catanduanes)

Protected area status: No protection, although currently proposed for designation as a watershed reserve under NIPAS.

Size: Considerable areas of forest are marked for the centre of the island on 1992 forest cover maps.

Conservation importance: Four threatened species are known to have occurred (see Table 2) including *Cacatua haematuropygia*, although no recent data are available.

Conservation issues: Timber poaching and *kaingin* farming appear relatively uncommon on the island, perhaps as a result of low human population density.

Mt Isarog (Luzon)

Protected area status: National Park (1938); EU-DENR NIPAP site.

Size: 10,117 ha (c.60% of which is forest).

Conservation importance: Four threatened species have been recorded (see Table 2).

Conservation issues: Deforestation continues apace within the park through a process of burning and well-financed commercial ventures. Settlement of the area has increased: several hundred people now live in the park and exploit its resources.

Mt Guiting-guiting National Park (Sibuyan)

Protected area status: National Park; EU-DENR NIPAP site.

Size: 37,000 ha.

Conservation importance: Only one threatened species has been recorded at the site (see Table 2) and only fairly small areas of (mostly secondary) forest remain. However, further fieldwork might reveal a broader biodiversity, and the funding which the site receives offers the potential for regeneration of habitat.

Conservation issues: Human population pressure is still low on Sibuyan, and the political climate is fairly stable; thus the island is considered a promising focus for a conservation project. However, considerable logging activity exists on the island despite there being no legal concession there.

Mindoro “key sites”

Twelve threatened species have been recorded at five “key sites” on the island, of which one is included in NIPAP and one is a national park.

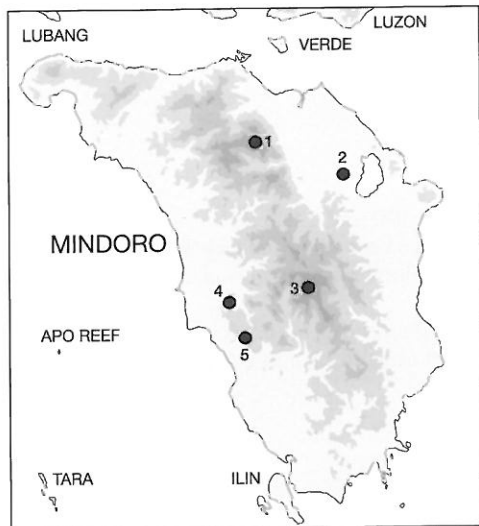


Figure 5. The distribution of “key sites” on Mindoro arranged from north to south.

(1) Mt Halcon, Mindoro Oriental; (2) Lake Naujan, Mindoro Oriental; (3) Mt Iglit-Baco National Park, Mindoro Occidental; (4) Siburan, Mindoro Occidental; (5) Malpalan, Mindoro Occidental. It is important to note that these are not the full suite of sites requiring protection, and that more will be identified during Haribon/BirdLife’s current IBA project.

Table 4. The occurrence of threatened species at “key sites” on Mindoro. Species in **bold** are endemic to the EBA and the site in **bold** is incorporated within the NIPAP or CPPAP systems. Cumulative data refer to this geographical unit only.

Species	Mt Halcon	Lake Naujan	Mt Iglit-Baco NP	Siburan	Malpalan	Total key sites for species
<i>Anas luzonica</i>		•	•	•		3
<i>Cacatua haematuropygia</i>	•	•				2
<i>Centropus steerii</i>	•	•	•	•	•	5
<i>Ceyx melanurus</i>			•			1
<i>Dicaeum retrocinctum</i>	•	•	•	•	•	5
<i>Ducula carola</i>	•	•		•		3
<i>Ducula mindorensis</i>	•	•	•			3
<i>Gallicolumba platenae</i>	•	•	•	•		4
<i>Penelopides mindorensis</i>	•	•	•	•	•	5
<i>Rhyacornis bicolor</i>			•			1
<i>Spizaetus philippensis</i>	•			•		2
<i>Zoothera cinerea</i>	•					1
Total species for key site	9	8	8	7	3	

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
Mt Halcon					•
Lake Naujan				•	
Mt Iglit-Baco NP	•			•	
Siburan					•
Malpalon					•

Table 5. The protected area status of "key sites" on Mindoro. PA = protected area referring to status as national/natural park (NP) or forest reserve.

Mt Halcon (Mindoro)

Protected area status: No protection.

Size: Areas of forest on a mountain range between 1,000 and 2,200 m.

Conservation importance: Nine threatened species have been recorded (see Table 4) although some lowland taxa may well have disappeared following destruction of most suitable habitat.

Conservation issues: Deforestation through illegal logging and clearance for *kaingin* agriculture are the primary difficulties faced. A DENR project aims to promote sustainable forest use and reforestation.

Lake Naujan (Mindoro)

Protected area status: National Park (Proc. no. 282, 1957).

Size: 21,655 ha.

Conservation importance: Eight threatened species have been recorded in the area (see Table 4) but most of these are forest birds whose populations are likely to be much reduced or extirpated as a result of forest loss and degradation in the region.

Conservation issues: Clearance of forest for agricultural purposes and hunting of waterfowl are the primary factors affecting the birds of this area. WBSJ has funded a training course, a two-year environmental monitoring project and several meetings to aid the preparation of a management plan for the site.

Mt Iglit-Baco National Park (Mindoro)

Protected area status: National Park (Republic Act no. 6148, 1970); EU-DENR NIPAP site.

Size: 75,445 ha.

Conservation importance: Eight threatened species have occurred in or near the site (see Table 4) and local reports suggest that *Cacatua haematuropygia* is also present, at least occasionally. The park contains large areas of grassland to promote the conservation of the tamaraw *Bubalus mindorensis*, a highly threatened endemic bovid.

Conservation issues: Cattle ranching, *kaingin* farming and firewood-gathering threaten the remaining small patches of forest, and high levels of hunting are having a negative impact on wildlife populations. There is very little forest in the park but plans exist to extend its boundaries to encompass the remaining lowland forest on Mindoro.

Siburan (Mindoro)

Protected area status: No protection (but see below).

Size: The largest tract of lowland forest on Mindoro (roughly 1,500 ha in 1991, and probably contiguous with further areas).

Conservation importance: Seven threatened species have been recorded (see Table 4) and *Cacatua haematuropygia* has been reported to occur by local people. Given its relatively large size and current low levels of disturbance this appears to be the most important lowland forest site on the island, especially for populations of *Gallicolumba platenae*, *Centropus steerii* and *Penelopides mindorensis*.

Conservation issues: *Kaingin* agriculture and collection of forest products exert the greatest pressure on the quality and extent of habitat. In the long term, settlement could exacerbate these factors. The forest is adjacent to Sablayan Prison and Penal Farm, notably at Siburan Sub-prison; it is not clear how much of the area receives protection from the penal colony itself or from the F. B. Harrison Game Reserve (Dutson *et al.* 1992). The Sablayan forest is under the jurisdiction of the Department of Justice (Diesmos and Pedregosa 1995), and an integrated social forestry project is running in the region (Custodio *et al.* 1994).

Malpalon (Mindoro)

Protected area status: No protection.

Size: Several kilometres of forest along a low ridge.

Conservation importance: Three threatened species have been documented (see Table 4) and three more (*Ducula carola*, *Gallicolumba platenae* and *Cacatua haematuropygia*) are reported to occur by local people. If these reports are accurate, all but one threatened Mindoro endemics survive at the site, thus indicating its high conservation significance.

Conservation issues: Clearance of forest for *kaingin* agriculture and high levels of hunting are the major threats to wildlife in the area. The Kalikasan Mindoro Foundation has initiated an education programme in local communities but there has otherwise been no attempt to protect the local environment.

Western Visayas “key sites”

Twenty-one threatened species have been recorded at nine “key sites” on the islands. One site is included in CPPAP and four receive FPE funding.

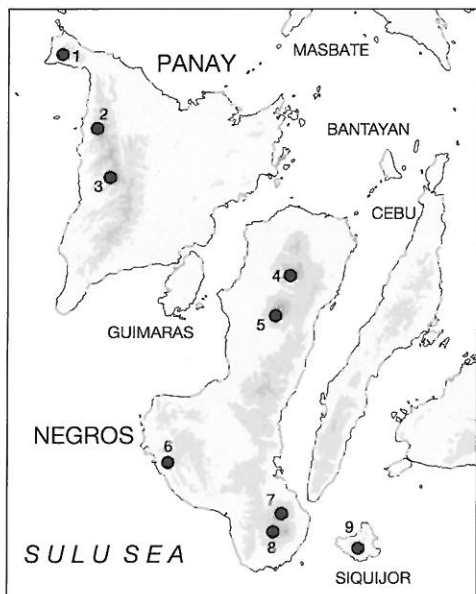


Figure 6. The distribution of “key sites” on the Western Visayas arranged from north to south.

(1) North-west Panay peninsula, Antique, Panay; (2) Mts Madja-as/Hantod-tubig, Antique, Panay; (3) Mt Baloy, Antique, Panay; (4) Mts Silay/Mandalagan, Negros Occidental, Negros; (5) Mt Canlaon, Negros Occidental, Negros; (6) Hinoba-an, Negros Occidental, Negros; (7) Lake Balinasayao, Negros Oriental, Negros; (8) Eastern Cuernos de Negros, Negros Oriental, Negros; (9) Mt Bandila-an, Siquijor. It is important to note that these are not the full suite of sites requiring protection, and that more will be identified during Haribon/BirdLife's current IBA project.

North-west Panay peninsula (Panay)

Protected area status: No protection, although a North-west Panay Peninsula National Park has been proposed.

Size: c.5,000 ha, mostly comprising lowland forest.

Conservation importance: This is likely to be the most important site for the conservation of lowland forest birds in the Negros and Panay EBA (Stattersfield *et al.* 1998). Seven threatened species have been recorded recently (see Table 6) including significant populations of *Aceros waldeni* and *Rhinomyias albigularis*.

Conservation issues: Hunting pressure is very heavy and the extent of forest is rapidly diminishing as a result of illegal timber poaching and clearance for *kaingin* agriculture. The Philippine Endemic Species Conservation Project is conducting conservation work in the area involving ecological research and education programmes. A national park has been proposed to cover 10,000 ha comprising all remaining forest surrounded by buffer zones.

Mts Madja-as/Hantod-tubig (Panay)

Protected area status: No protection, although the area is part of the proposed Central Panay Mountains National Park, and the Mts Baloy/Madja-as FPE site (1994).

Size: Unknown, but consisting of two forested peaks within the proposed Central Panay Mountains National Park, an area which reportedly contains the largest block of forest in the Western Visayas.

Conservation importance: Eight threatened species have been recorded in or near this site (see Table 6) and it retains some important populations of lowland forest species.

Conservation issues: The local NGO in receipt of FPE funds is Green Forum–Western Visayas, but it is not known what conservation action currently exists. *Kaingin* agriculture and perennial grass fires are rapidly destroying forests on the lower slopes.

Table 6. The occurrence of threatened species at “key sites” on the Western Visayas. Species in bold are endemic to this EBA and the site in bold is incorporated within the NIPAP or CPPAP systems. Cumulative data refer to this geographical unit only.

Species	North-west Panay peninsula	Mts Madja-as/Hantod-tubig	Mt Baloy	Mtsa Silay/Mandalagan	Mt Canloan NP	Hinoba-an	Lake Balinsasayao	Eastern Cuernos de Negros	Mt Bandila-an	Total key sites for species
Aceros waldeni	•	•	•	•	•	•	•	•	•	8
<i>Acrocephalus sorghophilus</i>							•			1
<i>Anas luzonica</i>		•								1
<i>Cacatua haematuropygia</i>							•		•	2
Coracina ostenta	•	•		•	•	•	•	•	•	8
Dasycrotapha speciosa		•		•	•		•	•		5
Dicaeum haematostictum		•		•	•		•	•	•	6
<i>Dicaeum retrocinctum</i>		•		•				•		3
<i>Ducula carola</i>					•		•		•	3
<i>Erythrura viridifacies</i>	•			•						2
Gallicolumba keayi	•			•	•		•			4
<i>Gorsachius goisagi</i>			•				•		•	3
<i>Hypothymis coelestis</i>							•			1
<i>Ixos siquijorensis</i>									•	1
<i>Muscicapa randi</i>								•		1
Penelopides panini		•	•	•	•	•	•	•		7
Ptilinopus arcanus					•					1
Rhinomyias albigularis	•	•	•	•	•		•			6
<i>Spizaetus philippensis</i>	•				•		•	•	•	5
Stachyris nigrorum					•		•	•		3
<i>Todiramphus winchelli</i>					•		•	•		3
Total species for key site	6	8	4	9	12	3	15	9	8	

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
North-west Panay peninsula					•
Mts Madja-as/Hantod-tubig			•		
Mt Baloy			•		
Mts Silay/Mandalagan					•
Mt Canloan NP		•		•	
Hinoba-an					•
Lake Balinsasayao			•		
Eastern Cuernos de Negros			•		
Mt Bandila-an			•		

Table 7. The protected area status of “key sites” on the Western Visayas. PA = protected area, referring to status at national/natural park (NP) or forest reserve.

Mt Baloy (Panay)

Protected area status: No protection, although the site is part of the proposed Central Panay Mountains National Park, and the Mts Baloy/Madja-as FPE site (1994).

Size: Unknown, but consisting of montane forest on Mt Baloy and adjacent peaks, including Hamtang Forest on Mt Balabag. The proposed Central Panay National Park reportedly contains the largest block of forest remaining in the Western Visayas.

Conservation importance: Four threatened species have been recorded (see Table 6) and local reports suggest that *Gallicolumba keayi* is also present. Hamtang Forest is known to contain breeding populations of *Aceros waldeni* and *Penelopides panini*.

Conservation issues: The local NGO in receipt of FPE funds is Green Forum–Western Visayas. Fires, recent encroachment and *kaingin* agriculture are the greatest threats to the local environment. Apart from the proposed national park and the potential application of FPE funding, Hamtang Forest is proposed as a reserve, although no conservation measures are currently in place.

Mts Silay and Mandalagan (Negros)

Protected area status: These summits lie within North Negros Forest Reserve, although conservation action is virtually non-existent in the area.

Size: 80,454 ha (of which an estimated 16,687 ha is forest, and perhaps 13,500 ha of this in the North Negros Forest Reserve).

Conservation importance: Nine threatened species have been recorded (see Table 6). The site is likely to be of great importance for the endemic hornbills, and *Gallicolumba keayi*.

Conservation issues: The lower slopes support forest that is being steadily eroded by illegal logging and *kaingin* farming, but their steepness affords the site a greater degree of protection than most others in the Western Visayas. Most remaining forest habitat is either secondary or above 1,200 m. Hunting is excessive with the result that larger species are very scarce. The Negros Forest Ecological Foundation, in collaboration with the Provincial Environment Management Office (PEMO), is conducting a conservation education project focused on the North Negros Forest Reserve. The area is biologically poorly known and field surveys should be designed and completed to provide adequate baseline data. It has been proposed as a NIPAS site, an elevation of status that should be supported.

Mt Canlaon Natural Park (Negros)

Protected area status: Natural Park (Proc. no. 721, 1934); GEF CPPAP site.

Size: 24,557 ha (an estimated 11,475 ha of which is forest).

Conservation importance: Twelve threatened species have been recorded at the site (see Table 6; this figure excludes *Cacatua haematuropygia*, which has not been observed in the area since 1900). It is the only site in the world where *Ptilinopus arcanus* has been recorded and highly significant populations of all other threatened Negros and Panay endemics are (or were until recently) present.

Conservation issues: Very rapid destruction of lower-altitude forests is currently taking place, with concomitant deleterious impacts on populations of threatened lowland species, some of which might now be extirpated. Prime habitat is threatened by clearance for agriculture, timber and charcoal burning. It is hoped that the site's protected-area status will lead to a mobilisation of resources for the development of appropriate conservation initiatives.

Hinoba-an (Negros)

Protected area status: No protection.

Size: A relatively small isolated forest block, the last in southern Negros Occidental.

Conservation importance: Three threatened species (see Table 6) have been recorded recently, including *Aceros waldeni*.

Conservation issues: Logging and clearance by fire are rapidly reducing the extent of forest remaining at this site. Its suitability for supporting populations of threatened species should be assessed.

Lake Balinsasayao (Negros)

Protected area status: No protection known, although the area lies within the Mt Talinis/Twin Lakes FPE site (1994).

Size: Extensive forests around twin crater lakes lying between four mountains: Mahungot, Kalbasan, Guidabon and Balinsasayao.

Conservation importance: Fifteen threatened species are known to have occurred (see Table 6) including all but one (*Ptilinopus arcanus*) threatened endemics to Negros and Panay, and the site is thus of major significance to conservation. Several species have not been observed recently, but it appears likely that fieldwork would reveal most of them to survive in the relatively large tracts of habitat remaining.

Conservation issues: FPE funding is available for habitat protection (managed by the Center for Tropical Conservation Studies and Ting Matiao Foundation) but no effective measures are currently known. Illegal logging activity and encroachment by *kaingin* farmers are the main difficulties faced. The area is proposed as a national park and should be incorporated into NIPAS.

Eastern Cuernos de Negros (Negros)

Protected area status: No protection. Part of the Mt Talinis/Twin Lakes FPE site (1994).

Size: Higher-altitude forest around Mt Talinis. Negros Geothermal Reservation covers 133,000 ha, of which 4,096 ha was forest in 1987.

Conservation importance: Nine threatened species have been recorded (see Table 6) with, in addition, *Gallucolumba keayi* by local report only. The largest known population of *Stachyris nigrorum* occurs here.

Conservation issues: FPE funding is available for habitat protection (managed by the Center for Tropical Conservation Studies and Ting Matiao Foundation) but no effective measures are currently known. The area is under the jurisdiction of the Philippine National Oil Corporation (PNOC). *Kaingin* agriculture is devastating the lower slopes and hunting severely depletes wildlife populations. Timber extraction for furniture-making is a significant pressure. Armed conflict and military operations have only recently decreased in intensity. The area has been the target of conservation awareness campaigns initiated by Silliman University alongside complete faunal inventories to support the proposal to establish a protected area.

Mt Bandila-an (Siquijor)

Protected area status: Forest Reserve. Siquijor itself is theoretically a recipient of FPE funds (1995).

Size: 244 ha.

Conservation importance: Siquijor is almost entirely deforested and this site offers the best opportunity for safeguarding its few endemic taxa. Although eight threatened species have been recorded on the island (see Table 6), the only one believed to survive in viable numbers on Mt Bandila-an is *Ixos siquijorensis* (moreover, this species receives no protection elsewhere). Three endemic subspecies are also present.

Conservation issues: Logging and encroachment continue to damage the tiny area of degraded habitat which is controlled as a reserve by DENR. Prevention of further deterioration of habitat quality is an urgent priority.

Cebu “key sites”

Five threatened species have been recorded at two “key sites” in the Cebu area, one of which is within a national park and the other is a Ramsar site.

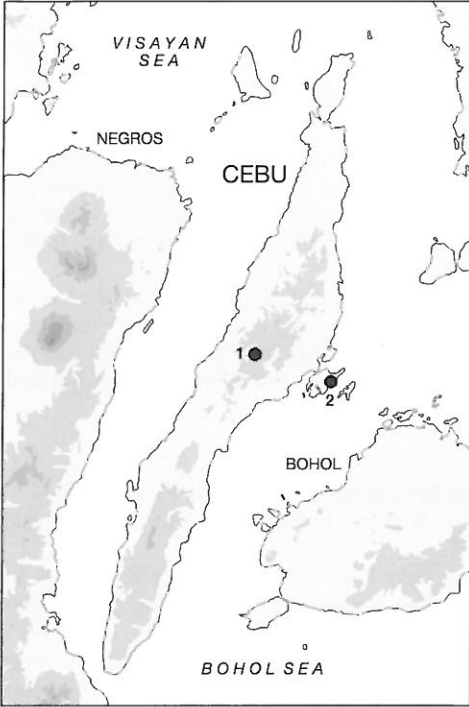


Figure 7. The distribution of “key sites” on Cebu arranged from north to south. (1) Tabunan, Cebu; (2) Olango Island. It is important to note that these are not necessarily the full suite of sites requiring protection, and that more may be identified during Haribon/BirdLife’s current IBA project.

Species	Tabunan	Olango Island	Total key sites for species
<i>Anas luzonica</i>		•	1
<i>Copsychus cebuensis</i>	•		1
<i>Dicaeum quadricolor</i>	•		1
<i>Egretta eulophotes</i>		•	1
<i>Todiramphus winchelli</i>	•		1
Total species for key site	3	2	

Table 8. The occurrence of threatened species at “key sites” on Cebu. Species in **bold** are endemic to this EBA. Cumulative data refer to this geographical unit only.

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
Tabunan				•	
Olango island				•	

Table 9. The protected area status of “key sites” on Cebu. PA = protected area, referring to status as national/natural park (NP) or forest reserve.

Tabunan (Cebu)

Protected area status: The site lies within Central Cebu National Park (Proc. no. 202, 1937), although this designation has evidently conferred no protection in the past, and does not do so now.

Size: 20–30 ha of degraded forest within a once entirely forested national park (itself 11,894 ha).

Conservation importance: Four threatened species have recently been recorded (see Table 8). Tabunan was until 1998 the only known refuge of *Dicaeum quadricolor*, and several highly endangered endemic Cebu subspecies also persist at the site.

Conservation issues: Opportunistic clearing for timber and agricultural land endanger this tiny site, and several families have occupied parts of it in order to lay claim to the land (see conservation measures sections under *Dicaeum quadricolor*).

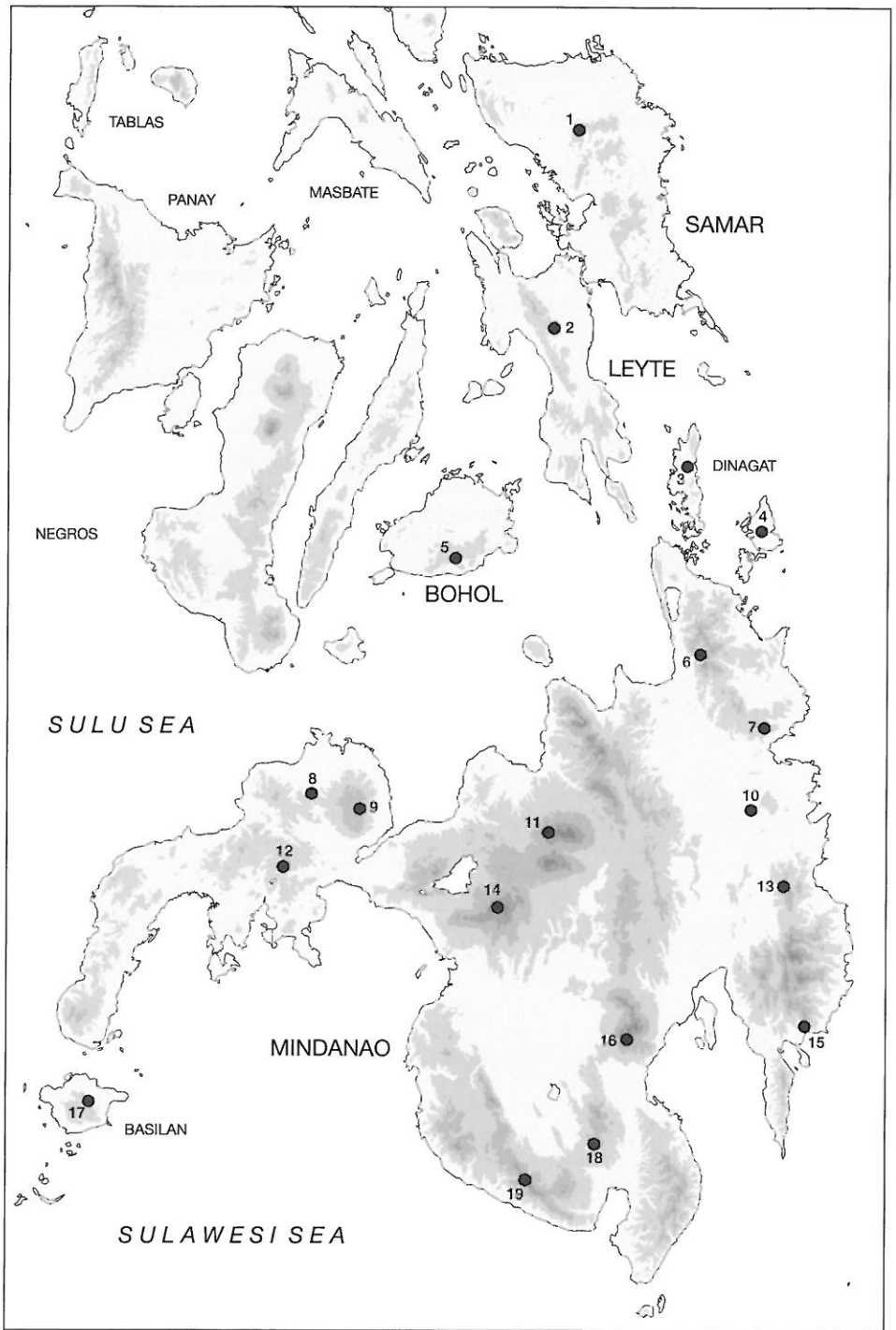
Olango (Cebu)

Protected area status: Designated as a Ramsar site and as a 920 ha Wildlife Sanctuary (Presidential Decree 903, 1992).

Size: 5,800 ha.

Conservation importance: Two threatened species occur (see Table 8), and the site supports a significant wintering population of one of these (*Egretta eulophotes*). The Near Threatened *Limnodromus semipalmatus* also winters in nationally important numbers.

Conservation issues: Organised hunting of waterbirds and disturbance by fishermen have reduced wildlife populations in the area. Since 1992 WBSJ has been collaborating with DENR at this site on survey and management work, and has aided the Save Nature Society (an NGO on Cebu) to produce educational material.



Eastern Visayas and Mindanao “key sites”

Twenty-one threatened species have been recorded at 19 “key sites” on Mindanao and associated islands, of which four are included in CPPAP, one in NIPAP and three receive FPE funding.

Table 10. The occurrence of threatened species at “key sites” on Mindanao and the Eastern Visayas. Species in bold are endemic to this EBA and sites in **bold** are incorporated within the NIPAP or CPPAP systems. Cumulative data refer to this geographical unit only.

Species	Mts Cabalantian/Capoto-an	Mt Lobi range	Kambinlio/Redondo	Siargao Island	Rajah Sikatuna NP	Mt Hilong-hilong	Mt Diwata	Mt Dapiak	Mt Malindang NP	Agusan Marsh	Mt Kitanglad NP	Mt Sugarloaf	Mt Agtuuganon	Mt Piapayungan	Mt Mayo	Mt Apo NP	Central Basilan	Mt Matutum	Mt Three Kings	Total key sites for species
<i>Actenoides hombroni</i>						•	•		•		•	•	•	•	•	•		•		9
<i>Alcedo argentata</i>	•	•		•	•		•	•		•		•	•	•	•	•				12
<i>Bubo philippensis</i>						•					•					•				3
<i>Cacatua haematurus</i>	•			•	•										•		•			5
<i>Ceyx melanurus</i>	•	•				•		•							•		•			6
<i>Chloropsis flavipennis</i>		•				•	•			•	•				•			•	•	8
<i>Collocalia whiteheadi</i>										•						•		•		3
<i>Ducula carola</i>									•		•				•	•		•	•	6
<i>Eurylaimus samarensis</i>	•	•			•															3
<i>Eurylaimus steerii</i>			•	•		•	•	•			•	•			•	•	•	•	•	11
<i>Ficedula basilanica</i>	•	•						•	•			•					•		•	7
<i>Gallicolumba criniger</i>	•	•	•			•	•		•									•	•	8
<i>Hypothymis coelestis</i>	•					•				•		•			•		•	•		7
<i>Micromacronus leytenis</i>	•	•					•				•	•		•		•		•	•	9
<i>Mimizuku gurneyi</i>			•	•		•	•	•			•					•		•	•	9
<i>Phapitreron brunneiceps</i>						•			•		•				•	•	•	•	•	8
<i>Pithecophaga jefferyi</i>						•	•	•	•		•	•	•	•	•	•	•	•	•	12
<i>Pitta steerii</i>	•	•			•	•		•											•	5
<i>Spizaetus philippensis</i>	•					•			•	•						•	•	•	•	8
<i>Todiramphus winchelli</i>		•			•				•	•						•	•	•		7
Total species for key site	10	9	3	4	7	10	8	7	8	3	11	8	1	4	10	12	10	13	8	

Figure 8 (map opposite). The distribution of “key sites” on Mindanao and the Eastern Visayas arranged from north to south. (1) Mts Cabalantian/Capoto-an, Samar; (2) Mt Lobi Range, Leyte; (3) Mts Kambinlio/Redondo, Dinagat; (4) Siargao Island; (5) Rajah Sikatuna National Park, Bohol; (6) Mt Hilong-hilong, Surigao del Sur; (7) Mt Diwata, Surigao del Sur; (8) Mt Dapiak, Zamboanga peninsula; (9) Mt Malindang, Misamis Occidental; (10) Agusan marsh, Agusan del Sur; (11) Mt Kitanglad, Bukidnon; (12) Mt Sugarloaf, Zamboanga del Sur/del Norte; (13) Mt Agtuuganon, Davao del Norte; (14) Mt Piapayungan, Lanao del Sur; (15) Mt Mayo, Davao Oriental; (16) Mt Apo, Davao del Sur; (17) Central Basilan; (18) Mt Matutum, South Cotabato; (19) Mt Three Kings, South Cotabato. It is important to note that these are not the full suite of sites requiring protection, and that many more, particularly in central Mindanao, will be identified during Haribon/BirdLife’s current IBA project.

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
Mts Cabalantian/Capoto-an					•
Mt Lobi range					•
Mts Kambinlio/Redondo			•		
Siargao island		•			
Rajah Sikatuna NP				•	
Mt Hilong-hilong					•
Mt Diwata					•
Mt Dapiak					•
Mt Malindang NP	•		•	•	
Agusan marsh		•		•	
Mt Kitanglad NP		•		•	
Mt Sugarloaf					•
Mt Agtuuganon					•
Mt Piapayungan					•
Mt Mayo					•
Mt Apo NP		•		•	
Central Basilan				•	
Mt Matutum			•		
Mt Three Kings					•

Table 11. The protected area status of "key sites" on Mindanao and the Eastern Visayas. PA = protected area, referring to status as national/natural park (NP) or forest reserve.

Mts Cabalantian/Capoto-an (Samar)

Protected area status: No protection.

Size: A large block of forest is shown on 1992 forest cover maps.

Conservation importance: Ten threatened species have been recorded in the area (see Table 10).

Conservation issues: No conservation initiatives are known. Data need to be collected relating to habitat extent and quality and the means by which it might be preserved.

Mt Lobi range (Leyte)

Protected area status: Philippine National Oil Company Geothermal Reservation (Proc. no. 1412, 1975).

Size: 107,625 ha (although 46% is agricultural land and 38% secondary forest).

Conservation importance: Nine threatened species have been recorded (see Table 10).

Conservation issues: Field surveys are required to determine the status of threatened species and their habitats at this site.

Kambinlio/Redondo (Dinagat)

Protected area status: No protection, although Dinagat Island is listed as an FPE site (1994).

Size: Areas of forest on the north-east of Dinagat, mapped in 1992.

Conservation importance: Three threatened species have been recorded at this site (see Table 10).

Conservation issues: Further fieldwork is required to provide the baseline data on which to develop management recommendations. This area was selected by FPE as one of the priority sites for funding purposes in relation to conservation, and a three-year community resource management programme began there in 1996 (the REACH Foundation acting as local proponent).

Siargao Island

Protected area status: GEF CPPAP site.

Size: 157,378 ha (of which 67,726 is terrestrial, including 8,692 ha of mangrove forest, 4,439 ha of mature forest and 12,000 ha of secondary forest).

Conservation importance: Four threatened species are known from the site (see Table 10) including a small population of *Cacatua haematuropygia*.

Conservation issues: Exploitation of natural resources by a growing human population is having a deleterious impact on fish stocks, wildlife populations and habitat quality. Dynamite fishing, deforestation and unregulated clearance of mangroves are currently the greatest threats to the ecological balance of the area. Conservation measures to control these activities are not yet in place.

Rajah Sikatuna National Park (Bohol)

Protected area status: National Park (Proc. no. 129, 1987).

Size: 9,023 ha.

Conservation importance: This protected area contains almost all forest remaining on Bohol and seven threatened species have been recorded (see Table 10). It appears to support particularly important populations of *Gallicolumba criniger*, *Pitta steerii* and *Eurylaimus samarensis*.

Conservation issues: Local pressures on the environment include selective logging, agricultural expansion, hunting, trade and soil erosion. Nevertheless, the park is relatively well protected by DENR, which is conducting an active reforestation programme in adjacent cleared areas.

Mt Hilong-hilong (Mindanao)

Protected area status: Watershed Reserve (Proc. no. 834, 1991).

Size: 16,225 ha.

Conservation importance: Ten threatened species (including seven endemic to the Mindanao EBA) are known from the site (see Table 10).

Conservation issues: The proposed Cabadbaran-Santiago National Park lies within the Hilong-hilong range, which is vital for the water supply of these municipalities. Little research has been conducted here since the 1960s and the collection of data relating to biodiversity and habitat condition is an urgent priority.

Mt Diwata range (Mindanao)

Protected area status: No protection.

Size: Several blocks of montane forest were apparent on 1992 forest cover maps.

Conservation importance: Eight threatened species have been recorded (see Table 10).

Conservation issues: As with most other sites, forest is rapidly being cleared by *kaingin* farmers and small-scale logging operations. The Lianga Bay Logging Company operated in this area until 1994/1995. With financial support from the MacArthur Foundation the concession is sustainably managed by a cooperative company composed of former employees of the company. Mt Diwata itself apparently receives protection through the presence in its forests of the New People's Army.

Mt Dapiak (Mindanao)

Protected area status: No protection, although proposed for designation under NIPAS.

Size: c.10,000 ha.

Conservation importance: Recent maps indicate Mt Dapiak to be largely denuded of natural vegetation. Nevertheless, seven threatened species have been recorded (see Table 10), at least historically, and much forest apparently remains on the adjacent Mt Paraya (included in this area). Numbers of *Pithecophaga jefferyi* occur.

Conservation issues: Forest on these mountains has been proposed as a Zamboanga del Sur provincial park and a NIPAS site. Habitat is primarily threatened by timber poaching. Fieldwork is required to assess its current extent and status and to provide baseline biodiversity data.

Mt Malindang (Mindanao)

Protected area status: National Park (Republic Act no. 6266, 1971); EU-DENR NIPAP site and FPE site (1994).

Size: 53,262 ha (of which 24,500 ha is forest).

Conservation importance: Seven threatened species have been recorded (see Table 10) including *Pithecophaga jefferyi*, one or two pairs of which are presumed to breed.

Conservation issues: Habitat area is decreasing rapidly as a result of human encroachment, illegal logging and *kaingin* farming. Wildlife populations are also affected by unsustainable levels of hunting, and to a lesser degree by disturbance from large numbers of tourists climbing the mountain. These factors are being counteracted by a suite of conservation initiatives currently in operation at the site: Biodiversity Protection for Mt Malindang (Pipuli Foundation, with FPE funding), UPLB conservation projects and LGU work.

Agusan Marsh (Mindanao)

Protected area status: GEF CPPAP site. Declared a Wildlife Sanctuary in 1996.

Size: 19,196 ha (of which 9,313 ha is swamp forest); much larger areas of marsh and forest lie adjacent.

Conservation importance: Three threatened species have been recorded in or near this area (see Table 10).

Conservation issues: Habitat is threatened by agricultural expansion, collection of forest products, mercury pollution and hunting. An escalating influx of migrants is putting greater demands on natural resources, especially through high levels of timber and bamboo collection, bird trapping and fishing.

Mt Kitanglad (Mindanao)

Protected area status: Natural Park (Proc. no. 667, 1990); GEF CPPAP site.

Size: 31,297 ha.

Conservation importance: Although 11 threatened species are listed for this site (see Table 10), the loss of almost all lowland forest presumably underlies the apparent disappearance of several of these species. The intact montane forest remains highly important by virtue of its populations of *Pithecophaga jefferyi*, *Collocalia whiteheadi* and several scarce Mindanao endemics.

Conservation issues: The park is under threat from illegal logging operations, clearance for agriculture, overhunting and the collection of wildlife. A very serious threat on the south slope of Mt Kitanglad itself (especially the Lantapan and Basak areas), as well as in the neighbouring Pangantukan Mountains, is the “gardening technology” brought in by migrant Igorots from Luzon’s Mountain Province: large tracts of montane forest have been cleared by burning and then planted to cultivars which do not thrive in the lowlands, e.g. cabbage, potato, radish and carrots (Tabaranza 1994).

Mt Sugarloaf (Mindanao)

Protected area status: No protection.

Size: Blocks of montane forest extend down slopes in some areas.

Conservation importance: Eight threatened species have been documented (see Table 10).

Conservation issues: No conservation initiatives are known and threats to the area are unclear. Fieldwork should be designed to provide baseline data on forest cover and the biological importance of the area.

Mt Agtuaganon (Mindanao)

Protected area status: No protection.

Size: Relatively large blocks of forest are apparent on 1992 forest cover maps.

Conservation importance: The only threatened species recorded here is *Pithecopaga jefferyi*, but this is clearly related to a lack of fieldwork as considerable quantities of forest habitat are thought to remain at the site.

Conservation issues: Conservation initiatives and information detailing current threats to habitat and wildlife appear to be lacking. The mountain needs to be visited in the near future to provide this information.

Mt Piapayungan (Mindanao)

Protected area status: No protection.

Size: Unknown, but considerable areas of forest are shown on 1992 forest cover maps.

Conservation importance: A large block of forest on this massif is known to support a population of *Pithecopaga jefferyi*. Only three other threatened species are known from the area (see Table 10), although additional research would doubtless reveal more.

Conservation issues: No conservation initiatives are known. Very little fieldwork has been conducted in the area and this omission needs urgently to be addressed.

Mt Mayo (Mindanao)

Protected area status: No protection.

Size: The southern portion of a large block of forest shown on 1992 forest cover maps, including Mt Kampalili and Mt Tagubud.

Conservation importance: Ten threatened species have been recorded at or near this site (see Table 10).

Conservation issues: No conservation initiatives are known. The primary goal is to assess current forest cover and the area's biological importance.

Mt Apo (Mindanao)

Protected area status: Natural Park (Proc. no. 59, 1936; Proc. no. 35, 1966); GEF CPPAP site.

Size: 64,368 ha.

Conservation importance: Twelve threatened species (discounting *Cacatua haematuropygia*, which has certainly disappeared from the area) have been recorded at this site, at least historically (see Table 10). Populations of *Pithecopaga jefferyi* and *Collocalia whiteheadi* are of particular significance.

Conservation issues: The forests on Mt Apo are under intense pressure from *kaingin* agriculture and a continuing influx of settlers and illegal loggers. The lower-altitude forests are already largely cleared or degraded, and the site could lose its populations of lowland taxa.

Central Basilan (Basilan)

Protected area status: Listed as a National Park (1939) but without effective protection. A proposed Basilan Natural Biotic Area lies in the centre of the island. Immediately to the west a forest reserve was designated in 1960 but appears to receive no protection.

Size: Basilan Natural Biotic Area covers 4,363 ha.

Conservation importance: Recent habitat maps (1992) indicate that 234 ha of primary forest and 2,500 ha of secondary forest remain on the island, on which 10 threatened species have been recorded (see Table 10), none with certainty within the confines of the Basilan Natural Biotic Area.

Conservation issues: Logging operations in the 1960s followed by clearance for agriculture and increased hunting have resulted in serious pressures on local wildlife. Land tenure agreements further complicate the effective establishment of protected areas.

Mt Matutum (Mindanao)

Protected area status: Forest Reserve. Part of the Mt Matutum/Sarangani Bay FPE site (1994). The area has been proposed as a national park under NIPAS.

Size: 14,000 ha (of which 3,000 ha is still primary forest).

Conservation importance: Thirteen threatened species (seven of which are endemic to the Mindanao EBA) have been recorded (see Table 10). A nesting pair of *Pithecopaga jefferyi* is being monitored here.

Conservation issues: Major environmental pressures include the clearance of forest for agriculture, the collection of timber or other forest products, and hunting. The Matutum Integrated Conservation and Development Project has received FPE funding since 1996 and is implemented by the Mahintana Foundation which also spearheaded the Mt Matutum Working Group, a collaborative initiative involving government bodies, LGUs and NGOs.

Mt Three Kings (Mindanao)

Protected area status: No protection.

Size: Montane forest block with small areas of remnant lowland forest on slopes.

Conservation importance: Eight threatened species have been recorded in this area (see Table 10).

Conservation issues: No conservation initiatives are known to be in operation at this site. The current status of wildlife and habitat requires full investigation.

Palawan "key sites"

Eleven threatened species have been recorded at five "key sites" on the island, of which one is included in NIPAP and one is a national park. Although Palawan was designated in its entirety as a Biosphere Reserve of 1,150,800 ha in 1990, the legislation controlling habitat alteration, hunting and trapping is impossible to enforce. The following sites thus require direct protection. For an overview of threats to habitat on Palawan and appropriate conservation strategies see Quinell and Balmford (1988) and Pido (1988).

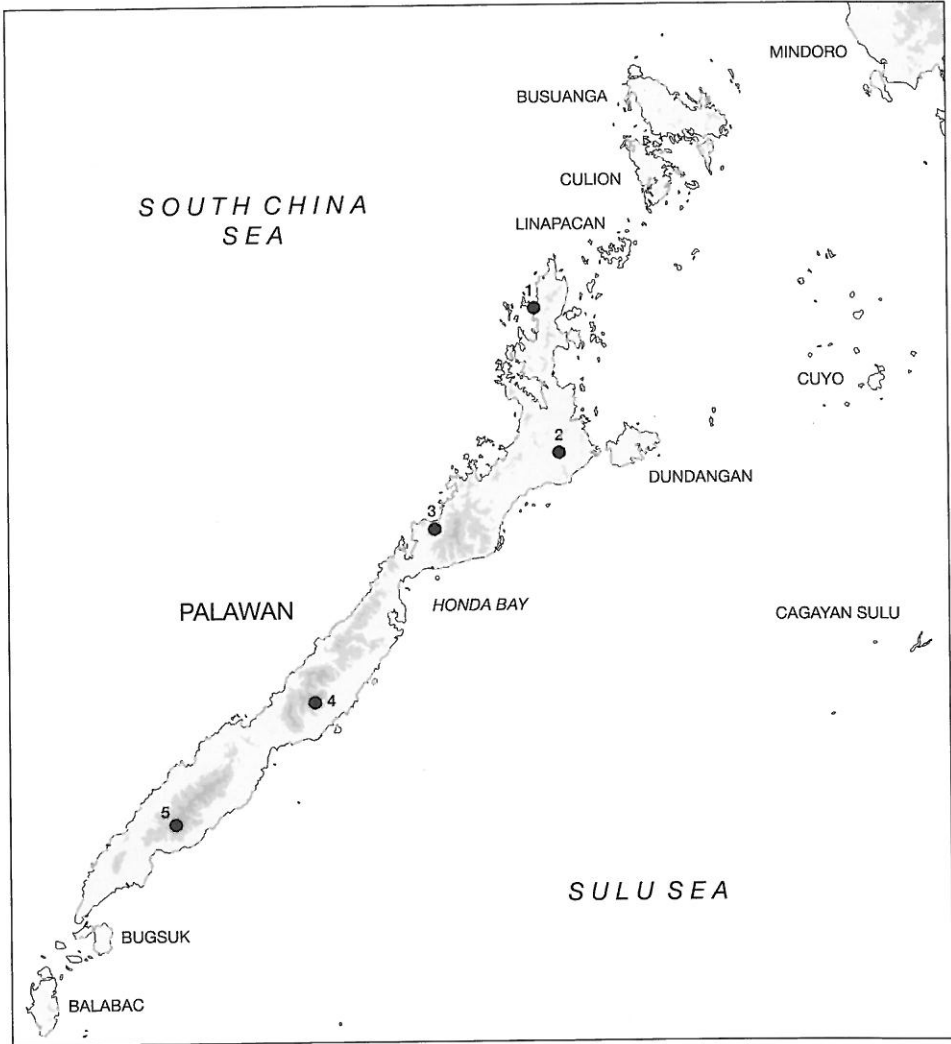


Figure 9. The distribution of "key sites" on Palawan arranged from north to south. (1) El Nido; (2) San Vicente/Taytay/Roxas forests; (3) St Paul's Subterranean River National Park; (4) Victoria/Anapalan ranges; (5) Mt Mantalingahan. It is important to note that these are not the full suite of sites requiring protection, and that more will be identified during Haribon/BirdLife's current IBA project.

Species	El Nido	San Vicente/Taytay/Roxas	St Paul's Subterranean River NP	Victoria/Anapalan ranges	Mt Mantalingahan	Total key sites for species
Anthracoceros marchei	•	•	•	•	•	5
<i>Cacatua haematuropygia</i>		•	•	•	•	4
<i>Egretta eulophotes</i>			•			1
<i>Ficedula platena</i>			•	•		2
<i>Gorsachius goisagi</i>				•		1
<i>Polyplectron emphanum</i>	•	•	•	•	•	5
<i>Prioniturus platena</i>		•	•	•	•	4
<i>Ptilocichla falcata</i>			•	•	•	3
<i>Spizaetus philippensis</i>				•		1
<i>Tringa guttifer</i>			•			1
Total species for key site	2	4	8	8	5	

Table 12. The occurrence of threatened species at “key sites” on Palawan. Species in bold are endemic to this EBA and the site in bold is incorporated within the NIPAP or CPPAP systems. Cumulative data refer to this geographical unit only.

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
El Nido	•				
San Vicente/Taytay/Roxas					•
St Paul's Subterranean River NP				•	
Victoria/Anapalan ranges					•
Mt Mantalingahan					•

Table 13. The protected area status of “key sites” on Palawan. PA = protected area, referring to status as national/natural park (NP) or forest reserve.

El Nido (Palawan)

Protected area status: El Nido Marine Reserve. This area (along with the small Bacuit Watershed Reserve) comprises an EU-DENR NIPAP site.

Size: 95,000 ha, most of which is marine but a significant proportion terrestrial and forested.

Conservation importance: Only two threatened species have been recorded in the area (see Table 12) but this is in part due to a paucity of fieldwork. Further research in forests recently mapped in the area will doubtless reveal a broader diversity of Palawan endemics.

Conservation issues: Collection of baseline biodiversity data is a priority at this site. In addition, NIPAP funding should be managed to ensure that a maximum area of intact forest is preserved.

San Vicente/Taytay/Roxas forests (Palawan)

Protected area status: No protection.

Size: Several blocks of lowland forest are mapped between the towns of San Vicente, Roxas and Taytay in northern Palawan.

Conservation importance: Four threatened species have been recorded in the area (see Table 12) but this figure will certainly increase following field-based research.

Conservation issues: Logging operations and the expansion of *kaingin* farming practices are destroying large areas of low-altitude forest in the region, and no attempt has been made to protect them.

St Paul's Subterranean River National Park (Palawan)

Protected area status: National Park (Proc. no. 835, 1971).

Size: 3,901 ha.

Conservation importance: Eight threatened species have been recorded here recently (see Table 12). Particularly significant populations of *Polyplectron emphanum* and *Cacatua haematuropygia* are still present and all threatened Palawan endemics are regularly observed.

Conservation issues: The site is actively managed and protected by the local government of Palawan. There are plans to increase its size by 32,500 ha to include the whole of the Babuyan River catchment, including Mt Cleopatra.

Victorianaपालान रेंज (Palawan)

Protected area status: No protection.

Size: Two low mountain ranges, adjacent foothills and lowlands, including Iwahig Penal Colony.

Conservation importance: Eight threatened species have been recorded (see Table 12) including all threatened Palawan endemics. Viable populations of all these exist here, in part through difficulty of access to large areas of forest.

Conservation issues: Illegal logging and shifting cultivation pose the most serious threats to the future of forest habitat. Hunting and trapping also affect populations of *Polyplectron emphanum* and *Cacatua haematuropygia*.

Mt Mantalingahan (Palawan)

Protected area status: No protection.

Size: c.70,000 ha of montane forest.

Conservation importance: Six threatened species have occurred (see Table 12). Reasonably intact lowland forest on the coastal plains west of the mountains are likely to support important populations of *Polyplectron emphanum* and *Cacatua haematuropygia*.

Conservation issues: Logging operations and the expansion of *kaingin* farming practices are destroying large areas of low-altitude forest in the region. No attempt has been made to protect any habitat.

Sulu Archipelago "key sites"

Ten threatened species have been recorded at two "key sites" in the islands, one of which apparently receives FPE funding.

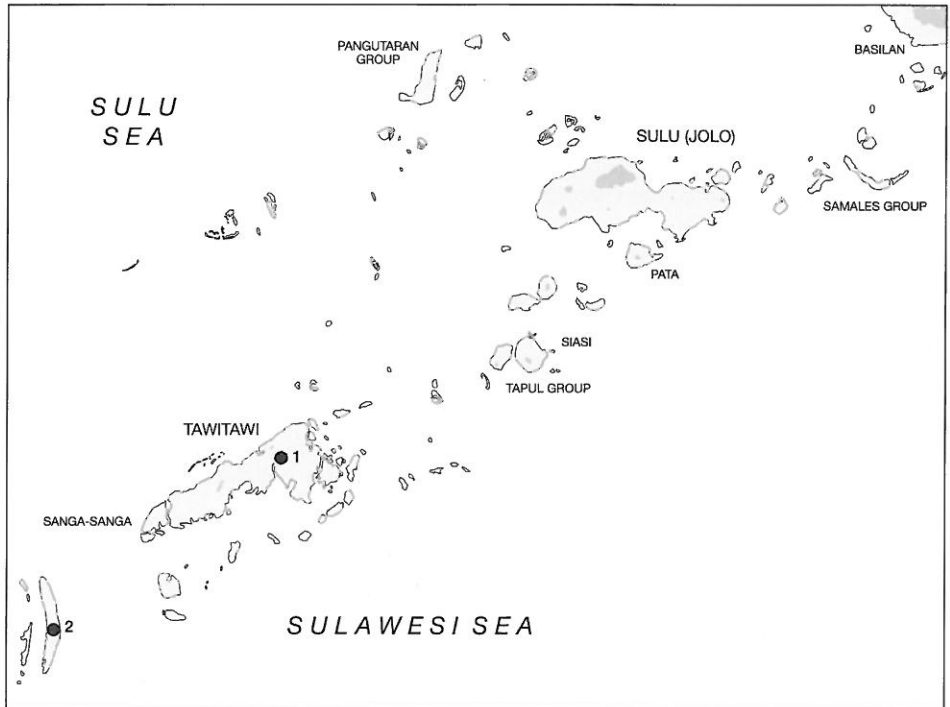


Figure 10. The distribution of "key sites" on the Sulu archipelago arranged from north to south. (1) Tawitawi; (2) Sibutu/Tumindao islands. It is important to note that these are not necessarily the full suite of sites/islands requiring protection, and that more may be identified during Haribon/BirdLife's current IBA project.

Tawitawi Island

Protected area status: No protection, although the proposed FPE (1994) involvement with the Tawitawi/Sulu Coastal Area will potentially provide funding for this purpose.

Size: Tawitawi and adjacent islands total 48,400 ha, minor portions of which are forest.

Conservation importance: Nine threatened species have been recorded (see Table 14), of which five (*Anthracoseros montani*, *Gallicolumba menagei*, *Phapitreron cinereiceps*, *Picoides ramsayi* and *Prioniturus verticalis*) are endemic to the Sulu archipelago. Tawitawi is crucial to the conservation of these species as the Sulus have been almost entirely deforested. A reasonably healthy population of *Cacatua haematuropygia* is also present.

Conservation issues: Logging and hunting are increasing on the islands and without direct intervention the endemic taxa will duly disappear. However, military activity and insurgency in the area present a serious obstacle to any conservation initiatives. Perhaps the best opportunities for conservation lie in the uninhabited islets which retain most forest, and in certain higher areas in the centre of the island where the rocky terrain inhibits access. In 1997 Mindanao State University (Tawitawi) and the Haribon Foundation commenced

Species	Tawitawi Sibutu/Tumindao islands		Total key sites for species
	Tawitawi	Sibutu/Tumindao islands	
<i>Anthracosceros montani</i>	•		1
<i>Cacatua haematuropygia</i>	•		1
<i>Ducula pickeringii</i>		•	1
<i>Egretta eulophotes</i>	•		1
<i>Gallicolumba menagei</i>	•		1
<i>Hypothymis coelestis</i>	•		1
<i>Phapitreon cinereiceps</i>	•		1
<i>Picoides ramsayi</i>	•	•	2
<i>Prioniturus verticalis</i>	•	•	2
<i>Todiramphus winchelli</i>	•		1
Total species for key site	9	3	

Table 14. The occurrence of threatened species at “key sites” on the Sulu archipelago. Species in **bold** are endemic to this EBA. Cumulative data refer to this geographical unit only.

Key site	Protected Area status				
	NIPAP	CPPAP	FPE	PA	None
Tawitawi			•		
Sibutu/Tumindao islands					•

Table 15. The protected area status of “key sites” on the Sulu archipelago. PA = protected area, referring to status as national/natural park (NP) or forest reserve.

collaboration on an awareness campaign focusing on the conservation of the terrestrial biodiversity of Tawitawi.

Sibutu and Tumindao islands

Protected area status: No protection.

Size: 9,300 ha.

Conservation importance: Three threatened species have been recorded, two of which are endemic to the Sulu archipelago (see Table 14). More fieldwork is required to clarify their status on these islands, the accuracy of local reports of *Cacatua haematuropygia* and the condition of forest habitat.

Conservation issues: No conservation measures are known to be in place but the possibility of establishing a protected area should be investigated.