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# The Philippine Owl Conservation Programme: why is it needed?

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The Philippine Archipelago is widely acknowledged as one of the world's major biodiversity and endemism 'hot-spots'. However, as a result of a burgeoning human population increase and resultant destruction and exploitation of the native forests over the past half century, the Philippines has gone from being one of the most biologically rich areas on earth, to one of the most endangered. Nowhere else in the world has this decline taken place so rapidly. Once, the Philippines had virtually a 100% forest cover, now this figure is down to less than 10%. The significance of this to Philippine owls cannot be overstated. This country has more threatened owls than any other part of the world, and of the 16 species recorded from this archipelago, 14 are almost totally dependent upon this habitat. Unless something is done quickly to protect the last few remaining forest remnants and replant those lost, virtually all of the Philippine owls, and certainly the endemic species, will soon join the New Zealand Laughing Owl *Sceloglaux albifacies* in the ranks of extinct birds. In an attempt to rectify this situation the World Owl Trust signed a Memorandum of Agreement with the Philippine Government to manage the '*Philippine Owl Conservation Programme*' as part of the overall '*Philippine Biodiversity Conservation Programme*' overseen by Fauna & Flora International. This has been very successful in carrying out field research, education and conservation-breeding programmes focused on some of the threatened taxa. Another major objective is to involve the local people in conservation initiatives by means of education, providing employment and alternative life-styles.

Key words: biodiversity hotspot, deforestation, endemism, habitat fragmentation, human population increase, Philippines, Red Data owls

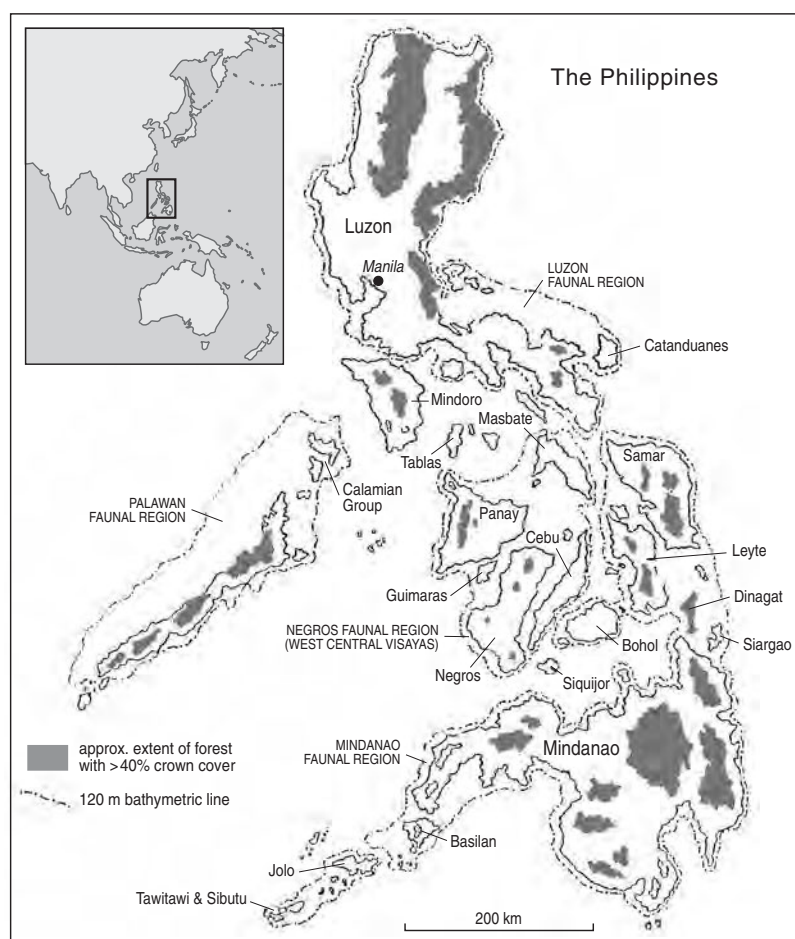
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## INTRODUCTION

Few people would disagree that the major problem facing our planet today is the rapidly expanding human population with its demands for land to be used for food production, roads, housing, industry and leisure, etc. Even so-called 'protected areas' are now under threat, and in reality many of them are 'protected' in name only, with cash-strapped governments seeing them only as 'unrealised' real-estate. To date, most wildlife and plant extinctions have occurred on islands, due to range limitations and usually small population sizes. In most cases island species have evolved in the absence of human induced pressures such as hunting,

habitat destruction, and the introduction of terrestrial predators, alien species and grazing ungulates. In the last 400 years, more than 80 bird species have gone extinct, many of them island species.

The Philippine Archipelago consists of some 7100 islands and because of this it is recognized as one of the world's major hotspots of biodiversity and endemism. Some 518 vertebrate species and 3200 flowering plants are unique to the Philippines, many of them endemic to just one, or sometimes a few, specific islands. Unfortunately, while the Philippines is now acknowledged as having perhaps the greatest concentration of unique biodiversity on earth, it is also regarded as having one of the highest human population growths, the highest



**Figure 1.** Map showing remaining original old-growth forest (dark grey) at the beginning of the 21st century. Map developed by Fauna and Flora International for the Philippine Biodiversity Conservation Programme (W. Oliver, pers. comm.).

number of endangered or recently extinct endemic species, and one of the weakest protected area systems in the world.

While extinction is a normal evolutionary process, albeit a normally slow one, current extinctions are happening at a far faster rate than at any other time in recorded history. This is because 'islands' of wildlife biodiversity are now being created all over the world, not only surrounded by water, but also on dry land. This is due to fragmentation of habitat caused by human actions. Most areas of good natural biodiversity are now significantly more fragmented than at any previous time, and as such are likely to be lost or at best degraded, in the very near future. Fragmentation leading to isolation reduces the chances of gene-flow and the possibility of re-colonization. The diversity of fragmented habitats is limited by the impoverished nature of the landscape surrounding them. They serve only as reminders of a shattered landscape with little prospect of achieving more than conserving remnants of once

great ecosystems. To maintain species diversity it is essential to maintain a system which can also generate diversity.

### EXTINCTION THREATS TO PHILIPPINE OWLS

According to Birdlife International's *'Threatened Birds of the World'* (2000), it is estimated that of the 9600 bird species in the world, no less than 1186 are currently threatened with extinction, 325 of them coming from Asia. Of the endemic species, 59 (86%) are Philippine species. If one includes the non-endemics, 74 Philippine bird species are known to be threatened with extinction, and most of these are threatened due to deforestation, especially that of lowland rainforest. The Philippines used to have an almost 100% forest cover, but now a figure well below 10% is usually quoted (Figs. 1, 2). Indeed, so great was the rate of logging



**Figure 2.** Old-growth forest, typified by giant-sized, buttress-rooted Dipterocarps once covered virtually all lowland areas of the Philippines. Less than 10% now remains. Mt. Makiling, Luzon, Philippines (photo T. Warburton).

throughout the 1960s and 1970s, that by the 1990s the Philippines were forced to start importing logs for their own use! Islands such as Cebu, Masbate, Guimaras and Ticao are now virtually denuded, while on Panay, Leyte, Negros, Bohol, Mindoro and Polillo only tiny fragments of forest are left, most of it at higher elevations. Only Samar and the major islands of Luzon, Mindanao and Palawan have reasonable areas of lowland forest remaining. Put quite simply, the rate and size of forest destruction throughout the Philippines has resulted in virtually all of the remaining areas of lowland forest being too small to maintain viable minimum numbers of species, with 'kaingin' (slash & burn) subsistence farming, continual illegal hunting, mining and resultant inbreeding all causing an overall reduction in genetic diversity (Fig. 3). Ultimately this will inevitably result in the extinction of many endemic species – including owls.

One of the reasons for its rich biodiversity is that the Philippines are bisected by 'Wallace's Line', one of the

world's major biogeographic boundaries that divides the Oriental faunal and floral region from the Australasian region. As a result, in the case of Palawan, its fauna and flora has closer links with Borneo and the Greater Sundas than the rest of the Philippine islands. Many Philippine islands are also separated into major sub-regions by deep-water channels. These are the '*Luzon Faunal Region*'; '*Mindoro*'; '*West-central Visayas*' (Negros, Panay, Masbate, Ticao, Guimaras and Cebu); '*Mindanao Faunal Region*' (Mindanao, Bohol, Samar, Leyte and Basilan); and the '*Sulu Islands*'. Each of these regions has species found nowhere else in the country. To further emphasise this point, the Philippines is not a conservation 'hotspot' because of its exceptional biodiversity, but because, for its size, it has perhaps the greatest concentration of endangered species of animals and birds of any country. In his forward to the *Philippine Red Data Book* (1997) Victor O. Ramos, Secretary of the Department of Environment & Natural Resources (DENR) summed this up perfectly when he





**Figure 3.** An example of clear-felling (right-hand hillside) resulting in habitat fragmentation. Busuanga Island, north of Palawan, Philippines (photo T. Warburton).

wrote “unless immediate and urgent action is taken, not only birds but all other Philippine wildlife species are likely to become threatened or even extinct.”

If one includes a single somewhat dubious record of an Oriental Bay Owl *Phodilus badius* (reputed to have been taken on the island of Samar in 1924 but not substantiated) 16 species of owls are recorded from the Philippines, with no less than 24 subspecies being listed. Of these, nine species and 21 subspecies are endemic, of which only two species (the Eastern Grass Owl *Tyto longimembris amauronota* and the Short-eared Owl *Asio flammeus*) are not dependent upon forest. Given the scenario described so far, it therefore comes as no surprise that the Philippines has more threatened species and subspecies of owls than anywhere else on earth. However, this situation is not reflected in the IUCN's 'Red Data List' 1996 (which listed just two species as 'ENDANGERED' and four as 'VULNERABLE'), nor the 'Philippine Red Data Book' 1997 which did the same. The latest list of threatened bird species ('*Threatened Birds of the World*'), Birdlife International, 2000), reduced this further by downgrading the two 'Endangered' species, the Giant Scops Owl *Mimizuku gurneyi* and the

Philippine Eagle Owl *Bubo philippensis* to 'Vulnerable' status, and the four 'Vulnerable' species, the Luzon Scops Owl *Otus longicornis*, the Mindoro Scops Owl *Otus mindorensis*, the Mindanao Scops Owl *Otus mirus*, and the Palawan Scops Owl *Otus fuliginosus* to 'Lower Risk/Threatened' status, along with a new entry, the Mantanani Scops Owl *Otus mantananensis*. There is a good – and very frustrating – reason for this anomaly. The 'Red Data Books' do not cater for subspecies, and this means that the true overall conservation status of seriously threatened owls (and other Families) confined to specific islands is hugely underestimated. Because they are omitted from the international listings, they are invariably ignored by those listing 'nationally threatened' fauna in their own countries – as has happened with the '*Philippine Red Data Book*'!

As a result of this, efforts to reverse the gross deforestation and other factors affecting the unique Philippine biodiversity, such as silica mining and illegal hunting, are severely handicapped due to the reluctance of government departments to provide effective protection since these authorities use the '*Philippine National List of Threatened Species*' as their reference

material – and this also does not include subspecies. It is for this reason that the World Owl Trust first became involved in Philippine owl conservation.

### THE ‘PHILIPPINE OWL CONSERVATION PROGRAMME’ (POCP)

In early 1995 Fauna & Flora International’s (FFI) ‘Philippine Project Director’ William Oliver asked the World Owl Trust to become involved in a proposed new conservation initiative to help the endangered owls of the Philippines as part of the overall ‘Philippine Biodiversity Conservation Programme’ overseen by FFI. Following a meeting in Quezon City on 2 June 1995 between senior officials of the Philippine Department of Environment & Natural Resources, the Protected Areas & Wildlife Bureau, the World Owl Trust and FFI, it was agreed to create a Philippine Owl Conservation Programme under the aegis of a Memorandum of Agreement - the first-ever international conservation programme for endangered owls. Its Aims and Objectives were to facilitate field research, education and conservation-breeding programmes for these taxa in the Philippines. Unfortunately, at this crucial point the Philippine Government decided to bring new legislation into force to control what they termed ‘bio-prospecting’. This effectively paralysed almost all useful non-commercial scientific research and other conservation-related activities for over two years, and it was not until 7 May 1998 that the MOA was finally signed.

Before any conservation action plans could be implemented it was first necessary to provide data on the ecology and distribution of indicator species as the basis for effective management. There were (and still are) huge gaps in our knowledge of even the most basic information about Philippine owls. Immediate field surveys were therefore paramount, for only if we learned which species and habitats were most at risk, could we concentrate our efforts and limited resources on these areas. Due to financial constraints the WOT had no option but to concentrate on surveys which had at least some owl-orientated importance, and our first such initiative was a survey of Ban-ban Forest on Negros Occidental, considered by William Oliver (pers. comm.) as “perhaps the most important remaining areas of lowland forest left in the Philippines.” Both the Negros Scops Owl *Otus (megalotis) nigrorum* and Visayan Hawk Owl *Ninox philippensis centralis* were found and photographed during this survey, a most important success in the case of the Scops Owl since it only occurs in lowland forest on Negros and Panay and had never

been photographed before. As a lowland forest specialist we consider it to be ‘Critically Endangered’. However, the Visayan Hawk Owl was observed to occur in secondary forest as well as clearings and disturbed areas, and this bodes well for its long term survival.

Another urgent priority was to try and establish a well-protected network of reserves in each faunal region and sub-region. Unfortunately many of the main centres of endemism were either not represented at all, or were poorly represented within the existing network of protected areas. Although the Philippine Government is aware of these problems and have made many efforts to establish conservation areas in various parts of the country, not all of these initiatives have been effective. One example of this has been the use of exotic tree species in reforestation projects rather than indigenous species. This is because such projects are aimed at producing commercial tree plantations (e.g. oil and coconut palms) rather than restoring native forests. Native tree nurseries were therefore created, both as educational tools, a means of providing employment for local people, and to serve as practical suppliers of native trees for re-creating lost forests (Fig. 4).

Sadly, it took disastrous mud slides with the loss of many human lives, to bring home to the government and indigenous population, the importance of their natural forests in protecting watersheds. These watersheds are of paramount importance for the well-being and development of many island municipalities, cities and other settlements, safeguarding water for domestic use as well as irrigation. A presidential order has now been issued which proclaims the remaining forests as ‘Protected Watersheds’, meaning that all watersheds recognized by the Department of Environment & Natural Resources (DENR) are now regarded as ‘Protected Areas’ and included in the National Integrated Protected Areas System (NIPAS) – a hugely significant step funded by the World Bank and European Union and overseen by the Protected Areas & Wildlife Bureau (PAWB). Conservation efforts to maintain biodiversity are of course wholly dependent upon adequate financial resources being available on a continual basis, plus effective law enforcement and political support, but by far the most important factor is to encourage the willing involvement of local communities in what we are trying to achieve.

It is crucial that local cultures and traditions are respected and that local community welfare and needs are always taken into account before commencing a project. Local communities must feel their needs are being respected, because ultimately they are the long-term custodians of their natural resources. Involving



**Figure 4.** Twenty-year-old restored forest. It will be many more years before this provides natural holes and cavities for owl to nest in. Los Banos Botanical Gardens, Luzon, Philippines (photo T. Warburton).

them in a broad range of initiatives will in the long run, bring greater benefits than excluding them. These should include the development of ecotourism to highlight the value of conserving the forests and their unique wildlife. Such initiatives can help to improve the livelihoods of local populations and demonstrate how sound use of their natural resources can generate a sustainable source of income.

As Oliver & Heaney (1997) have pointed out, international action alone cannot solve the problems currently facing the Philippine environment. Unless the Filipino people themselves also pick up the baton, we will ultimately fail in our mission. The need for conservation education is therefore paramount. Because natural history subjects are learned from imported text books, magazines and TV shows, it is a sad fact that most Filipino children and adults currently know more about African wildlife than their own! One of our first actions was therefore to produce and distribute educational materials, including a new owl poster in the 'Only in the Philippines' series spearheaded by William Oliver, depicting the two Philippine 'Red Data' *Mimizuku gurneyi* owls, the Philippine Eagle Owl *Bubo*

*philippensis* and the Giant Scops Owl. In more recent times, a programme has been set up to support conservation education carried out by a network of FFI local partners around the country, bringing biodiversity education into the local and rural communities. This initiative has been a great success, helped by the setting up of a 'Mobile Education Unit' housed in a 4WD single-cab Suzuki vehicle funded by the North of England Zoological Society (Chester Zoo).

At the end of the day, it is practical Philippine owl conservation itself which is the main focus of the POCF, and it was quickly realised that effective large-scale habitat protection and restoration was going to be a slow process, if indeed it was going to happen at all. The stark fact had to be faced that given the paucity or remaining lowland forest, especially *protected* forests, our hope of one day being in a position to reintroduce captive-bred owls into their former haunts, was to say the least, remote in the extreme – and this applied equally to other taxa. No reintroduction can realistically take place unless suitable habitat and prey species exist to support the released populations. Any factors believed likely to have caused the original extirpation





**Figure 5.** Breeding aviaries for Philippine Eagle Owls, sponsored by the World Owl Trust. NFEFI-Biodiversity Conservation Centre, Bacalod, Negros Occidental, Philippines (photo T. Warburton).

must also have been eliminated. For instance, one of the most serious problems facing almost all of the Philippine owls is the lack of nesting holes due to the disappearance of large trees. In the face of continuing habitat loss and virtually non-existent protection, it therefore seemed prudent to set up *in situ* conservation-breeding programmes for endangered owls to at least safeguard some of the endangered species/subspecies and create opportunities for Filipino nationals and ourselves to learn more about them and hopefully provide us with the knowledge we can use to help them in the wild. The first difficulty lay in finding a centre which could be open to local people in order to encourage their interest and education. Unfortunately, most existing Philippine zoos and 'rescue centres' were at that time far from ideal for a variety of reasons, and in the end we chose to forge links with, and support, the Biodiversity Conservation Centre created in 1977 by the Negros Forests & Ecological Foundation at Bacalod, Negros Occidental (NFEFI-BCC) (Fig. 5). The objective was to develop a world-class conservation, research and educational centre with the aim to conserve the depleted populations of endemic species found only on

the Negros and Panay Faunal Region. In the realization of this objective NFEFI-BCC has been outstandingly successful. By the end of 1998 it housed some 56 individuals of 18 different species, including critically endangered Philippine Spotted Deer *Cervus alfredi*, the equally endangered Visayan Warty Pig *Sus cebifrons* and the endemic race of Tarictic Hornbill *Penelopides p. panini* – but unfortunately no owls! However, we were only too happy to provide what help we could in establishing what has become a first-rate centre, staffed by keen Filipinos aided by a variety of western volunteers and supporters who have provided invaluable training and willingly passed on their expertise. Although Negros and Panay only have three owl species of owl, they comprise the endemic races of the Philippine Scops Owl *Otus (megalogis) nigrorum*, Philippine Hawk Owl *Ninox philippensis centralis*, and Eastern Grass Owl *Tyto longimembris amauronota* – which needless to say, makes them very important birds indeed.

Paradoxically it wasn't a Negros/Panay owl species which first graced the breeding aviaries we had sponsored at NFEFI-BCC – it was the Luzon race of the Philippine Eagle Owl *Bubo philippensis philippensis* – the



bird we had chosen as our 'flagship' due to it being the largest and probably the most threatened of all the Philippine owls. In 2002 three pairs arrived on breeding loan from Montalban Zoo, Luzon, thanks to the generosity of its owner Jake Gaw – and as usual, the perseverance of William Oliver. In 2005 this resulted in the first-ever breeding of this species in captivity (a single owlet), a feat repeated in 2006 (again a single youngster), with high hopes for another success in 2007.

Frustratingly, only one pair is breeding at the present time and we have suffered one death, but with two more females arriving from the PAWB Rescue Centre in 2006, we currently have nine birds to serve as a breeding nucleus. After this first success, we are now looking at the other endangered Philippine owls in order to assess which species/subspecies we should be working on next. Given the location of the Centre, a logical choice would seem to be the endemic scops owl *O. (m)*.

**Table 1.** The Philippine Owls. (E) = Endemic; \* indicates likelihood that these are full species rather than subspecies.

Taxon	Scientific name	Distribution
Ryukyu Scops Owl	<i>Otus elegans</i> <i>O. e. calayensis</i> (E)	Babuyan & Batanes Islands
Palawan Scops Owl	<i>Otus fuliginosus</i> (E)	Palawan
Luzon Scops Owl	<i>Otus longicornis</i> (E)	Luzon highlands
Mantanani Scops Owl	<i>Otus mantananensis</i> <i>O. m. mantananensis</i> <i>O. m. cuyensis</i> (E) <i>O. m. romblonis</i> (E) <i>O. m. sibutuensis</i> (E)	Rasa & Ursula Islands, S. Palawan Cuyo & Calamian Islands Romblon Sibutu
Philippine Scops Owl	<i>Otus megalotis</i> (E) <i>O. m. megalotis</i> (E) <i>O. m. everetti</i> (E) <i>O. (m) nigrorum</i> (E) *	Luzon lowlands Mindanao lowland Negros & Panay lowlands
Mindoro Scops Owl	<i>Otus mindorensis</i> (E)	Mindoro highlands
Mindanao Scops Owl	<i>Otus mirus</i> (E)	Mindanao highlands
Giant Scops Owl	<i>Mimizuku gurneyi</i> (E)	Mindanao, Siargos & Dinagat
Philippine Eagle Owl	<i>Bubo philippensis</i> (E) <i>B. p. philippensis</i> (E) <i>B. p. mindanensis</i> (E)	Luzon & Catanduanes Mindanao, Samar, Leyte
Brown Hawk Owl	<i>Ninox scutulata</i> <i>N. s. japonica</i> <i>N. s. florensis</i> <i>N. s. palawanensis</i> (E) <i>N. s. randi</i> (E) <i>N. s. ssp?</i> (E)	Non-resident migrant Non-resident migrant Palawan Mindanao, Visayas, Mindoro Babuyan/Fuga Island
Philippine (streak-breasted) Hawk Owl	<i>Ninox philippensis</i> (E) <i>N. p. philippensis</i> (E) <i>N. (p) spilocephala</i> (E) * <i>N. p. centralis</i> (E) <i>N. p. proxima</i> (E) <i>N. p. ticaoensis</i> (E) <i>N. (p) reyi</i> (E) *	Luzon, Samar, Marinduque, Polillo, Catanduanes, Leyte Mindanao, Basilan, Dinagat, Siargos Panay, Negros, Bohol, Boracay, Siquijor, Semirara, Guimaras Masbate Ticao Sulu Archipelago
Philippine (bar-breasted) Hawk Owl	<i>Ninox philippensis</i> (E) <i>N. (p) mindorensis</i> (E) * <i>N. (p) spilonota</i> (E) *	Mindoro Tablas, Sibuyan, Cebu, Camiguin Sur
Spotted Wood Owl	<i>Strix seloputo</i> <i>S. s. wiepkeni</i> (E)	Palawan
Short-eared Owl	<i>Asio flammeus</i> <i>A. f. flammeus</i>	Non-resident migrant
Eastern Grass Owl	<i>Tyto longimembris</i> <i>T. l. amaurota</i> (E)	Widespread
Oriental Bay Owl	<i>Phodilus badius</i> <i>P. b. badius</i>	Single record from Samar (?) 1924

*nigrorum* – especially since it is looking increasingly likely that far from being a subspecies, it might actually be a full species in its own right (See Table 1).

The Philippines are home to a wonderful diversity of owls (Table 1). However, future revisions of taxonomy, particularly of the genera *Ninox* and *Otus* are likely to result in further revisions (Wink 2009). It should also be mentioned that for the vast majority of these owls, little is known about their breeding or general behavioural biology, nor even their specific habitat and dietary needs, as well as voice. This applies as much to the largest of the Philippine owls, the Philippine Eagle Owl, as it does to the smaller species and subspecies and we have been delighted to discover that by setting up an owl section at the NFEFI Breeding Centre, we have learned much to help us with the conservation of this, one of the world's most endangered owl species, in the wild. It is our hope that in the years to come the Philippine Owl Conservation Programme will ultimately help to save other endemic owls from extinction – and ultimately, who knows, perhaps even the restoration of the once glorious forests and overall biodiversity of this unique Archipelago.

## DISCUSSION

The conservation of endangered species is a long-term, often slow, and expensive commitment, and the Philippine Owl Conservation Programme is no exception. Having worked on this project for 12 years I have learned a great deal about the Philippine 'psyche' (again thanks to William Oliver), and there is no doubt that what I have to say here, applies to virtually all Third World countries. The basic rule is that it is far worse to promise something and then not do it, than never to have started in the first place! There is a strict order of tasks which need to be implemented, namely: (1) habitat conservation & restoration; (2) field research & surveys; (3) education of local people; (4) captive-breeding programmes if necessary; (5) reintroduction once safe and suitable habitat is available.

The paucity of remaining forest and the lack of adequate protection are of huge significance to our hopes of reintroducing captive-bred Eagle Owls (and other species) to reinforce wild populations. To date the Philippine government has been reluctant to sanction such a move due to the dangers of genetic contamination of local populations, undue competition for diminished resources, and in particular the risk of disease transmission. As a result, the few authorized rescue and breeding centres have become victims of their own suc-

cess in that their compounds have become overcrowded with the progeny of the endangered species they hold. In some cases breeding has had to be curtailed, which is obviously hugely frustrating given the importance of the species involved. An added problem is that the Government will only allow non-wild-origin captive-bred individuals to leave the Philippines in order to set up *ex situ* breeding programmes. This explains why the support of approved breeding centres is a priority. However, two welcome developments have taken place recently which give rise to optimism. The first of these is the creation of 'Satellite Breeding Stations' owned by private people who have received technical training aimed at enhancing their knowledge of captive wildlife husbandry and conservation. The first of these, Green Mountains Farm, is situated in a well-forested area near Mt. Kanlaon National Park, Negros, and will be used as the model for similar projects elsewhere. It is also one of the selected sites for the future 'soft release' of Visayan Leopard Cats *Prionailurus bengalensis rabori*, Visayan Tarictic Hornbills *Peneploides p. panini* and other species – but alas, not Eagle Owls, which do not occur on Negros! Even so, this is a major advance in the progress of the overall Philippine Biodiversity Conservation Programme and hopefully will prove to be the fore-runner of similar initiatives on other islands which will include owls. Secondly, the government has relaxed its former opposition to reintroduction programmes and is developing proposals to reintroduce severely threatened species in the West Visayas region, thus paving the way for the first properly structured species reintroduction projects in the Philippines.

The World Owl Trust and its supporters are in the Philippine Owl Conservation Programme for the 'long haul' and not in search of a 'quick-fix' solution to a massive problem. The latter is unobtainable, but the ultimate victory is possible. Virtually unknown to most conservationists and naturalists only 20 years ago, the Philippines now has an increasing array of champions determined to save this most 'hottest' of biodiversity hotspots. Best of all, many of these are Filipinos, so perhaps the tide is beginning to turn at last! Maybe a sign that better things are to come, is that recent field surveys suggest that there may be more tracts of high-quality forest than we once thought, so with the cooperation and commitment of NGOs, the Philippine Government Departments and the local people themselves, we can surely hope that we can indeed ensure its permanent survival – and with it the unique owls of this incredible Archipelago.

## REFERENCES

- Birdlife International 2000. Threatened birds of the World. Barcelona & Cambridge, UK: Lynx Edicions and Birdlife International.
- Collar N.J., Mallari N.A.D. & Tabaranza Jr B.R. 1999. Threatened birds of the Philippines. Bookmark Inc., Makati City, Philippines.
- Dickenson E.C., Kennedy R.S. & Parkes K.C. 1991. The birds of the Philippines. BOU, Tring, UK.
- Heaney L.R. & Regaldo J.C. 1998. Vanishing treasures of the Philippine rain forest. Field Museum, Chicago, USA.
- Hicks N. 2000. The National Parks and other wild places of The Philippines. New Holland Publishers, London, UK.
- IUCN. 1996. IUCN Red List of threatened animals. IUCN, The World Conservation Union, Gland, Switzerland.
- Kennedy R.S., Gonzales P.C., Dickenson E.C., Miranda H.C. Jnr. & Fisher T.H. 2000. A guide to the birds of the Philippines. Oxford University Press Inc., New York, USA.
- Macarthur E. & Wilson E.O. 1967. The theory of island biogeography. Princeton University Press, Princeton, USA.
- Mallari N.A.D., Tabaranza Jr B.R. & Crosby M.J. 2001. Key conservation sites in the Philippines: a Haribon Foundation & Birdlife International directory of important bird areas. DENR & Bookmark Inc., Makati City, Philippines.
- Oliver W.L.R. & Heaney L.R. 1997. Biodiversity and conservation in the Philippines. Wildlife Conservation Society of the Philippines. Bookmark Inc., Makati City, Philippines.
- Stattersfield A.J., Cosby M.J., Long A.J. & Wege D.C. 1998. Endemic bird areas of the World. Birdlife International, Cambridge, UK.
- Tan J.M.L. 2000. The last great forest. Bookmark Inc., Makati City, Philippines.
- Warburton T. 1997. The World Owl Trust Story. World Owl Trust, Ravenglass, UK.
- Warburton T. 2003. The World Owl Trust in the Philippines. World Owl Trust, Ravenglass, UK.
- Wildlife Conservation Society of the Philippines. 1997. Philippine Red Data Book. Bookmark Inc., Makati City, Philippines.
- Wilson E.O. The diversity of life. Penguin Books, London, UK.
- Wink M., El-Sayed A.-A., Sauer-Gürth H. & Gonzalez J. 2009. Molecular phylogeny of owls (Strigiformes) inferred from DNA sequences of the mitochondrial cytochrome *b* and the nuclear *RAG-1* gene. *Ardea* 97: 581–591.

## SAMENVATTING

De Filippijnen behoren tot de rijkste gebieden ter wereld wat betreft biodiversiteit en aantallen inheemse diersoorten. Als gevolg van een voortdurende toename van de menselijke bevolking zijn de afgelopen 50 jaar de oorspronkelijke wouden geëxploiteerd of grotendeels vernietigd. Als gevolg daarvan zijn de Filippijnen van een van de in biologisch opzicht rijkste gebieden op aarde vervallen tot een van de meest bedreigde gebieden. Nergens elders heeft deze verandering zo snel plaatsgevonden. Voorheen waren de Filippijnen bijna volledig door wouden bedekt, maar tegenwoordig voor hooguit 10%. De gevolgen hiervan voor de uilen in de Filippijnen kunnen moeilijk worden overschat. Het land heeft meer bedreigde uilensoorten dan enig ander land op aarde. Van de 16 soorten zijn er 14 bijna volledig afhankelijk van de wouden. Tenzij snel iets wordt ondernomen om de laatste restjes woud te beschermen en te herstellen, zullen vrijwel alle Filippijnse uilensoorten, en zeker de endemische soorten, spoedig uitsterven. In een poging om de situatie ten goede te keren ondertekenden de World Owl Trust en de Filippijnse regering een Memorandum van samenwerking om het '*Philippine Owl Conservation Programme*' uit te voeren als onderdeel van het '*Philippine Biodiversity Conservation Programme*' van Fauna & Flora International. De hieruit voortvloeiende activiteiten zijn zeer succesvol gebleken bij het uitvoeren van veldonderzoek, het geven van voorlichting en voor fokprogramma's van enkele bedreigde soorten. Daarnaast is het de bedoeling om de lokale mensen te betrekken bij de beschermingsprogramma's door middel van voorlichting en het bieden van werkgelegenheid.



# ARDEA

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