

Agta bird names: an ethno-ornithological survey in the Northern Sierra Madre Natural Park, Philippines

JAN VAN DER PLOEG and MERLIJN VAN WEERD

Interviews with six Agta guides during fieldwork in 2006 and 2008, involving joint observations of birds in the wild and examination of illustrations, generated 110 Agta names of bird species in the Northern Sierra Madre Natural Park in northern Luzon, Philippines. Indigenous knowledge of birds is not limited to economically important species, as is often assumed. Agta hunters are familiar with most discernible species. Secretive, silent and montane birds are largely unknown.

INTRODUCTION

Ethno-ornithology, the study of people's knowledge about birds, can enhance the design of effective conservation interventions and advance scientific knowledge, particularly of enigmatic forest birds in the tropics (Berkes 1999). Nowhere is this more urgent than in the Philippines, where an exceptional high number of endemic birds face unprecedented threats (Collar *et al.* 1999). There is however little information on the ornithological knowledge and taxonomic classifications of the indigenous peoples of the Philippines. In this paper we document the bird names of the Agta, the indigenous people of the northern Sierra Madre on Luzon.

The Agta are the descendants of Australoid people who arrived in the Philippine archipelago 35,000 years ago. In contemporary Philippine society the Agta form a distinct cultural group, mainly because of their characteristic physical features and their hunter-gatherer lifestyle (Griffin & Estioko-Griffin 1985). The Agta largely depend on forest, freshwater and marine resources that are bartered with lowland communities for rice and other consumer goods. However, environmental degradation, changing consumption and production patterns, and the loss of control over their ancestral lands, threaten the Agta's way of life (Headland 1986, Minter 2010).

The Northern Sierra Madre Natural Park (NSMNP) is the largest protected area of the Philippines, with a total area of 359,486 ha (Mallari *et al.* 2001) and 294 bird species, 30% endemic to the Philippines, recorded there (van Weerd 2002). NSMNP is one of the last strongholds on Luzon for 20 globally threatened bird species, including the Critically Endangered Isabela Oriole *Oriolus isabellae* and Philippine Eagle *Pithecophaga jefferyi*. Logging, agricultural encroachment, hunting and the conversion of wetlands represent serious threats to the avifauna of NSMNP (NORDECO & DENR 1998), which remains a 'paper park': law enforcement is virtually non-existent. Government plans for infrastructural development and mining could have a severe impact on the biodiversity of the protected area and the livelihoods of the Agta.

Around 1,800 Agta live in or directly adjacent to NSMNP (Minter 2010). They speak two different Negrito languages: Palanan-Divilacan Agta and Disabungan-Dipagsangan Agta (Headland 2003). Most Agta in the park also speak Ilocano, the *lingua franca* of northern Luzon, or Tagalog, the Philippine national language. In some areas they also use Ibanag, Paranan, Kalinga or Itawis to communicate with neighbouring farming communities. Nowadays the Agta form a small minority

in NSMNP: 22,000 people live inside the park and another 33,000 in villages directly adjacent to its western boundary. Most of these people are subsistence farmers who settled in the Sierra Madre forest frontier in search of land.

METHODS

From 14 to 29 March 2006 we visited several sites along the Pacific Coast of the municipality of Palanan. We surveyed limestone forest around the Magsinarao Caves in Diguyo (16°56'N 122°27'E), ultrabasic forest on the Digollorin Plateau (16°52'N 122°26'E) and lowland forest at Diadiadin Creek in Divinisa (16°48'N 122°24'E). From 12 to 24 September 2008, we conducted a biodiversity survey in the Palanan River Valley, upstream of *sitio* Dipagsangan. We surveyed lowland dipterocarp forest at Dipinantahikan (16°53'N 122°20'E), and mid-elevation forest at Pinakdatdatin ti Bulayo (16°51'N 122°18'E). In each site we stayed three nights and three days to make an inventory of the avifauna.

During the surveys we were accompanied by six Agta guides: Estaniel Prado (around 50 years old) from Dipagsangan; Bawi Donato (70), Jaime Salazar (45) and Osbel Cabaldo (60) from Dikente, and Rabidong Alonso (60) and Moning Molina (50) from Diddadungan. These men are experienced hunters who are familiar with the topography and the species of the surveys sites. In the rainy season (June to January) Agta men in Palanan make regular trips to their hunting grounds, which are usually located within a day's reach of their settlements (Minter 2010).

To obtain Agta vernacular birds names we showed A4-size colour photographs (Philippine Bird Photography Forum 2009) and drawings (Kennedy *et al.* 2000) of 202 bird species of Luzon to our guides and asked them to identify them. There are concerns about the reliability of this pile-sorting method, as illiterate hunter-gatherers in tropical forests mainly identify birds by size, voice, behaviour and posture—characteristics that are absent in a two-dimensional picture (Diamond & Bishop 1999). We therefore validated the bird names recorded during the interviews with field observations and mist-netting. Early morning and late afternoon we walked a 5 km transect with an Agta guide. When a bird was observed or heard we asked and recorded the Agta name. In addition we asked our Agta guides to identify the birds caught in mist-nets, which enabled us to cross-check species names. In the Congo basin this combination of ecological and anthropological research methods has successfully been

used to record bird names of Mbuti hunter-gatherers (Ichikawa 1998).

Our respondents readily admitted ignorance when they did not know a bird name and frequently corrected each other, which, following Blurton Jones & Konner (1998), suggests that our records are reliable. We complemented our results with the 71 Agta bird names recorded by the DENR/Birdlife survey in the Sierra Madre in 1991 (Danielsen *et al.* 1994), during which researchers showed plates from duPont (1982) to several Agta hunters in Dinapigue and recorded their Agta name.

RESULTS AND DISCUSSION

Table 1 presents 110 Agta bird names that were recorded during field observations, mist-netting and interviews; for simplicity we confine the scientific names of species to this table. Agta bird names are spelt phonetically.

Fifteen Agta bird names overlap with Tagalog bird names (Kennedy *et al.* 2000): Philippine Duck (*Papan*), Darter (*Kasilem*), Rufous Night Heron (*Bakaw*), Blue-

breasted Quail (*Pekpekao*), Buff-banded Rail (*Tekleng*), Pompadour Green Pigeon (*Punay*), Green Imperial Pigeon (*Balud*), Emerald Dove (*Batu-Batu*), Philippine Hanging Parrot (*Colasisi*), Philippine Hawk Owl (*Bukao*), White-throated Kingfisher (*Salaksak*), Luzon Hornbill (*Tahiktik*), Rufous Hornbill (*Kalao*), Whiskered Pitta (*Kong-Kong*) and Slender-billed Crow (*Wak-Wak*). Only two species overlap with Ilocano bird names (Vanoverbergh 1928): Oriental Honey-buzzard (*Kali*) and Coletto (*Takling*). A plausible explanation is that the Agta in Palanan have adopted the names of conspicuous species from their neighbouring Tagalog farming communities. Two names are derived from Spanish: Philippine Eagle (*Aguila*) and the introduced Crested Myna (*Martinez*).

In the forest Agta hunters mainly identify species on sound. Many Agta bird names are onomatopoeic. *Pitupi* (Plaintive Cuckoo), *Tuao* (Asian Koel), *Bukao* (Philippine Hawk Owl), *Tonguitok* (Coppersmith Barbet), *Wik-Wik* (Bar-bellied Cuckooshrike), *Sina-Cacao* (Balicassiao), *Pato-Dilao* (Black-naped Oriole), *Bales-Gugu* (Philippine Fairy Bluebird), *Wak-Wak* (Slender-billed Crow), and

Table 1. Agta names for the birds of the Northern Sierra Madre Natural Park. An asterisk (*) indicates not recorded in our surveys, and Agta name from Danielsen *et al.* (1994).

Species	Agta name	Species	Agta name
LITTLE GREBE <i>Tachybaptus ruficollis</i>	<i>Talingting</i>	GULLS	<i>Bitaw</i>
SHEARWATERS (seabirds in general)	<i>Paltaw / Liaew</i>	TERNs	<i>Salikap</i>
GREAT CORMORANT <i>Phalacrocorax carbo</i>	<i>Dagalsim</i>	POMPADOUR GREEN PIGEON <i>Treron pompadora</i>	<i>Punay</i>
DARTER <i>Anhinga melanogaster</i>	<i>Kasilem</i>	PINK-NECKED GREEN PIGEON <i>Treron vernans</i>	
HERONS (GREAT-BILLED, GREY, PURPLE)	<i>Dahilog</i>	WHITE-EARED BROWN DOVE <i>Phapitreron leucotis</i>	<i>Laguiden</i>
EGRETS (GREAT, INTERMEDIATE, LITTLE, CATTLE)	<i>Uduk</i>	AMETHYST BROWN DOVE <i>Phapitreron amethystinus</i>	
PACIFIC REEF EGRET <i>Egretta sacra</i>	<i>Tugak</i>	FLAME-BREASTED FRUIT DOVE <i>Ptilinopus marchei</i>	<i>Hogam</i>
NIGHT HERONS (RUFIOUS, BLACK-CROWNED)	<i>Bakaw</i>	YELLOW-BREASTED FRUIT DOVE <i>Ptilinopus occipitalis</i>	
DUCKs	<i>Papan</i>	CREAM-BELLIED FRUIT DOVE <i>Ptilinopus merrilli</i>	<i>Biholi</i>
OSPREY <i>Pandion haliaetus</i>		BLACK-CHINNED FRUIT DOVE <i>Ptilinopus leclancheri</i>	
WHITE-BELLIED SEA EAGLE <i>Haliaeetus leucogaster</i>	<i>Bagnig</i>	PINK-BELLIED IMPERIAL PIGEON <i>Ducula poliocephala</i>	<i>Balud</i>
GREY-HEADED FISH EAGLE <i>Ichthyophaga ichthyaetus</i>		GREEN IMPERIAL PIGEON <i>Ducula aenea</i>	<i>Dugem</i>
ORIENTAL HONEY-BUZZARD <i>Pernis ptilorhynchus</i>	<i>Kali*</i>	METALLIC PIGEON <i>Columba vitiensis</i>	<i>Lupupu</i>
BRAHMINY KITE <i>Haliastur Indus</i>	<i>Dialambog</i>	REDDISH CUCKOO DOVE <i>Macropygia phasianella</i>	
EASTERN MARSH HARRIER <i>Circus spilonotus</i>	<i>Buko*</i>	ISLAND COLLARED DOVE <i>Streptopelia bitorquata</i>	<i>Lopo</i>
PIED HARRIER <i>Circus melanoleucos</i>	<i>Tagaw*</i>	SPOTTED DOVE <i>Streptopelia chinensis</i>	
GREY-FACED BUZZARD <i>Butastur indicus</i>	<i>Salikap</i>	EMERALD DOVE <i>Chalcophaps indica</i>	<i>Batu-Batu</i>
PHILIPPINE SERPENT EAGLE <i>Spilornis holospilus</i>	<i>Kulivagwag</i>	LUZON BLEEDING-HEART <i>Gallicolumba luzonica</i>	<i>Lagba-an</i>
PHILIPPINE EAGLE <i>Pithecophaga jefferyi</i>	<i>Aguila</i>	GUAIABERO <i>Bolbopsittacus lumulatus</i>	<i>Guhingab</i>
PHILIPPINE FALCONET <i>Microhierax erythrogenys</i>	<i>Banggak</i>	BLUE-NAPED PARROT <i>Tanygnathus lucionensis</i>	<i>Uret</i>
RED JUNGLEFOWL <i>Gallus gallus</i>	<i>Italon</i>	BLUE-BACKED PARROT <i>Tanygnathus sumatranus</i>	
TABON SCRUBFOWL <i>Megapodius cumingii</i>	<i>Ocong</i>	GREEN RACQUET-TAIL <i>Prioniturus luconensis</i>	<i>Mambag</i>
QUAILS and BUTTONQUAILS	<i>Pekpekao</i>	MONTANE RACQUET-TAIL <i>Prioniturus montanus</i>	
RAILs	<i>Tangiok</i>	COLASISI <i>Loriculus philippensis</i>	<i>Colasisi</i>
PLAIN BUSH-HEN <i>Amaurornis olivaceus</i>		CUCKOOS	<i>Petpet</i>
BUFF-BANDED RAIL <i>Gallirallus philippensis</i>	<i>Tekleng</i>	PLAINTIVE CUCKOO <i>Cacomantis merulinus</i>	<i>Pitupi</i>
BARRED RAIL <i>Gallirallus torquatus</i>		ASIAN KOEL <i>Eudynamis scolopacea</i>	<i>Tuao</i>
WATERCOCK <i>Gallixes cinerea</i>	<i>Tungtung</i>	SCALE-FEATHERED MALKOHA <i>Phaenicophaeus cumingi</i>	<i>Sekat</i>
PLOVERS (shorebirds in general)	<i>Balalang</i>	RED-CRESTED MALKOHA <i>Phaenicophaeus superciliosus</i>	
COMMON SANDPIPER <i>Actitis hypoleucos</i>	<i>Tabalalan</i>	PHILIPPINE COUCAL <i>Centropus viridis</i>	<i>Saleng-Gagu</i>
GREATER PAINTED-SNIPE <i>Rostratula benghalensis</i>	<i>Tahadag</i>	RUFIOUS COUCAL <i>Centropus unirus</i>	<i>Talamsig</i>
SNIPES	<i>Tardak</i>	PHILIPPINE SCOPS OWL <i>Otus megalotis</i>	<i>Siok</i>
		PHILIPPINE EAGLE OWL <i>Bubo philippensis</i>	<i>Bulayo</i>
		PHILIPPINE HAWK OWL <i>Ninox philippensis</i>	<i>Bukao</i>

Table 1 ... continued.

Species	Agta name	Species	Agta name
PHILIPPINE FROGMOUTH <i>Batrachostomus septimus</i>	<i>Tuker</i>	SULPHUR-BILLED NUTHATCH <i>Sitta oenochlamys</i>	<i>Balteo</i>
NIGHTJARS	<i>Tagao</i>	GOLDEN-CROWNED BABBLER <i>Stachyris dennistouni</i>	<i>Patit</i>
SWIFTLETS	<i>Talawen</i>	ORIENTAL MAGPIE ROBIN <i>Copsychus saularis</i>	<i>Palal</i>
WHISKERED SWIFTLET <i>Hemiprocne comata</i>	<i>Gahuitid</i>	WHITE-BROWED SHAMA <i>Copsychus luzoniensis</i>	<i>Hegihow</i>
PHILIPPINE TROGON <i>Harpactes ardens</i>	<i>Amaladawon</i>	ARCTIC WARBLER <i>Phylloscopus borealis</i>	
DOLLARBIRD <i>Eurystomus orientalis</i>	<i>Kasak-Kasak</i>	LEMON-THROATED LEAF WARBLER <i>Phylloscopus cebuensis</i>	<i>Tiger</i>
COMMON KINGFISHER <i>Alcedo atthis</i>	<i>Soksok</i>	TAWNY GRASSBIRD <i>Megalurus timoriensis</i>	<i>Rouset-Rouset</i>
INDIGO-BANDED KINGFISHER <i>Alcedo cyanopectus</i>		PHILIPPINE TAILORBIRD <i>Orthotomus castaneiceps</i>	<i>Bernang</i>
PHILIPPINE DWARF KINGFISHER <i>Ceyx melanurus</i>	<i>Darwen</i>	CISTICOLAS	<i>Sarsit*</i>
STORK-BILLED KINGFISHER <i>Pelargopsis capensis</i>	<i>Batao</i>	MANGROVE BLUE FLYCATCHER <i>Cyornis rufigastra</i>	<i>Bangak</i>
WHITE-THROATED KINGFISHER <i>Malcyon smyrnensis</i>		BLUE-HEADED FANTAIL <i>Rhipidura cyaniceps</i>	<i>Baltay</i>
WHITE-COLLARED KINGFISHER <i>Halcyon chloris</i>	<i>Salaksak</i>	PIED FANTAIL <i>Rhipidura javanica</i>	<i>Mangatiklan*</i>
SPOTTED KINGFISHER <i>Actenoides lindsayi</i>	<i>Sulpayat*</i>	RUFIOUS PARADISE-FLYCATCHER <i>Terpsiphone cinnamomea</i>	<i>Pitokan</i>
BLUE-THROATED BEE-EATER <i>Merops viridis</i>		JAPANESE PARADISE-FLYCATCHER <i>Terpsiphone atrocaudata</i>	<i>Dislag*</i>
BLUE-TAILED-BEE-EATER <i>Merops philippinus</i>	<i>Leplew</i>	BLACK-NAPED MONARCH <i>Hypothymis azurea</i>	<i>Bouseswet</i>
LUZON HORNBILL <i>Penelopides manillae</i>	<i>Tahiktik</i>	GREY WAGTAIL <i>Motacilla cinera</i>	<i>Palansasiwan</i>
RUFIOUS HORNBILL <i>Buceros hydrocorax</i>	<i>Kalaw</i>	WHITE WAGTAIL <i>Motacilla alba</i>	<i>Nagbiyakas*</i>
COPPERSMITH BARBET <i>Megalaima haemacephala</i>	<i>Tonguitok</i>	RICHARD'S PIPIT <i>Anthus novaseelandiae</i>	<i>Routak-Routak</i>
WOODPECKERS	<i>Kamambitel</i>	WHITE-BREASTED WOODSWALLOW <i>Artamus leucorhynchus</i>	<i>Macolewlew</i>
RED-BELLIED PITTA <i>Pitta erythrogaster</i>		SHRIKES	<i>Rek-Rek</i>
WHISKERED PITTA <i>Pitta kochi</i>	<i>Kong-Kong</i>	COLETO <i>Sarcops calvus</i>	<i>Takling</i>
HOODED PITTA <i>Pitta sordida</i>	<i>Busaswet</i>	CRESTED MYNA <i>Acridotheres cristatellus</i>	<i>Martinez</i>
PACIFIC SWALLOW <i>Hirundo tahitica</i>	<i>Kalawen</i>	SUNBIRDS	<i>Tilad-Tilad</i>
BAR-BELLIED CUCKOOSHRIKE <i>Coracina striata</i>	<i>Wik-Wik</i>	FLOWERPECKERS	<i>Boboyan</i>
BLACKISH CUCKOOSHRIKE <i>Coracina coerulescens</i>	<i>Rok-Rok</i>	ORANGE-BELLIED FLOWERPECKER <i>Dicaeum trigonostigma</i>	<i>Bukidong*</i>
YELLOW-VENTED BULBUL <i>Pycnonotus goiavier</i>	<i>Pageg-Pak</i>	WHITE-EYES	<i>Bubonsalag*</i>
YELLOW-WATTLED BULBUL <i>Pycnonotus urostictus</i>	<i>Pogyuk</i>	EURASIAN TREE SPARROW <i>Passer montanus</i>	<i>Trompon*</i>
PHILIPPINE BULBUL <i>Hypsipetes philippinus</i>	<i>Patet</i>	GREEN-FACED PARROTFINCH <i>Erythrura viridifacies</i>	<i>Tragui</i>
BALICASSIAO <i>Dicrurus balicassius</i>	<i>Sina-Cacao</i>	MUNIAS	<i>Dignas</i>
BLACK-NAPED ORIOLE <i>Oriolus chinensis</i>	<i>Pato-Dilao</i>		
PHILIPPINE FAIRY BLUEBIRD <i>Irena cyanogaster</i>	<i>Bales-Gugu</i>		
SLENDER-BILLED CROW <i>Corvus enca</i>	<i>Wak-Wak</i>		
LARGE-BILLED CROW <i>Corvus macrorhynchos</i>			
ELEGANT TIT <i>Parus elegans</i>	<i>Amalplosan</i>		

Rek-Rek (Brown Shrike) are clear examples of vernacular names that describe the distinctive sound of the species.

Pigeons (Columbidae) are the most important prey species for Agta hunters. Pompadour Green Pigeon and Pink-necked Green Pigeon are both called *Punay*. Agta hunters mimic the calls of White-eared and Amethyst Brown Doves (both *Laguiden*) to lure them within shooting range. They consider Cream-bellied Fruit Dove (*Biholi*) an indicator species for relatively undisturbed forest. Yellow-breasted Fruit Dove is called *Hogam*, but hunters mention another *Hogam* species restricted to montane forest, probably Flame-breasted Fruit Dove. Common Emerald Dove is called *Batu-Batu*; *batu* means stone, and the Agta claim they find stones in the gizzard when butchering this species. The Agta are familiar with Black-chinned Fruit Dove (also called *Biholi* because it has red feet) and Pink-bellied Imperial Pigeon and Green Imperial Pigeon (both called *Balud*), but say that these species do not occur on the eastern side of the Sierra Madre. They do not know Pied Imperial Pigeon *Ducula bicolor*, and it has probably never occurred along the coast of NSMNP. Island Collared Dove and Spotted Dove are seen as

female and male of a single species, *Lopo*. A similar cognitive construction is made for Long-tailed Shrike and Brown Shrike (*Rek-Rek*) as male and female of a single species.

Hunters catch live Red Junglefowl (*Italon*) with rattan traps to crossbreed the species with domestic chickens. They say they also regularly catch Red-bellied Pitta (*Kong-Kong*) in traps. Feathers of both Luzon and Rufous Hornbills are used for arrows. Rufous Hornbill (*Kalao*) casques from NSMNP are traded to middlemen to be sold as traditional medicine or tourist souvenirs in Ifugao province. Agta children regularly shoot bulbuls and other small birds with catapults for fun and for food. The Agta distinguish three bulbul species: *Pageg-Pak* (Yellow-vented), *Pogyuk* (Yellow-wattled) and *Patet* (Philippine).

They distinguish three swiftlet species, called *Talawen*. Swiftlet nests are an important commodity for the Agta (Minter 2010). Nests of Island Swiftlet, Glossy Swiftlet and Pygmy Swiftlet are collected from limestone caves during the dry season (March–June), cleaned and sold to traders. Swiftlet nests are the most profitable non-timber forest product in NSMNP. There are no specific harvest

regulations and some Agta are concerned about the sustainability of the swiftlet nest trade.

The Agta shoot Philippine Serpent Eagle (*Kuliwagwag*) and Brahminy Kite (*Dialambog*) with air-guns or home-made match-guns, as they occasionally attack domestic chickens; but tradition prescribes that only 'guilty birds', individuals that have actually attacked chicken, can be shot. Philippine Eagle (*Aguila*) is very seldom seen by Agta hunters, who say the species 'lives in a big tree high in the mountains', suggesting it is confined to montane forest in the northern Sierra Madre; they know it is protected by law. Munias (*Dignas*) and Green-faced Parrotfinch (*Tragu*) are also considered pests as they feed on upland rice, and are caught with fish-nets.

Indigenous knowledge of birds is not limited to edible or pest species, as is popularly assumed. Prominent species in mixed flocks in lowland forest are well known to the Agta, such as Elegant Tit (*Amalplosan*), Sulphur-billed Nuthatch (*Balteo*), White-browed Shama (*Hegihow*), Blue-headed Fantail (*Baltay*) and Black-naped Monarch (*Bouseswet*). The Agta identify seven kingfisher species. Two different 'classes' of *Darwen* occur respectively in agricultural areas (Indigo-banded Kingfisher) and the forest (Philippine Dwarf Kingfisher). The Stork-billed Kingfisher is known as *Batao* and is said to occur along large rivers. Common and Spotted Kingfishers are respectively known as *Soksok* and *Sulpayat*. Two different *Salaksak* occur in agricultural areas: White-throated and White-collared Kingfisher. The *Salaksak* announces the arrival of visitors (van Alphen 1999).

Several other birds play a prominent role in Agta culture. It is said that two mythical birds created the world and gave birth to its first people: these creator-gods are embodied in *Uduk* (Egret) and *Wak-Wak* (Crow) (Minter 2010). A folktale describes the plight of the *Takling*: in a competition the Coletto flew higher than all other birds, but blinded by his success flew so high that the sun burned his face. Scale-feathered Malkoha (*Sekat*) is considered an omen for hunting success. Philippine Eagle Owl (*Bulayo*) is associated with ancestral spirits. Evil spirits (*anito*) sometimes take the form of a nightjar (*Tagao*) and make people sick.

A distinctive feature of Agta taxonomy is that species are often classified simply at family or genus level: all woodpeckers (Picidae) for example are called *Kamambitel*. Sometimes the classification is based on a shared behavioural trait and appearance: all piscivorous raptors are *Bagnig*. Within these general categories the Agta distinguish different 'classes' (i.e. species). There are thus three classes of *Bagnig* (White-bellied Sea Eagle, Grey-headed Fish Eagle and Osprey). Important prey species that look very similar, such as White-eared and Amethyst Brown Dove (both *Laguiden*), as well as less obvious species, such as flowerpeckers (Dicaeidae) (*Boboyan*) and sunbirds (Nectariniidae) (*Tilad-Tilad*), are lumped, but in the case of sunbirds Agta tell apart several species based on habitat: Olive-backed is found in agricultural areas along the coast whereas Metallic-winged occurs only in lowland forest.

Our informants misidentified several species. Jerdon's Baza *Aviceda jerdoni* was identified from a photograph as *Kuliwagwag* (Philippine Serpent Eagle), Besra *Accipiter virgatus* as *Bukao* (Philippine Hawk Owl), Rufous-bellied Eagle *Hieraetus kienerii* as *Bagnig*, Spotted Imperial Pigeon *Ducula carola* as *Biholi* (fruit dove), Bukidnon Woodcock

Scolopax bukidnonensis as *Tardak* (Common Snipe), White-browed Jungle Flycatcher *Rhinomyias insignis* as *Hegihow* (White-browed Shama), Asian Glossy Starling *Aplonis panayensis* as *Sina-Cacao* (Balicassiao), and Buzzing Flowerpecker *Dicaeum hypoleucum* as *Bernang* (Philippine Tailorbird). These mistakes are easily explicable: the photographs and drawings of these species closely resemble each other. We think that our respondents would have correctly identified these species in the field. Only a few species that we jointly observed in the field were misidentified: Citrine Canary Flycatcher *Culicicapa helianthea* was identified as *Amalplosan* (Elegant Tit), Golden-bellied Gerygone *Gerygone sulphurea* as *Boboyan* (flowerpecker), and Green-backed Whistler *Pachycephala albiventris* and Chestnut-faced Babbler *Stachyris whiteheadi* as *Patet* (Philippine Bulbul).

Agta do not have names for most montane species, such as Luzon Scops Owl *Otus longicornis*, White-browed Shortwing *Brachypteryx montana*, White-cheeked Bullfinch *Pyrrhula leucogenis* and Tawny-breasted Parrotfinch *Erythrura hyperythra*. High-altitude forest in NSMNP is difficult to access and Agta seldom hunt and gather above 800 m. Inconspicuous, silent and shy species such as White-fronted Tit *Parus semilarvatus*, Rabor's Babbler *Napothera rabori*, Luzon Striped Babbler *Stachyris striata*, Ashy Thrush *Zoothera cinerea*, Long-tailed Bush Warbler *Bradypterus caudatus*, Blue-breasted Flycatcher *Cyornis herioti*, Furtive Flycatcher *Ficedula disposita* and Striped Flowerpecker *Dicaeum aeruginosum*, and rare migrants such as Siberian Rubythroat *Luscinia calliope*, Scaly Thrush *Zoothera dauma* and Chestnut-cheeked Starling *Sturnus philippensis*, were not known to our informants.

According to our guides the Tabon Scrubfowl (*Ocong*) has been exterminated along the coast of NSMNP. Darter (*Kasilem*) has not been recorded in the Sierra Madre (van Weerd & van der Ploeg 2004) but our informants claim they still occasionally see the species along rivers. Agta are unfamiliar with Philippine Cockatoo *Cacatua haematuropygia*, substantiating the assumption that the species never occurred in the northern Sierra Madre (Poulsen 1995). The Agta in Palanan also do not know Isabela Oriole, which suggests that the distribution of this Critically Endangered species is limited to the western foothills of the Sierra Madre (van Weerd & Hutchinson 2004). The Agta say that the two racquet-tail species in the northern Sierra Madre (lumped as *Mambag*) only occur on the western side of the Sierra Madre. That the Agta have a name for Blue-naped Parrot or Blue-backed Parrot (*Uret*) is remarkable, as these species have not been recorded in NSMNP. The Agta are unfamiliar with Spot-billed Pelican *Pelecanus philippensis*, Black-faced Spoonbill *Platalea minor* and Sarus Crane *Grus antigone*, which indicates that these species have been absent in NSMNP for a long time (van Weerd & van der Ploeg 2004). Our respondents did not recognise drawings of Oriental Stork *Ciconia stormi* or Woolly-necked Stork *C. episcopus*, suggesting that these two species are rare vagrants (Danielsen *et al.* 1994).

The Agta are thus familiar with most discernible species in NSMNP, while secretive and montane species are much less known. This ethno-ornithological knowledge can be effectively tapped to derive new insights on the spatial and temporal distribution of several globally threatened birds (Johannes 1993), monitor biodiversity in the protected area (Danielsen *et al.* 2000), or refine conservation

interventions (Sheil & Lawrence 2004). The interest of Agta hunters in birds, the cultural values of many bird species and traditional conservation ethics can provide a sound basis for conservation action. In theory the Agta have an important say in the management of NSMNP: 11 out of 36 members of the Protected Area Management Board are Agta representatives. In practice, however, the participation of the Agta in decision-making is limited and park regulations are not enforced on the ground, with detrimental consequences for biodiversity and the welfare of Agta communities.

ACKNOWLEDGEMENTS

We thank Estaniel Prado, Rabidong Alonso, Moning Molina, Bawi Donato, Noni Donato, Jaime Salazar, Ladot Magas and Osbel Cabaldo for guiding us in the field and providing the information presented in this paper. We acknowledge the efforts of Jessie Guerrero, Dominic Rodriguez, Bernard Tarun, Edmund Jose and Arnold Macadangdang of the Mabuwaya Foundation who helped us in the field. We used the superb photographs of Romy Ocon as visual aids during the interviews (<http://birdphotoph.proboards107.com>). The Office of the Protected Area Superintendent (PASu) of the Department of Environment and Natural Resources (DENR) granted us permission to work in NSMNP. Fieldwork was partly funded by a Birdfair/Royal Society for the Protection of Birds (RSPB) research grant. Tessa Minter and Tom Headland provided valuable comments on Agta livelihoods, language and culture. Carmela Española and Jayson Ibañez reviewed an earlier version of the manuscript.

REFERENCES

- van Alphen, R. (1999) The nature of beings: a study on perceptions and values attached to nature among Agta in the northern Sierra Madre, Isabela, Philippines. Leiden: CML. Environment and Development Student Report 105.
- Berkes, F. (1999) *Sacred ecology: traditional ecological knowledge and resource management*. London: Taylor & Francis.
- Blurton Jones, N. & Konner, M. J. (1998) !Kung knowledge of animal behaviour (or: the proper study of mankind is animals). Pp.325–348 in R. B. Lee & I. DeVore, eds. *Kalahari hunter-gatherers; studies of the !Kung San and their neighbours*. Cambridge: Harvard University Press.
- Collar, N. J., Mallari, N. A. D. & Tabaranza, B. R. (1999) *Threatened birds of the Philippines*. Makati City: Bookmark.
- Danielsen, F., Balete, D. S., Christensen, T. D., Heegaard, M., Jakobsen, O. F., Jensen, A., Lund, T. & Poulsen, M. K. (1994) *Conservation of biological diversity in the Sierra Madre mountains of Isabela and southern Cagayan Province, the Philippines*. Manila: DENR-BirdLife International.
- Danielsen, F., Balete, D. S., Poulsen, M. K., Enghoff, M., Nozawa, C. M. & Jensen, A. E. (2000) A simple system for monitoring biodiversity in protected areas of a developing country. *Biodiversity and Conservation* 9: 1671–1705.
- Diamond, J. & Bishop, K. D. (1999) Ethno-ornithology of the Ketengban people, Indonesian New Guinea. Pp.17–45 in D. L. Medina & S. Atran, eds. *Folkbiology*. Cambridge: MIT Press.
- duPont, J. E. (1982) *Philippine birds*. Delaware: Delaware Museum of Natural History Monograph 2.
- Griffin, P. B. & Estioko-Griffin, A. E. (1985) *The Agta of northeastern Luzon*. Cebu City: San Carlos Publications.
- Headland, T. N. (1986) Why foragers do not become farmers; a historical study of a changing ecosystem and its effect on a Negrito hunter-gatherer group in the Philippines. PhD. thesis, University of Hawaii, Manoa.
- Headland, T. N. (2003) Thirty endangered languages in the Philippines. *Work Papers of the Summer Institute of Linguistics, University of North Dakota* 47.
- Ichikawa, M. (1998) The birds as indicators of the invisible world: ethno-ornithology of the Mbuti hunter-gatherers. *African Study Monographs* 25: 105–121.
- Johannes, R. E. (1993) Integrating traditional ecological knowledge and management with environmental impact assessment. Pp.33–39 in J. T. Inglis, ed., *Traditional ecological knowledge; concepts and cases*. Ottawa: IDRC.
- Kennedy, R. S., Gonzales, P. C., Dickinson, E. C., Miranda, H. C. & Fisher, T. H. (2000) *A guide to the birds of the Philippines*. Oxford: Oxford University Press.
- Mallari, N. A. D., Tabaranza, B. R. & Crosby, M. J. (2001) *Key conservation sites in the Philippines*. Makati: Bookmark Inc. Haribon Foundation and Birdlife International.
- Minter, T. (2010) The Agta of the northern Sierra Madre: livelihood strategies and resilience among Philippine hunter-gatherers. PhD thesis, Leiden University, Leiden.
- NORDECO & DENR (1998) *Integrating conservation and development in protected area management in the Northern Sierra Madre Natural Park, the Philippines*. Manila: DENR.
- Philippine Bird Photography Forum (2009) *A photographic guide to the birds of the Philippines*. <http://birdphotoph.proboards107.com/index.cgi?board=birdlist>.
- Poulsen, M. K. (1995) The threatened and near-threatened birds of Luzon, Philippines, and the role of the Sierra Madre mountains in their conservation. *Bird Conserv. Internat.* 5: 79–115.
- Sheil, D. & Lawrence, A. (2004) Tropical biologists, local people and conservation: new opportunities for collaboration. *Trends Ecol. Evol.* 19: 634–638.
- Vanoverbergh, M. (1928) Animal names in Iloko. *J. Amer. Oriental Soc.* 48: 1–33.
- van Weerd, M. (2002) *Summary report of the fauna study results in the Northern Sierra Madre Natural Park 1999–2002*. Cagayan: Plan Philippines NSMNP-CP.
- van Weerd, M. & van der Ploeg, J. (2004) Surveys of wetlands and waterbirds in Cagayan Valley, northern Luzon, Philippines. *Forktail* 20: 33–39.
- van Weerd, M. & Hutchinson, R. (2004) Observations of Isabela Oriole *Oriolus isabellae* in the Sierra Madre, Luzon, Philippines, with descriptions of the call. *Forktail* 20: 133–136.

Jan van der Ploeg, Institute of Cultural Anthropology and Development Sociology Leiden University, the Netherlands. Email: vanderploegjan@hotmail.com
 Merlijn van Weerd, Institute of Environmental Sciences, Leiden University, the Netherlands. Email: merlijnvanweerd@yahoo.com