An Avifaunal Survey in Selected Sites Along Bago River, Negros Occidental, Philippines

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The avifaunal species occurring in forest fragments and in a coastal marsh associated with the Bago River were surveyed from July to September 2009 and from February to April 2010. Using deliberate search, mist netting and transect walk, 129 species of birds belonging to 42 families were recorded, of which 15 are Philippine endemics, 68 are resident species, and 46 are migrants. Two threatened species were recorded during the study while three bird species were recorded as additions to the avifauna of Negros. Conservation of the remaining habitats for birds along the Bago River should be immediately implemented.

KEYWORDS: avifauna, Negros Island, threatened species, migrants, residents

INTRODUCTION

The Negros-Panay biogeographical region is home to 190 species of birds. Birdlife International has recognized Negros Island as an Endemic Bird Area, being part of the larger central Philippine Islands (EBA 152) and an Important Bird Area (IBA) (Stattersfield, Crosby, Long & Wege, 1998).

Brooks, et al. (1992) and Turner, Tamblyn, Dray, Maunder and Raines (2002) summarized the ornithological studies conducted on Negros Island.

Fragmented forests and a coastal marshland along the Bago River are home to some of the bird species on Negros Island. This river system originates between the two large mountain ranges in Northern Negros—the Mt. Kanlaon Volcano in the southeast and North Negros Mountain Range in the northeast, stretching about 76 km and passing through five municipalities to drain at Guimaras Strait.

This paper presents the list of bird species found along the Bago River including new island records for Negros. Effective ecosystem management and conservation should be immediately acted upon.

METHODS AND MATERIALS

Description of the Study Area

This study surveyed four study sites along the Bago River (Figure 1). Kumaliskis (Station 1) is generally of an agricultural landscape, mainly for sugar cane and partly for corn and rice fields. The forest has been severely devastated due to agricultural practices and most of the plants are comprised of exotic and agricultural species (e.g. *Chromolaema odorata, Lantana camara, Gmelina arborea*). The steep slopes are occupied by stunted native species, mostly by figs (*Moraceae*) and grasses (*Graminae*).

Lopez Jaena (Station 2) is similar to Station 1, except that this station has a higher number of households near the river. Very little forest is left by agriculture and majority of the area is of degraded state. Abandoned private lands have been colonized by grasses (e.g. *Imperata cylindrica, Bambusa vulgaris*) and shrubs (*C. odorata*). Like those in Station 1, trees are mostly agricultural species (e.g. *Chrysophyllum cainito, G. arborea*).

Damsite (Station 3) is dominated by bamboo thickets and

cultivated fields on either banks of the river, with a few severely degraded forest fragments. Proximate to the location of the dam by the National Irrigation Authority (NIA) is a continuous area dominated by shrubs (e.g. *L. camara*) and grasses (e.g. *Paspalum*).

Cavan-Lagasan (Station 4) is located near the mouth of the river. Cavan (Pulupandan municipality) is a mixed-type of habitat, but emphasis was given to the marsh-mangrove area where both forest birds and waders can be found. The adjacent river bank (Lagasan), which is degraded in condition and densely populated, was also visited.

The four study sites and their corresponding base reference points beginning at the headwaters going downstream are as follows: Barangay Kumaliskis, Municipality of Don Salvador Benedicto (10°31.760' N, 123°12.854' E), Barangay Lopez Jaena, Municipality of Murcia (10°33.450' N, 123°04.140' E), Barangay Damsite, Municipality of Murcia (10°33.234' N, 123°02.143' E), and Cavan-Lagasan area in Barangay Tapong, Municipality of Pulupandan and Barangay Lagasan, Bago City (10°31.204' N, 122°50.260' E).

Field techniques

Observations were usually done in the morning (05h00—08h00) and late afternoon (15h00—18h00) between August to October 2009 and February to April 2010. Birds were identified through their calls or through sighting. For cryptic species and birds seen at a distance, binoculars and/or spotting scope mounted on a tripod were used. Field guides (Kennedy, Gonzales, Dickinson, Miranda, & Fisher, 2000; Fisher & Hicks, 2001) were used for proper identification. Listing of species was repeated until the species discovery curve flattened (Bibby, Jones & Marsden, 1998; Van Weerd & Van Der Ploeg, 2004). Roosting species (e.g. ducks) were also observed at their roosting sites or when forming aggregations when feeding (Bibby, Jones & Marsden, 1998).

Mist nets measuring 12 x 4 meters mounted on bamboo poles were installed in fly ways at canopy height or a meter above ground level for mist nets deployed near thickets and reeds. Standard biometric measurements were taken for captured individuals using vernier calipers. Identification of some species was further verified by taking video footages and photographs. Captured birds were immediately released after taking biometric measurements. At times, informal interviews of locals were carried out for additional details.

RESULTS

This study recorded 129 bird species, 15 of which are endemic to the Philippines. The rest are comprised of 46 migrants and 68 resident species or those with extra-Philippine distribution but not migratory (Table 1). These identified species belong to 42 families, with Ardeidae having the most number of species (17). Birds commonly observed for both wet and dry seasons in four sampling stations were noted (marked "XX") (Table 1).

Mistnetting Results

Thirty eight species were mist-netted, consisting of 235 individuals. The Zebra Dove *Geopelia striata* was the most frequently netted bird (50 individuals). Other birds commonly trapped by mist-nets include the Yellow-vented Bulbul (46) and White-collared Kingfisher (33).

Thirty bird species consisting of 140 individuals were mist-netted from February to April 2010 (dry season) in four sampling stations. From July to September 2009 (wet season), the same sites mist-netted 27 species consisting of 95 individuals.

During the wet season, the highest number of captured birds (45 individuals belonging to 14 species) was recorded in Damsite with the Yellow-vented Bulbul (14 individuals) being the most common.

During the dry season, the most number of mist-netted birds with 84 individuals captured belonging to 17 species was noted in Cavan, followed by Damsite with 44 individuals from 20 species.

DISCUSSION

Our survey data on the avifauna of Bago River revealed that the area is of conservation importance in terms of avian biodiversity since almost 68% of the bird species of the island are found along the sites of this river, more than half of the species previously recorded in Negros.

Threatened and Endemic Species

Two threatened species recorded in the survey are currently considered Vulnerable by the IUCN (2009)—the Philippine Duck *Anas luzonica*,

recorded in Station 1, 2, and 4 and the Visayan Flowerpecker *Dicaeum haematostictum*, mistnetted and frequently observed in Station 1.

Eighteen species are endemic to the Philippines according to Kennedy et al. (2000). The 129 bird species belong to 42 families with Ardeidae (13) and Scolopacidae (12) having the most number of species. The most common families recorded by this survey in the three sampling stations include the Columbidae and Sylviidae. In Cavan, Pulupandan, the most common were Ardeidae and Scolopacidae.

The highest number of species was recorded in Cavan, Pulupandan (79) and Kumaliskis, Don Salvador Benedicto (71) followed by Lopez Jaena, Murcia (77), and Damsite, Murcia (55), in that order.

Kumaliskis holds the highest number of endemic species (nine species), followed by Lopez Jaena (six species), Damsite (four species), Cavan (two species).

At least 129 species are known in the four sampling stations. Bird species diversity is largely explained by habitat diversity (Turner et al., 2003). Areas along the Bago River support species not only dependent on forest but also species that have less specific habitat requirements such as White-collared Kingfisher (*Halcyon chloris*) and the Barn Swallow (*Hirundo rustica*) (see Kennedy et al., 2000). Like the North Negros Forest Reserve (NNFR), the surveyed areas also appear to represent some of the few remaining habitats for birds on Negros Island. The Visayan Flowerpecker (*D. haematostictum*) is generally restricted to forest below 750m (Collar, Mallari & Tabaranza, 1999; BirdLife International, 2008) and observations generally support this.

The distribution of Philippine Duck *Anas luzonica* is widely spread all throughout the country (Kennedy et al., 2000). Recent works by Allen (2006) in Romblon and Van Weerd and Der Ploeg (2004) in Cagayan Valley recorded the existence of this. The destruction of natural habitats is a contributing factor to their dwindling numbers. Studies by Collar, Mallari and Tabaranza (1999), Haribon Foundation (1989), Dickinson, Kennedy and Parks (1991), and Van Weerd and Der Ploeg (2004) recorded decreased numbers through the years as compared to pioneer surveys (e.g. in Masbate by McGregor 1909). It is currently categorized as Vulnerable (BirdLife International, 2001).

The Wandering Whistling-duck *Dendrocygna arcuata* was the most abundant waterbird seen all throughout the survey. On April 20, 2010, one bird was captured by a tiglapak (feet trap) planted in the middle of the pond.

New Island Records

Three species out of 129 species recorded were considered new records for Negros Island using Kennedy et al. (2000) as baseline. These are the Javan Pond Heron *Ardeola speciosa*, the Red Turtle-dove *Streptopelia tranquebarica*, and the Northern Pintail *Anas acuta*.

The Javan Pond Heron *Ardeola speciosa* was commonly observed during the wet and dry season. At least 23 birds were counted in August and 35 birds were counted during the September-October survey in Cavan marsh and adjacent banks of the Bago River. Characteristics of the species (as described by Kennedy et al., 2000; Fischer & Hicks, 2003), indicating breeding and non-breeding plumage were diagnostic during both surveys. Known only from Mindanao, the species are seen by locals in the area all year round indicating a possible dispersal all throughout the islands in search for nesting and feeding grounds.

The Red Turtle-dove *Streptopelia tranquebarica* was observed in the mangroves of Cavan during the dry season usually passing overhead in two to three individuals at a time. At first mistaken for the Island-collared Dove *S. bitorquata*, the species was not confirmed until photographs of the bird perching on top of a coconut grove was taken and compared to the illustrations in Kennedy et al. (2000). The species was known only in the northern Philippines (Kennedy et al., 2000) and it is worth noting how this species, being out from its usual range, could have reached Negros. The species are beginning to inhabit new islands as it was also recently observed in Tablas, Romblon (Allen, 2006) while undocumented from islands where it was previously observed (Allen, 2006; Nuytemans, 1998).

The sighting of Northern Pintail *Anas acuta* on 13 to 20 of February 2010 is the first in Negros. Previously known only from Batan and Luzon (Kennedy et al., 2000) and as documented by other surveys (e.g. Van Weerd & Der Ploeg, 2004), we observed four individuals, three females and a male, wading separately yet within the proximity of the larger flock of ducks containing *A. luzonica* and *D. arcuata*.

Threatened Species

The conservation status of each species is based on the most recent online database of the World Conservation Union or International Union for the Conservation of Nature (IUCN), available at www.iucn.org, which was based on an earlier assessment by BirdLife International (2008).

Two threatened birds were considered Vulnerable according to BirdLife International (2008). These are the Philippine Duck *Anas luzonica*, and the Visayan Flowerpecker *Dicaeum haematosticum*.

It was estimated that in a flock (ca 450) of ducks composed of this species and other ducks such as Wandering Whistling-Duck *D. arcuata*, and the Garganey *Anas querquedula*, about 100 individuals were of *A. luzonica*.

The Visayan Flowerpecker *Dicaeum haematostictum* was common in agricultural areas, often observed foraging in fruiting trees during the wet season survey. It was also documented by Turner et al. (2003) in the North Negros Forest Reserve.

The absence of some species during the succeeding months might be attributed to the northward migration of birds (which takes place in March and April) (Van Weerd & Der Ploeg, 2004). Food availability and habitat disturbance might be the reason why some species were undocumented. Information from the locals indicates that hunting is still rampant in the vicinity of the survey stations. Vegetation along the Bago River can also be a factor in terms of variety and abundance of species present. It should be noted that most of the lands surrounding the river have been cultivated for sugar cane.

As observed during the survey, threats to the avifauna (including other wildlife) apparently include habitat degradation and hunting. It is therefore necessary that conservation action must be implemented in the surveyed areas. The coastal marsh in Cavan is an important area for congregatory waterbirds and thus in need of immediate protection.

ACKNOWLEDGMENTS

We wish to thank the Commission on Higher Education for the funding through the CHED-GIA Program. We also acknowledge the technical advice of Dr. Angel C. Alcala (Director of SU-CHED ZRC and former Director of SUAKCREM) and Dr. Orencio D. Lachica (Asst. Director, SU-CHED ZRC). Desmond Allen, a specialist on Southeast Asian birds (Sussex Way, London, United Kingdom) confirmed the identity of some species. Jez Bird (BirdLife International), Desmond Allen, Tom Brooks (Conservation International) and Jon Hornbuckle (UK) provided additional reading materials.

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Table 1.

List of avifaunal species observed in four survey locations along the Bago River.

Family	Common Name	Scientific Name	Station			
			1	2	3	4
Podicipedidae	Little Grebe	*Tachybaptus ruficollis*	—	—	—	X
Anatidae	Wandering Whistling-duck	*Dendrocygna arcuata*	—	—	—	X X
Anatidae	PHILIPPINE DUCK	*Anas luzonica, Vu*	X	X	—	X X
Anatidae	Garganey	*Anas querquedula, M*	—	—	—	X X
Anatidae	Northern Pintail	*Anas acuta, M*	—	—	—	X
Ardeidae	Great Egret	*Egretta alba, M*	—	—	—	X
Ardeidae	Intermediate Egret	*Egretta intermedia, M*	—	—	—	X X
Ardeidae	Little Egret	*Egretta garzetta, M*	X X	X X	X	X
Ardeidae	Cattle Egret	*Bubulcus ibis, M*	X X	X X	X	X X
Ardeidae	Black-Crowned Night-Heron	*Nycticorax nycticorax, M*	—	X	X	X X
Ardeidae	Rufous Night-Heron	*Nycticorax caledonicus*	—	—	—	X
Ardeidae	Little Heron	*Butorides striatus, M*	X	X X	X	X
Ardeidae	Javan Pond-Heron	*Ardeola speciosa*	—	—	X	X X
Ardeidae	Chinese Pond-Heron	*Ardeola bacchus, M*	—	X	—	X
Ardeidae	Purple Heron	*Ardea purpurea*	—	—	—	X X
Ardeidae	Schrenck's Bittern	*Ixobrychus eurythmus, M*	—	X X	X	—
Ardeidae	Yellow Bittern	*Ixobrychus sinensis*	—	—	X	X X
Ardeidae	Cinnamon Bittern	*Ixobrychus cinnamomeus*	X	X X	—	X X
Accipitridae	Crested Goshawk	*Accipiter trivirgatus, M*	X	X	—	—
Accipitridae	Black-winged Kite	*Elanus caeruleus*	X	—	—	—
Accipitridae	Osprey	*Pandion haliaetus, M*	—	—	—	X
Accipitridae	Brahminy Kite	*Haliastur indus*	X X	X	—	—
Falconidae	PHILIPPINE FALCONET	*Microhierax erythrogenys*	—	X	—	—
Turnicidae	Barred Buttonquail	*Turnix suscitator*	X X	X	—	—
Phasianidae	Blue-Breasted Quail	*Coturnix chinensis*	X X	—	—	—
Rallidae	Barred Rail	*Gallirallus torquatus*	—	X	X X	X X
Rallidae	Slaty-breasted Rail	Gallirallus striatus	—	X	—	—
Rallidae	White-browed Crake	*Porzana cinerea*	—	—	—	X X
Rallidae	Ruddy-breasted Crake	*Porzana fusca*	—	X	—	—
Rallidae	White-breasted Waterhen	*Amaurornis phoenicurus*	X X	X X	X X	X X
Rallidae	Common Moorhen	*Gallinula chloropus*	—	—	—	X X
Scolopacidae	Broad-billed Sandpiper	*Limicola falcinellus, M*	—	X	—	X
Scolopacidae	Common Redshank	*Tringa totanus, M*	—	—	—	X X
Scolopacidae	Common Greenshank	*Tringa nebularia, M*	—	—	—	X X
Scolopacidae	Wood Sandpiper	*Tringa glareola, M*	—	—	—	X
Scolopacidae	Curlew Sandpiper	*Calidris ferruginea, M*	—	—	—	X X
Scolopacidae	Common Sandpiper	*Actitis hypoleucos, M*	X X	X X	—	X X
Scolopacidae	Terek Sandpiper	*Xenus cinereus, M*	—	—	—	X X
Scolopacidae	Grey-tailed Tattler	*Heteroscelus brevipes, M*	—	—	—	X X
Scolopacidae	Ruddy Turnstone	*Arenaria interpres, M*	—	—	—	X X
Scolopacidae	Swinhoe's Snipe	*Gallinago megala, M*	—	X	—	—
Scolopacidae	Whimbrel	*Numenius phaeopus, M*	—	—	—	X X
Scolopacidae	Black-tailed Godwit	*Limosa limosa, M*	—	—	—	X X
Glareolidae	Oriental Pratincole	*Glareola maldivarum, M*	—	—	—	X
Charadriidae	Little Ringed-Plover	*Charadrius dubius, M*	—	—	—	X X
Charadriidae	Kentish Plover	*Charadrius alexandrinus, M*	—	—	X X	X X
Charadriidae	Grey Plover	*Pluvialis squatarola, M*	—	—	—	X X
Charadriidae	Asian Golden-Plover	*Pluvialis fulva, M*	—	—	—	X X
Recurvirostridae	Black-winged Stilt	*Himantopus himantopus, M*	—	—	—	X X
Sternidae	Gull-billed Tern	*Gelochelidon nilotica, M*	—	—	—	X
Sternidae	Great Crested Tern	*Sterna bergii, M*	—	—	—	X X
Sternidae	Common Tern	*Sterna hirundo, M*	—	—	—	X X

Table 1. (Continued...)

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			1	2	3	4
Sternidae	Little Tern	*Sterna albifons, M*	—	X	—	X
Sternidae	Whiskered Tern	*Chlidonias hybridus, M*	—	—	—	X X
Columbidae	Pink-necked Green-Pigeon	*Treron vernans*	—	—	X X	X X
Columbidae	WHITE-EARED BROWN-DOVE	*Phapitreron leucotis*	X X	—	X	—
Columbidae	Pied Imperial-Pigeon	*Ducula bicolor*	X X	—	—	—
Columbidae	Island Collared-Dove	*Streptopelia bitorquata*	X X	X X	—	X X
Columbidae	Spotted Dove	*Streptopelia chinensis*	X X	X X	X	X X
Columbidae	Red Turtle Dove	*Streptopelia tranquebarica*	—	—	—	X X
Columbidae	Zebra Dove	*Geopelia striata*	X X	X X	X X	X X
Columbidae	Reddish Cuckoo Dove	*Macropygia phasianella*	X X	—	—	—
Columbidae	Common Emerald Dove	*Chalcophaps indica*	X X	X	—	—
Cuculidae	Brush Cuckoo	*Cacomantis variolosus*	—	—	X	X X
Cuculidae	Plaintive Cuckoo	*Cacomantis merulinus*	—	X	X	—
Cuculidae	PHILIPPINE COUCAL	*Centropus viridis*	X X	X X	X X	X X
Cuculidae	Hodgson's Hawk-cuckoo	*Cuculus fugax*	—	—	X	—
Caprimulgidae	Philippine Nightjar	*Caprimulgus manillensis*	X	—	—	—
Strigidae	PHILIPPINE SCOPS-OWL	*Otus megalotis nigrorum*	X	—	—	—
Stirigidae	PHILIPPINE HAWK-OWL	*Ninox philippensis*	X	—	—	—
Tytonidae	Grass Owl	*Tyto capensis*	—	--	—	X
Apodidae	House Swift	*Apus affinis*	—	X	—	X X
Apodidae	Glossy Swiftlet	*Collocalia esculenta*	X X	X X	X X	X X
Apodidae	Asian Palm Swift	*Cypsiurus balasiensis*	—	X	—	—
Apodidae	PYGMY SWIFTLET	*Collocalia troglodytes*	—	—	X X	—
Alcedinidae	Common Kingfisher	*Alcedo atthis, M*	X	X	X	X X
Alcedinidae	White-collared Kingfisher	*Halcyon chloris*	X X	X X	X X	X X
Alcedinidae	White-throated Kingfisher	*Halcyon smyrnensis, M*	—	X	—	—
Meropidae	Blue-throated Bee-eater	*Merops viridis*	X X	X	—	—
Meropidae	Blue-tailed Bee-eater	*Merops philippinus*	X	X	X X	X X
Ramphastidae	Coppersmith Barbet	*Megalaima haemacephala intermedia*	X X	—	—	—
Pittidae	Hooded Pitta	*Pitta sordida*	—	X	—	—
Hirundinidae	Barn Swallow	*Hirundo rustica, M*	X X	X X	X X	X X
Hirundinidae	Red-rumped Swallow	*Hirundo daurica, M*	X	—	—	—
Hirundinidae	Pacific Swallow	*Hirundo tahitica*	X	X	X X	X X
Campephagidae	Pied Triller	*Lalage nigra*	X X	—	X X	X X
Pycnonotidae	Yellow-vented Bulbul	*Pycnonotus goiavier*	X X	X X	X X	X X
Pycnonotidae	PHILIPPINE BULBUL	*Hypsipetes philippinus guimarensis*	X X	X X	X X	X
Dicruridae	BALICASSIAO	*Dicrurus balicassius*	X X	—	X	—
Oriolidae	Black-naped Oriole	*Oriolus chinensis*	—	X	—	—
Corvidae	Large-billed Crow	*Corvus macrorhynchos*	X X	—	—	—
Turdidae	Oriental Magpie-Robin	*Copsychus saularis*	X X	X X	X X	X X
Turdidae	WHITE-BROWED SHAMA	*Copsychus luzoniensis superciliaris*	X X	—	—	—
Turdidae	Pied Bushchat	*Saxicola caprata*	X	X X	X	—
Sylviidae	Golden-bellied Flyeater	*Gerygone sulphurea*	—	—	X X	X X
Sylviidae	Arctic Warbler	*Phylloscopus borealis, M*	X	X	X	X
Sylviidae	PHILIPPINE LEAF-WARBLER	*Phylloscopus olivaceus*	X	—	—	—
Sylviidae	Tawny Grassbird	*Megalurus timoriensis*	X X	X X	X	X X
Sylviidae	Striated Grassbird	*Megalurus palustris*	X X	X X	X	X X

Table 1. (Continued...)

List of avifaunal species observed in four survey locations along the Bago River.

Family	Common Name	Scientific Name	Station			
			1	2	3	4
Sylviidae	PHILIPPINE TAILORBIRD	*Orthotomus castaneiceps*	X X	X X	X X	X X
Sylviidae	Bright-capped Cisticola	*Cisticola exilis*	X X	X X	X X	X X
Sylviidae	Zitting Cisticola	*Cisticola juncidis*	—	X	—	X X
Sylviidae	Oriental Reed-warbler	*Acrocephalus orientalis, M*	—	X	X X	X
Monarchidae	Black-naped Monarch	*Hypothymis azurea*	X	—	X	—
Muscicapidae	Mangrove Blue Flycatcher	*Cyornis rufigastra*	X X	—	X X	—
Muscicapidae	Grey-streaked Flycatcher	*Muscicapa griseisticta, M*	X X	X	X	—
Muscicapidae	Pied Fantail	*Rhipidura javanica*	X X	X X	X X	X X
Motacillidae	White Wagtail	*Motacilla alba, M*	X	X X	—	—
Motacillidae	Grey Wagtail	*Motacilla cinerea, M*	X	X	—	—
Motacillidae	Yellow Wagtail	*Motacilla flava, M*	X X	X	X	—
Motacillidae	Richard's Pipit	*Anthus novaeseelandiae*	—	—	X	X
Artamidae	White-breasted Wood-swallow	*Artamus leucorynchus*	X X	X X	X X	—
Laniidae	Brown Shrike	*Lanius cristatus, M*	X X	X X	X X	X X
Laniidae	Long-tailed Shrike	*Lanius schach*	X X	X X	—	—
Sturnidae	Asian Glossy Starling	*Aplonis panayensis*	X X	X X	X X	X
Sturnidae	Crested Myna	*Acridotheres cristatellus*	X X	—	—	—
Sturnidae	Coleto	*Sarcops calvus*	X	X	—	—
Nectariniidae	Olive-backed Sunbird	*Nectarinia jugularis*	X X	X X	X X	X X
Nectariniidae	Plain-throated Sunbird	*Anthreptes malacensis*	X	—	—	—
Nectariniidae	Purple-throated Sunbird	*Nectarinia sperata*	X X	X	—	—
Dicaeidae	VISAYAN FLOWERPECKER	*Dicaeum haemato-stictum, Vu*	X X	—	—	—
Dicaeidae	BICOLORED FLOWERPECKER	*Dicaeum bicolour viridissimum*	X	X	—	—
Decaeidae	Orange-bellied Flowerpecker	*Dicaeum trigonostigma besti*	X X	—	X	—
Zosteropidae	YELLOWISH WHITE-EYE	*Zosterops nigrorum nigrorum*	X X	—	X X	—
Ploceidae	Eurasian Tree Sparrow	*Passer montanus*	X X	X X X	X X	X X
Estrildidae	Java Sparrow	*Padda oryzivora*	X X	X X	X	—
Estrildidae	White-bellied Munia	*Lonchura leucogastra*	X	X	X	—
Estrildidae	Scaly-breasted Munia	*Lonchura punctulata*	X X	X	X X	X X
Estrildidae	Chestnut Munia	*Lonchura malacca*	X X	X X	X X	X X
Total number of Species: 129			**71**	**77**	**55**	**79**

Note:
(X) - present
(—) - absent
Vu - Vulnerable
M - Migrant
Philippine endemics in CAPS.