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Flight for Conservation: The Birds of Benguet State University Land Reservations, La Trinidad, Benguet

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ABSTRACT

The identification and characterization of birds in land reservations are important basis for institutions in identifying strategies in the promotion of its protection and conservation. The study identified, characterized, and photo-documented birds within the Benguet State University (BSU)-La Trinidad Campus and its land reservations. The common, scientific, and family names of these birds are determined together with its eco-class, conservation status, distribution, characteristics, and food. Forty-six species of birds under 27 families are identified within the campus and its land reservations. Forty-four bird species are found to be indigenous and two are exotic. Fifteen of the indigenous bird species are found endemic. Incidentally, these 15 endemic species identified included ranked six and seven of the ten must see birds in the Philippines. Based on the categories under the IUCN Red List Categories and Criteria Version 3.1 (2001), all the identified birds belong to the conservation status, least concern. Further, on population trend, nine bird species were of unknown status whether their population is increasing or decreasing, 26 were with stable population, eight were decreasing and four were increasing. Forty-one of the species are insect-eating. The presence of the Scale-Feathered Malkoha and Spotted Wood Kingfisher, high endemism, and richness of bird species in the BSU land reservations in La Trinidad, Benguet indicates that there is a need to sustain or heighten the reservations' protection and conservation.

KEYWORDS

Birds
Eco class
Endemic species
Indigenous species
Exotic bird species
Bird population trend

INTRODUCTION

Birds are natural bioindicators of many ecosystems health condition. According to Mekonen (2017), bioindicators are organisms that are used to monitor the health of the environment, the presence of pollution and its effect on the ecosystem, the progress of environmental cleanup and test substances, and to detect changes in the natural environment. Birds are excellent bioindicators for

the health of the environment and ecological or environmental change.

The decline in the bird population or extinction of certain species from an area is indicative of the deterioration of the entire ecosystem. Frank Gill, Audubon's chief ornithologist as reported by Pickrell (2002), said that people should understand that the decline or loss of bird and other species occur in relation to major ecological changes that have potentially broader implications.

McCracken (2007), as cited by Kelly (2007), said that Golden Winged Warbler and Field Sparrows are both habitat specialists which require a very specific habitat structure; thus, the vegetation arrangement is essential for their survival.

According to Kennedy, R.S.; Gonzales, P.C.; Dickinson, E. C.; Miranda, H. & Fisher, T. H.(2000), the Philippines are the home of nearly 172 species that are not found anywhere else in the world—many of which are endangered as the result of high levels of habitat destruction in the Philippine forest. Thus, knowledge and study of the endemic characteristics of the birds of the Philippines are of critical importance.

In the Philippines, the Haribon Foundation (2017) said that 50% of the country's bird species are decreasing in population, 84 globally threatened birds are found in the Philippines, and 200 species of birds are only found in the country. This is the reason why haribon foundation work in a wide variety of areas, establishing community-led native tree nurseries and applying science with community-driven principles, to conserve the sites and habitats of wildlife.

According to Floresca (2015), out of the many bird documentations done in the Philippines, there are still no in-depth bird listing done in the area of Baguio City and Benguet Province; thus, she recommends that a photo guide book for birds found in Baguio City and the Province of Benguet is highly encouraged for production. This will help significantly in the identification of birds in the field by bird watchers, enthusiasts, and researchers alike to raise conservation.

A considerable number of bird species are found in Benguet State University land reservations. It is observed by the researcher that some of these birds help the farmers of Benguet by eating weed seeds, harmful insects, and other agricultural pests. Unlike birds that feed on fruits, some seed-eating birds digest the seeds they eat. As it was observed by the researcher on Munia Birds found in BSU land reservations,the birds eat as many thousands as weed seeds a day. Furthermore, the researcher also observed that Tree Sparrows and Philippine Shrikes found in BSU land reservations control populations of cutworms that feed on vegetables like lettuce, cabbage, and broccoli plants. These observations of the researcher corroborate to the findings of Floresca (2015) that 80% of her farmer respondents from selected municipalities of Benguet said that "they like the presence of the birds because it gets rid of worms in their vegetable produce and drive away the rats that eat their root crops."

Further, it was observed by the researcher that the southwest monsoon rains during the months of September to mid of October causes the migration arrival of Shrikes to La Trinidad, Benguet. During these months the Shrike's population in La Trinidad, Benguet increased. With this tremendous increased of Shrike population, it was observed in La Trinidad, Benguet that some farmers are trapping these Black Headed and Brown Shrikes for food.

Once the birds are documented, the professional courses and degree programs of Benguet State University can use this paper to support its instruction and extension programs. Forestry and Environmental Science students may use the documentation as a reference in their courses and researches. Benguet Farmers may be also informed of these birds being biological controllers of insects and pests attacking their agricultural crops. These can draw possible extension activity and bond linkage with the academic institutions to help in the protection and conservation of these birds.

This paper reports the identification and photo-documentation of birds found in Benguet State University Campus and its land reservations in La Trinidad, Benguet. It also aimed to present their eco classes, conservation status, distribution, characteristics, and food.

METHODOLOGY

The study utilized field observation and photo-documentation approaches. All birds seen in the observation areas in the BSU land reservation (Figure 1) were photographed using 18X magnification camera. Birds watching were done on Saturdays or Sundays every week. Two hours from sunrise and another two hours before sunset from May 2015-April 2016 with an estimated total number of 150 hours. Observations were done in the pine forest, remnants of mossy forest, BSU farms, Balili River, and BSU school campus in La Trinidad, Benguet. As suggested by Chen, Chiang, Shieh, & Lin (2011) recording bird sounds should be 1 hour from dawn and selecting a sampling period of 10-20 mins, will cover most of the birds' chorus, to reach the highest species richness at their study site. At present, there is no standard observation time that is set for birds' observation because birds have different feeding habits and food availability. Based on my initial observation, aquatic birds from my study site were more active from early morning and 1 hour before sunset while nectar and insect eating birds were more abundant 1 hour from sunrise and about 2 hours before sunset. Except for the Philippine Scops Owl and Philippine Nightjar, other nocturnal birds in the study sites were not documented by the researcher because of the absence of night vision camera or equipment for night documentation. Bird traps were placed under the forest or grassy vegetation to obtain good images of the birds. Observations were also made under the trees or grassy vegetation. Smaller birds were more challenging to document as they are more agile.

The researcher used the International Union for the Conservation of Nature (IUCN) Red List Categories and Criteria Version 3.1 (2001) in determining the scientific and family names, eco-class, conservation status, and distribution while actual observation and interview with the community were used to get description of

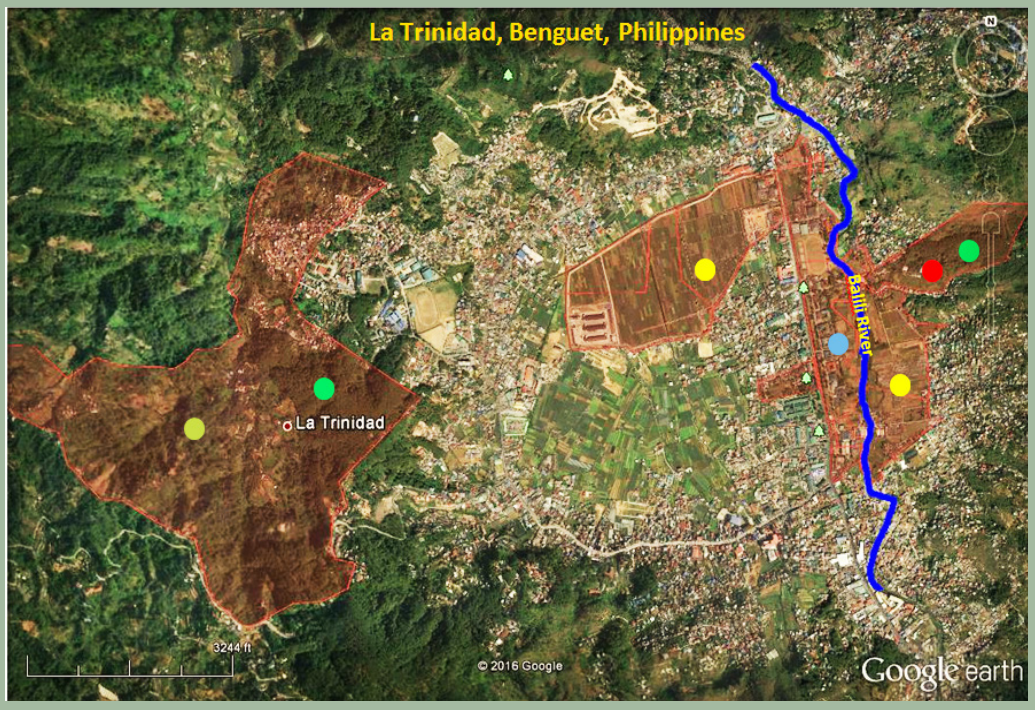

Figure 1. Location Map of the Study (BSU Main Campus Map La Trinidad, Benguet, 2601 Philippines. 074.422.2127-2402. (http://www.bsu.edu.ph/content/bsu-map)

the habitat, characteristics, food, and local names of the birds. The teaching experience on wildlife of the researcher and various secondary sources such as online references and print materials containing bird's pictures and families were used to validate the identifed and documented birds.

RESULTS AND DISCUSSION

There are 46 species of birds belonging to 27 families identified within the campus and land reservations of Benguet State University, La Trinidad, Benguet (Table 1). Forty-four species are considered indigenous. The study areas are composed of Benguet pine forest, remnants of mossy forest, farmlands, calliandra stands and other trees found in the site, and along the Balili River.

Birds in the Observation Areas

The birds found in the pine forest are: Philippine Pygmy Woodpecker; Sunda Woodpecker; Sulphur Billed Nuthatch; Philippine Nightjar; Large Billed Crow; Scale Feathered Malkoha; Mountain Leaf Warbler; Olive-backed Pipit; and Philippine Bulbul. A single Blue-Tailed Bee-Eater was also seen perching in an electric wire in an open area near the pine forest.

Further, the birds found in the mossy forest are as follows: Philippine Cuckoo Dove and Scale-feathered Malkoha (both rarely observed); Citrine Canary-flycatcher; Island Verditer-flycatcher and Blue-headed Fantail. The mostly observed birds on the calliandra stands in BSU campus were Crimson-breasted Flowerpecker; Pygmy Flowerpecker, Olive-backed Sunbird/Yellow-bellied Sunbird; Mountain White Eyes; and Yellow Vented Bulbul. Other birds observed in the school campus were Eurasian Tree Sparrows found on buildings, Philippine Hanging Parakeet seeping nectar on the flowers of trees, Mountain Leaf Warblers, Crested Mynas and the Eyebrowed Thrush which only seen once.

The birds found along the river and grassy vegetative banks include: Common Kingfisher; Cattle and Great White Egrets; Yellow Bittern; White-breasted Swamphen/Waterhen; Buffed Banded Rail; Common Moorhen; Grey and White Wagtails; Chesnut and Scaly-breasted Munias; Pacific Swallow; Striated Grassbirds; Tawny Grassbirds; and Philippine Caucal. On adjacent farms, the birds documented were Pied Buschat, Siberian Rubythroat, Black Headed Shrikes, and the Brown Shrikes. Sometimes birds found along the river and its grassy or bushy vegetative banks are also observed within the farms. This indicates that the species richness in the BSU land reservation is high, it is an indicator of the good condition of their habitat.

EcoClass

The identified 46 different bird species belong to 27 families. Of the 46 birds identified, 44 are indigenous species, meaning they are native or naturally occurring to the country but similar species may or may not be seen in other countries and only the Crested Myna and Sunda Woodpecker are exotic (introduced). Of the 44 indigenous bird species, 15 of them are endemic, meaning these bird species are only found in the Philippines. The 15 endemic species are: Spotted Kingfisher; Philippine Nightjar; Philippine Cuckoo Dove; Philippine Caucal; Scale-Feathered Malkoha; Pygmy Flowerpecker; Island Verditer-flycatcher; Elegant Tit, Philippine Pygmy Woodpecker; Philippine Hanging Parrot/Parakeet; Philippine Bulbul; Blue-Headed Fantail; Sulphur-Billed Nuthatch; Philippine Scops Owl/Luzon Scops Owl; and Chestnut-Faced Babbler.

Of the 15 endemic bird species, it is interesting to note that the Spotted Wood Kingfisher and Scale-Feathered Malkoha are included in the ranks number six and seven, respectively of the "Ten must see birds in the Philippines" by Robert Huchinson (2013) of Birdtour Asia. This implies that these Spotted Forest Kingfisher, and Scale-feathered Malkoha are not only found in Mount Makiling as popularly known but also found in BSU Land Reservations in La Trinidad, Benguet.

The high endemism of birds in BSU land reservations indicates that the natural vegetation found within the BSU Land Reservations are still existing and not muchly disturbed. This corroborates to the statement of Frank Gill, Audubon's chief ornithologist as reported by Pickrell (2002) that the decline or loss of bird and other species occurs in relation to major ecological changes.

It was also observed by the researcher that some lowland bird species like the Yellow Vented Bulbul, Great White Egret, and Cattle Egret became

Table 1. *List of identified birds in BSU Land Reservations, La Trinidad, Benguet with their scientific and family names, conservation status, eco-class, and population trend from the IUCN Red List Categories and Criteria Version 3.1, 2001*

Common Name	Scientific Name	Family Name	Conservation Status	Eco Class	Population Trend
Common Kingfisher	*Alcedo atthis* (Linnaeus, 1758)	Alcedinidae	Least concern	Indigenous	Decreasing
Spotted Wood Kingfisher	*Actenoides lindsayi* (Vigors, 1831)	Alcedinidae	Least concern	Indigenous and endemic	Decreasing
Cattle Egret	*Bubulcus ibis* (Linnaeus, 1758)	Ardeidae	Least concern	Indigenous	Increasing
Great White Egret	*Ardea alba* (Linnaeus, 1758)	Ardeidae	Least concern	Indigenous	Unknown
Yellow Bittern	*Ixobrychus sinensis* (Gmeli, 1789)	Ardeidae	Least concern	Indigenous	Stable
Philippine Nightjar	*Caprimulgus manillensis* (Walden, 1875)	Caprimulgidae	Least concern	Indigenous and endemic	Stable
Philippine Cuckoo Dove	*Macropygia tenuirostris* (Bonaparte, 1854)	Columbidae	Least concern	Indigenous and endemic	Stable
Large Billed Crow	*Corvus macrocrhynchos* (Wagler, 1827)	Corvidae	Least concern	Indigenous	Stable
Philippine Caucal	*Centropus varidis* (Scopoli, 1786)	Cuculidae	Least concern	Indigenous and endemic	Stable
Scale-Feathered Malkoha	*Lepidogrammus cumingi* (Fraser, 1839)	Cuculidae	Least concern	Indigenous and endemic	Decreasing
Crimson-Breasted Flowerpecker	*Prionochilus percussus* (Temminck & Laugier,1826)	Dicaeidae	Least concern	Indigenous	Stable
Pygmy Flowerpecker	*Dicaeum pygmaeum* (Kittlitz, 1833)	Dicaeidae	Least concern	Indigenous and endemic	Unknown
Chesnut Munia	*Lonchura atricapilla* (Vieilot, 1807)	Estrildidae	Least concern	Indigenous	Stable
Scaly-Breasted Munia	*Lonchura punctulata* (Linnaeus, 1758)	Estrildidae	Least concern	Indigenous	Stable
Pacific Swallow	*Hirundo tahitica* (Sharpe, 1877)	Hirundinidae	Least concern	Indigenous	Increasing
Black Headed/Long Tailed Shrike	*Lanius schach* (Linnaeus, 1758)	Laniidae	Least concern	Indigenous	Unknown
Brown Shrike	*Lanius cristatus* (Linnaeus, 1758)	Laniidae	Least concern	Indigenous	Decreasing
Striated Grassbird	*Megalurus palustris* (Horsefield, 1821)	Locustellidae	Least concern	Indigenous	Stable
Tawny Grassbird	*Megalurus temoriensis* (Wallace, 1864)	Locustellidae	Least concern	Indigenous	Stable
Blue-Tailed Bee-Eater	*Merops philippinus* (Linnaeus, 1758)	Meropidae	Least concern	Indigenous	Stable

Table 1. *Continued...*

Common Name	Scientific Name	Family Name	Conservation Status	Eco Class	Population Trend
Grey Wagtail	*Motacilla cinerea* (Tunstall, 1771)	Motacillidae	Least concern	Indigenous	Stable
Olive-Backed Pipit	*Anthus hodgsoni* (Richmond, 1907)	Motacillidae	Least concern	Indigenous	Stable
White Wagtail	*Motacilla alba* (Linnaeus, 1758)	Motacillidae	Least concern	Indigenous	Stable
Citrine Canary-Flycatcher	*Culicicapa helianthea* (Wallace, 1865)	Muscicapidae	Least concern	Indigenous	Decreasing
Island Verditer-Flycatcher	*Eumyias panayensis* (Sharpe, 1877)	Muscicapidae	Least concern	Indigenous and endemic	Stable
Pied Bushcat	*Saxicola caprata* (Linnaeus, 1758)	Muscicapidae	Least concern	Indigenous	Stable
Siberian Rubythroat	*Luscinia calliope* (Pallas, 1776)	Muscicapidae	Least concern	Indigenous	Stable
Olive-Backed Sunbird/ Yellow-Bellied Sunbird	*Nectarinia jugularis* (Linnaeus, 1758)	Nectariniidae	Least concern	Indigenous	Stable
Elegant Tit	*Pardaliparus elegans* (Selys Longchamps, 1884)	Paridae	Least concern	Indigenous and endemic	Stable
Eurasian Tree Sparrow	*Passer montanus* (Linnaeus, 1758)	Passeridae	Least concern	Indigenous	Stable
Mountain Leaf-Warbler/ Mountain Warbler	*Phyloscopus benguetensis* (Olsson et al. 2005)	Phylloscopidae	Least concern	Indigenous	Stable
Philippine Pygmy Woodpecker	*Picoides maculatus* (Scopoli, 1786)	Picidae	Least concern	Indigenous and endemic	Stable
Sunda Pygmy Woodpecker	*Picoides maluccensis* (Gmelin, 1788)	Picidae	Least concern	Exoric	Increasing
Philippine Hanging Parrot/Parakeet	*Loriculus philippensis* (Muller, 1776)	Psittacidae	Least concern	Indigenous and endemic	Decreasing
Philippine Bulbul	*Hypsipetes philippinus/ Ixos phillipinus* (Forster, 1795)	Pycnonotidae	Least concern	Indigenous and endemic	Increasing
Yellow Vented Bulbul	*Pycnonotus goiavier* (Scopoli, 1786)	Pycnonotidae	Least concern	Indigenous	Unknown
Buff Banded Rail	*Hypotaenidia philippensis* (Linnaeus, 1758)	Rallidae	Least concern	Indigenous	Stable
Common Moorhen	*Galinulla chloropus* (Linnaeus, 1758)	Rallidae	Least concern	Indigenous	Stable
White-Breasted Waterhen/Swamphen	*Amaurornis phoenicurus* (Pennant, 1769)	Rallidae	Least concern	Indigenous	Unknown

Table 1. *Continued...*

Common Name	Scientific Name	Family Name	Conservation Status	Eco Class	Population Trend
Blue-Headed Fantail	*Rhipidura cyaniceps* (Cassin, 1855)	Rhipiduridae	Least concern	Indigenous and endemic	Stable
Sulphur-Billed Nuthatch	*Sitta oenochlamys* (Sharpe, 1877)	Sittidae	Least concern	Indigenous and endemic	Decreasing
Philippine Scops Owl/ Luzon Scops Owl	*Otus megalotis* (Walden, 1875)	Strigidae	Least concern	Indigenous and endemic	Decreasing
Island Verditer-Flycatcher	*Eumyias panayensis* (Sharpe, 1877)	Muscicapidae	Least concern	Indigenous and endemic	Stable
Crested Myna	*Acridotheres cristatellus* (Linnaeus, 1758)	Sturnidae	Least concern	Exotic	Stable
Eyebrowed Thrush	*Turdus obscurus* (Gmelin, 1789)	Turdidae	Least concern	Indigenous	Unknown
Chesnut-Faced Babbler	*Zosterornis whiteheadi* (Ogilvie-Grant, 1894)	Zosteripidae	Least concern	Indigenous and endemic	Stable
Mountain White Eye	*Zosterops montanus* (Bonaparte, 1850)	Zosteripidae	Least concern	Indigenous	Unknown

permanent resident the whole year round in Balili, La Trinidad, Benguet. The year round presence of food in the Balili River attracted Cattle and Great White Egrets to permanently roost in a rocky mountain near the river every night and obtain food in the river every day. The presence of calliandra and other flowering plants within the school campus also attracted Yellow Vented Bulbul to have daily forage of nectar.

Conservation Status

All the conservation status of the identified birds is least concern indicating that these birds are not qualified under the category vulnerable, endangered, or critically endangered of the IUCN, (2001). According to the Environment and Natural Heritage Protection (2016), least concern means if wildlife is common or abundant and is likely to survive in the wild.

Native wildlife may be prescribed as least concern wildlife even if: the wildlife is the subject of a threatening process; or the population size or distribution of the wildlife has declined; or there is insufficient information about the wildlife to conclude whether the wildlife is common or abundant. Although all the conservation status of all the documented birds in the study is least concern, eight of these birds are decreasing in population according to IUCN (2001) these are: Brown Shrike; Sulphur-Billed Nuthatch; Citrine Canary-Flycatcher; Philippine Hanging Parrot/ Parakeet; Philippine Scops Owl/Luzon Scops Owl,; Scale-Feathered Malkoha; Common Kingfisher; and Spotted Wood Kingfisher. In La Trinidad, Benguet the declining population of birds are attributed to conversion of forest or grassland into agricultural land and for the aquatic species this is caused by the cementing of the riverbanks as observed by the researcher along the Balili River Banks and Bolo Creek of the strawberry farms.

Birds displaced from disturbed ecosystems of La Trinidad transfer to the BSU Land Reservations since it is the remaining green or forested areas of La Trinidad, Benguet. Aquatic birds like the White-breasted Waterhen; Common Moorhen; Buffed Banded Rail; Yellow Bittern; and Common Kingfisher transferred from the cemented portion of Baili River banks to undisturbed areas of the river.

Food

Almost all the identified birds are eating insects and various worms, except the following: Chestnut Munia; Common Kingfisher; Philippine Cuckoo Dove; and Crimson-Breasted Flowerpecker. The various insects attacking agricultural crops controlled by the birds are as follows: mole crickets; leaf beetles; grasshoppers; and various moth laying eggs that hatched into different larvae like army worms and cutworms. Floresca (2015) said that 80% of the farmers from selected municipalities of Benguet said that "they like the presence of the birds because it gets rid of worms in their vegetable produce and drive away the rats that eat their root crops. The findings on insect eating birds are very important information to be relayed to the farmers to encourage them to protect and conserve these remaining birds in their places because these birds are beneficial to them by serving as biological control to insects attacking their agricultural crops.

Alcedinidae

Kingfishers belong to the Alcedinidae family. They are small to medium-sized brightly colored birds of the Order Coraciiformes. The family is divided into three subfamilies: River Kingfishers (Alcedininae), Tree Kingfishers (Halcyoninae), and Water Kingfishers (Cerylinae). All Kingfishers have large heads, long, sharp, pointed bills, short legs, and stubby tails. Kingfishers are usually thought to live near rivers and eat fish, but many species live away from water and eat small invertebrates like the Forest Kingfishers (Gill and Donsker, 2016).

Spotted Wood Kingfisher

Distribution: Endemic in Philippines (IUCN, 2001).

Habitat: These kingfishers live in moist lowlands and moist upland forests

Characteristics: These birds are easily distinguished from other kingfishers by the white spots on their wings and a white line below their eyes. As observed during the day, these birds were seen steadily perching in shaded areas usually on low branches for easy viewing of food from the ground. The breeding season for these birds starts from April up to the onset of the rainy season in Benguet.

Food: Feeds on small vertebrates, beetles, snails, and other insects (Constantino, 2012).

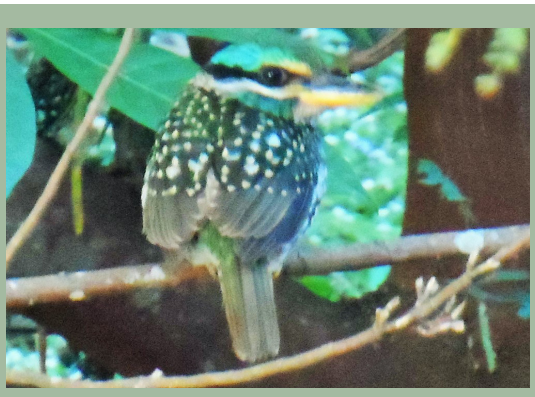

Figure 2. Spotted Wood Kingfisher (Tabangaoen Pine Forest, Balili, La Trinidad)

Common Kingfisher

Distribution: Philippines and widely distributed over Europe, Asia, and North Africa (IUCN, 2001).

Habitat: Lives along streams, rivers, and lakes with well-vegetated banks.

Characteristics: As observed during the day time, this bird was seen diving under water catching fish in the Balili River, La Trinidad, Benguet. Typically, short-tailed and large-headed bird, has blue upper body parts, orange underparts, and a long beak for catching fish, crustaceans, and other small aquatic organisms. This bird perches on bushes or overhanging branches close to shallow open water in which it hunts. It lays eggs in self-excavated or natural holes of a riverbank.

This bird breeds during rainy season because of the abundance of water in rivers or lakes (Gill & Donsker, 2016).

Foods: Feeds mainly on fish, crustaceans, and other aquatic organisms.

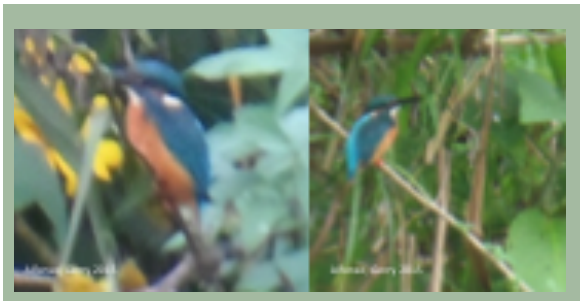

Figure 3. Common Kingfisher (Balili River, La Trinidad)

Ardeidae

Egrets, bitterns, and herons belong to the Ardeidae family. This family is characterized by birds with long pointed beaks and wading feet. Birds under the Ardeidae family are either found in rice fields, rivers, creeks, lakes, and grasslands. They feed on a variety of insects, earthworms, fishes, small snails and frogs (BirdLife International, 2015_B).

Cattle Egret

Local Name: 'Kanaway' (Ilocano)

Distribution: In tropical and temperate countries of the world from North and South America to Africa and in Asian Countries including Philippines (IUCN, 2001).

Habitat: Lakes, swamps, ponds and wetlands, plowed fields and pastures.

Characteristics: Cattle Egrets are partially migratory because their greater number of flocks is usually observed in Benguet during the months of September to November. These birds migrate in groups to look for areas to forage. Thus, find food by slowly walking with their stretched necks similar to the Great White Egret. In Benguet, these birds were observed in open farms or in pasture areas perching at the back of cattle or carabaos feeding on insects.

The Male Cattle Egret performs courtship displays by stretching its neck swaying side to side while raising its plumes to attract the female during the mating period. Nests are built mostly by females from twigs brought by the male from branches of small trees or shrubs.

Food: Eats different kinds of insects like crickets, grasshoppers, moth, small frogs and reptiles, earthworms and fishes.

Figure 4. Cattle Egret (BSU Strawberry farm, La Trinidad)

Great White Egret

Local Name: 'Kanaway' (Ilocano)

Distribution: Distributed in tropical and temperate countries of the world from North and South America to Africa and to Asian countries including the Philippines (IUCN, 2001).

Habitat: Lakes, swamps, ponds, and wet lands.

Characteristics: Great White Egrets are bigger than the Cattle Egret. Greater number of flocks is observed in Benguet during the months of September to November. Similar to Cattle Egret, these birds migrate in groups to look for areas to forage. These birds find food by slowly walking with their stretched neck.

During mating seasons, the male great white egret looks for an area to nest and invites females and starts courting. Nests are built from twigs on top of branches of small trees or shrubs laid with two to three eggs (BirdLife International, 2015_A).

Food: Eats different kinds of crustaceans, small frogs, reptiles, insects, and fishes.

Figure 5. Great White Egret (Rocky area near Bureau of Fisheries and Aquatic Resources (BFAR) fish pond in Balili, La Trinidad)

Yellow Bittern

Distribution: Asian countries including the Philippines (IUCN, 2001).

Habitat: Usually seen in wetlands, rivers, lakes, ponds, reservoirs and creeks with dense, tall, grassy or bushy vegetation.

Characteristics: As observed during the day, these birds steadily wait long hour for fish to surface from the water and then snap these using their long beaks. It may prefer to hide inside vegetation rather than fly when disturbed by humans or animals.

Food: Feeds on different aquatic insects like beetles, springtails, fishes, tadpoles, small frogs, small snails and crustaceans (BirdLife International, 2012_E).

Figure 6. Yellow Bittern (Balili River, La Trinidad)

Caprimulgidae

Nightjars belong to the Caprimulgidae family of the Order Caprimulgiformes. Nightjars were named from their jarring sounds, previously used their very wide mouths to milk goats. These are insectivorous birds catching flying insects on the wings, usually at night and sleep on the ground or perched, usually lengthwise, on a branch during the day (Cleere, 2016).

Philippine Nightjar

Distribution: Endemic in Philippines (IUCN, 2001).

Habitat: Lives both in primary and secondary forests and scrubland. In Benguet, these are found in grassy pine forests.

Characteristics: Philippine nightjars are crepuscular. They look for food at dawn and twilight. They are observed usually in a sitting position mostly on ground but also perch motionless on branches of trees while waiting for their prey. Their eyes are excellent in looking for their prey during dawn and twilight. Their beaks are short but wide when opened to accommodate moths and other insects. Nightjars breed during summer months in the Philippines and lay their eggs close to the ground (Cleere & Kirwan, 2016).

Foods: Feeds on varieties of insects like moths and beetles (Cleere & Kirwan, 2016).

Figure 7. Philippine Nightjar (Tabangaoen Pine Forest, Balili, La Trinidad)

Columbidae

The Columbidae family is subdivided into five subfamilies represented by pigeons and doves. Pigeons and doves live in almost all types of terrestrial habitats from lowland rainforests, highland forests, tropical deciduous forests, riparian forest, savannas, deserts, cliffs, chaparrals, coral atolls, mangroves, swamp forests, woodland edges, agricultural areas, as well as in urban areas. Many of the seed-eating columbids are buff grey and brown colored, while the fruit-eaters are often more brightly colored (Worthy, Hand, Worthy, Tennyson, & Scofield, 2009).

Philippine Cuckoo Dove

Local Name: 'Ot-ot' (Kankanaey); 'Buwaw' (Ibaloi)

Distribution: Endemic to the Philippines; occurrence of the genus ranges from India and China through Indonesia and the Philippines to Vanuato and Australia (IUCN, 2015)

Habitat: found in lowland and montane mossy forests

Characteristics: Macropygia is a genus of bird belonging to the pigeon and dove Family Columbidae. According to Birdwatch (2016), the Macropygia is one of three genera known as Cuckoo Doves. They are fast fliers singly or in pairs. They are long tailed and have brown feathers. Philippine Cuckoo Dove nests are made of twigs, leaves, and small sticks built either on trees, shrubs, vines, and ferns. Similar to the domesticated pigeons, both parents share the incubation of 1-2 eggs and care for their young (Birdwatch, 2016).

Food: Feeds on fruits, berries, and seeds from forest trees, shrubs, and vines; forage from fruit trees early in the morning and late afternoon, hanging upside down to reach the fruits. They only go to the ground to drink and eat clay particles (Worthy, et al. 2009).

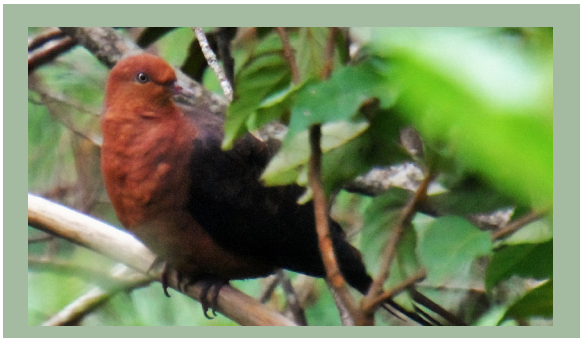

Figure 8. Philippine Cuckoo Dove (Ampasit Wangal, La Trinidad)