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# Checklists of Fauna Found in Pajo, Ibo, Toledo City, Cebu, Philippines

**Fidel E. Bendanillo, MSc**

**Curator, Entomological Collection, Biological Museum**

**Department of Biology, University of San Carlos**

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## ABSTRACT

The checklist is the comprehensive reference necessary for the local government and concerned agencies to enact local policies on biodiversity conservation. This article provides information on the enumeration list of fauna species in Sitio Pajo, Barangay Ibo, Toledo City, Cebu. The ocular listing and documentation were conducted during the day from March to April 2020. Three transect stations with a distance of 100 meters were established where the fauna was randomly selected. A total of 100 species were listed composed of vertebrates with 4 classes, 18 orders, 33 families, and 42 species while invertebrates with 7 classes, 15 orders, 4 families, and 58 species. The vertebrates were composed of Class Aves with 24 species, Class Reptilia with 9 species, Class Mammalia with 8 species, and Class Amphibia with 2 species. While invertebrates were composed of Class Insecta with 49 species, 33 families, and 8 orders; Class Diplopoda composed of 4 species, 4 families, and 3 orders; Class Arachnida, Chilopoda, Gastropoda, Oligochaeta, and Malacostrata with only 1 species, 1 family, and 1 order each. This short endeavor was limited to no collection of samples, no abiotic factors recorded, and no consideration of habitat factors. This listing of fauna was new to science and a new record in the city of Toledo.

## INTRODUCTION

The Philippines is considered one of the hotspots or centers of biodiversity (Mallari et al, 2001). For example, birds are already photographed and identified had their descriptions, voices, habitats, and distributions of the species are now the best field guides being used by the birdwatchers (Morten, 2000). The Important Bird Areas (IBA) of the Philippines are now recognized for conservation. The list of these areas was emphasized and accounted. The birds were categorized into critical, endangered, vulnerable, threatened, and endemicity of the species For example, in Tabunan, Cebu, the species of birds observed in 1990-2000 include Philippine Needletail (Meamsia picina), Rufous- lored kingfisher (Todiramphus winchelli), Streak-breasted bulbul (Hypsipetes siquijorensis), Philippine Leafbird (Chloropsis flavipennis), Black Shama (Copsychus cebuensis), and Cebu Flowerpecker (Dicaeum quadricolor) as threatened in the restricted areas (Mallari, et al, 2000).

Accordingly, 560 recognized bird species, 180 terrestrial mammals, and 250 reptiles (http://www.tradechakra.com/economy/philippines/flora-and-fauna-in-philippines-264.php.). Out of 700 threatened species, 42 were land mammals, 127 birds, 24 reptiles, and 14 amphibians as endemic (https://www.cbd.int/countries/profile?country=ph). An estimated number of 185 birds, 100 mammals, 160 reptiles, 76 amphibians, 65 freshwater fishes, and 15,000 inverts are endemic species (https://ateneoboxsite.wordpress.com/2021/12/01/philippine-flora-and-fauna-from-a-to-z/). Terrestrial vertebrates with more than 52,177 described species, 50% are endemic composed of mammals (65%), birds (36%), reptiles (69%), and amphibians (81%) (https://www.philchm.ph/status-of-philippine-biodiversity-2/endemism-2/).

Hernandez and Borlaza (2025) emphasized that the Philippines is inhabited by more than 200 species of mammals, 50 species of bats, 100 plus species of birds, at least 2,000 species of fish (https://www.britannica.com/place/Philippines/Plant-and-animal-life). While Tavera (2016) shared 10 species of animals, namely; Giant clam (Tridacna gigas), Tamaraw or Dwarf buffalo (Bubalus mindorensis), Dwarf goby (Pandaca pygmaea), Sinarapan (Mistichythys luzonensis), Philippine mouse deer (Tragalus nigricans),

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Philippine eagle (Pithecophaga jefferyi), Magellan birdwing (Troides magellanus), Palawan Calamian Hog deer (Hyelaphus calamianensis), Giant golden-crowned flying fox (Acerodon jubatus), Philippine tarsier (Tarsius syrichta), and Philippine crocodile (Crocodylus porosus) (https://www.slideshare.net/slideshow/flora-and-fauna-in-the-philippines/67202271).

In Sicogon Island, Iloilo, Panay, 7 families composed of 21 species of herpetofauna were recorded, namely; 6 species of frogs, 1 toad, 4 skinks, 6 geckoes, 1 varanid, 3 species of snakes of which 9 species are endemic. A forest frog, Platymantis sp. and a dwarf gecko Hemiphyllodactylus sp. are possibly new species. For the birds, 62 species of birds are observed, including 12 Philippine endemic species like Philippine Hawk Owl (Ninox philippensis), Bicolored Flowerpecker (Dicaeum bicolor), Philippine Tailorbird (Orthotomus castaneiceps) and the Balicassiao (Dicrurus balicassius). About 14 species of mammals were also recorded namely; Common Island flying fox (Pteropus hypomelanus) and Little golden-mantled flying fox (Pteropus pumilus). Also included is the critically endangered Visayan warty pig (Sus cebifrons); and the Visayan leopard cat (Prionailurus bengalensis rabori) (Pedregosa, et.a., 2006).

In Cebu, some terrestrial endemic species are Cebu hawk owl (Ninox rumseyi), Cebu small worm skink (Brachymeles cebuensis), Cebu flowerpecker (Dicaeum quadricolor), Kawasan paper kite butterfly (Idea leuconoe jumaloni), Bicknell's hoya (Hoya bicknelli), Tabunan damselfly (Risiocnemis seidenschwarzi), Black shama (Copsychus cebuensis) (https://boholandcebubiodiversity.wordpress.com/2015/03/27/list-of-endemic-species-in-cebu/). The Tabunan damselfly, Risiocnemis sp., Black shama known as Siloy in local name, Uling Goby (Sicyopus cebuensis), small fish found in Naga River Basin known to live in salt water, Cebu hawk (Ninox rumseyi) thought to be extinct because of deforestation but rediscovered in the southern part of Cebu, Cebu small worm skinks with 3 fingers and 2 toes, Paper kite butterflies (Idea leoconoe jumaloni) in Tabon River, Badian, Dalaguete Forest Parches and Nug-as, Alcoy; Cebu flowerpecker (Dicaeum quadricolor), a small bird found in Mount Lantoy Argao thought to be extinct but was rediscovered (https://sugbo.ph/2023/wildlife-only-in-cebu/;).

In Mt. Lantoy, Cebu Island, Philippines, a total of 872 individual terrestrial snails were composed of 25 species, 15 genera, and 9 families. 7 families belonging to the air-breathing pulmonated group were studied. These are Bradybaenidae, Camaenidae, Trochomorphidae, Achatinidae, Ariophantidae, Helicarionidae, and Helicinidae of the Order Stylommatophora. 2 Families were under the prosobranch group, Order Caenogastropoda namely; Cylophoridae with 5 species and Pupinidae. Family Cyclophoridae is composed of 5 species, the highest, followed by Bradybaenidae, Camaenidae, Helicinidae with 4 species. The Trochomorphidae and Helicarionidae with 3 species, Pupinidae with 2 species while the Achatinidae and Ariophantidae with 1 species each. 3 species are endemic, 10 species are new record species, and 4 are rare (Rosales, et.al., 2020).

Mangal faunal community in Malhiao, Badian, Cebu was assessed. Results indicated that mangroves-associated fauna includes 3 species of birds (e.g. Egretta garzetta, Todiramphus chloris, and Cinnyris jugularis), 4 species of fishes (Stronglylura sp., Peiophthalmus gracilis, Pomacentrus coelestis and Chrysiptera unimaculata), 4 species of sponges (e.g. Svenzeas p., Halicondria sp., Amphimedon sp., and Spongias p.), 1 species of jellyfish (e.g. Cassiopeia andromeda) 9 species of echinoderms (e.g. Linckia laevigata, Clypeaster sp., Diadema setosum, Echinometra mathaei, Archaster typicus, Protoreaster nodosus, Ophiocoma scolopendrina, Synapta maculata, and Holothuria scabra), 3 species of insects (Apteronemodius sp., Odites sp., Polyrachis sp.), 2 species of spiders (e.g. Hersilia savignyi, Tetragnatha sp.), 6 species of mollusks (e.g. Crassosteria sp., Onchidium sp., Nerita articulata, Anadara sp., Canarium labiatus, and Littoraria filose), 4 species of crustaceans (e.g. Episesarma sp., Pagurus bernhardus, Uca sp., and Rhinolambrus sp.) and 1 species of mangrove skink (e.g. Emoia atrocostata) (Valenzuela, et a., 2013).

In the coastal area of Badian, Cebu, Philippines, a total of 824 seawater bugs/15,000 square meters were studied. Results indicated that seawater bugs are composed of 4 families, 8 genera, 11 species, and 2 not yet identified at species level. The seawater bugs are Halobates calyptus, Halobates hayanus, Halobates proavus, Pseudohalobates inobonto, and Stenobates sangihi of the Family Gerridae; Haloveloides femoralis, Halovelia esakii, Halovelia malaya, Halovelia bergrothii, Xenobates sp 1, and Xenobates sp.2 of the Family Veliidae; Hermatobates marchii of the Family Hermatobatidae and Corralocoris marksae of the Family Omaniidae, respectively (Bendanillo, et al., 2016; https://www.sciepub.com/JAS/abstract/5754).

Insects, spiders, and other terrestrial arthropods are given importance to their descriptions, body systems,

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\behavior, life history, habitats, occurrence, taxonomic keys, and abundance of species that are now used for beginners, enthusiasts, students, and researchers (McGavin, 2000). There are common insects considered pests on trees such as the branch twig borers, metallic wood-boring, long-horned beetles, bark beetles, and many others with their taxa, descriptions, distribution, and damage on hosts (Center for Forest Pest Management and Research- Department of Environment and Natural Resources. 1995)

Recognition or identification of fauna or animal species is now very easy since we have so many platforms to use such as websites or blogs aside from scientific articles published in different journals as the best venue to get information about the status of animals. The study was conducted for the first time. The lockdown due to Covid 19 was the reason why documentation and check-listing were conducted to identify and classify the fauna into class, order, family, genus, and species level and to know if they are common, endemic or exotic species in the area. The output would give important information about the species for protection and conservation purposes.

## MATERIALS AND METHODS

The study was conducted in Sitio Pajo, Barangay Ibo, Toledo City, Cebu. The area is located approximately 1km from the coastal area with geographical coordinates of 10º21'25.8" North, 123º37'23.6" East. The recorded average temperature ranged from 23ºC to 31ºC with a monthly average of 30ºC, average precipitation ranged from 49mm to 205mm with a yearly volume of 1,639 mm, and rainfall ranged from 13.1mm to 28.4mm with a total volume of 252.7mm. As of 2015, Sitio Ibo has a population of 3,699 individuals or more than a hundred households living in the community. Farming, fishing, charcoal making, firewood gathering, and working in private or government agencies are types of livelihoods in the area. Throughout the years, people utilized these resources for food, shelter, medicines, and other socio-economic purposes.

The documentation and check-listing were conducted on March 20-21, 23-28, and April 6-8, 2020. A transect line of about 100 meters was established in 3 stations as shown in Figure 1. The positive (+) and negative (-) signs were used to indicate their presence and absence during listing, and documented and undocumented as shown in Table 1. The faunal species photographed or documented and undocumented were shown in Plate 1. It was recorded during daytime and the species encountered were listed first using local name or common name.

The faunal species were photographed using a digital camera brand Sony (E 3.5-5.8/PZ 16-50-OSS), and classified using books, field guides, and the internet as references. There was no collection of species undertaken. No individual counts were, but only a listing was provided. The fauna species were taxonomically classified into Class, Order, Family, Genus, and species as much as possible. The fauna was categorized as domesticated or wildlife animals. Some species were not photographed but still recorded.

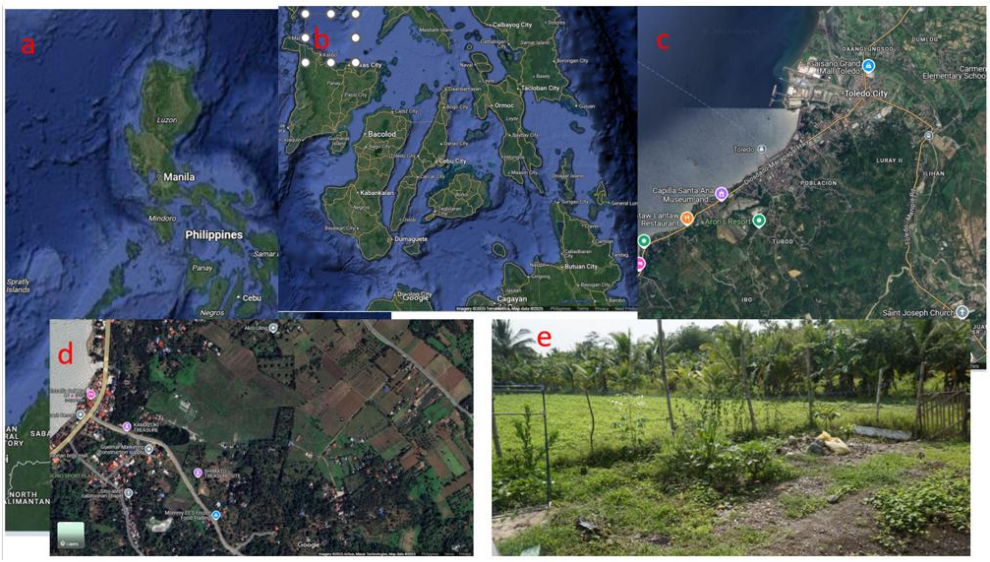


**Figure 1. Google map of the study area; a. Philippines, b. Visayas, c. Toledo City, d. Pajo, Ibo, e) (https://www.google.com/maps)**

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## RESULTS

The fauna listed was classified into class, order, family, genus, and species level. They were categorized into animals with backbones called vertebrates and animals without backbones called invertebrates. Results indicated that a total of 58 species, 40 families, 15 orders, and 7 classes were identified and classified. As observed many species present in station 1 with 77 as compared to station 2 with 72, and station 3 with 68 species (Table 1). The vertebrates were composed of 4 classes, 18 orders, 33 families, and 43 species as compared to invertebrates with 7 classes, 15 orders, 4 families, and 58 species as the highest listed (Figure 2). The documented species is shown in Plate 1.

In the case of vertebrates, it was composed of Class Aves with 24 species as the highest, then followed by Class Reptilia with 9 species, Class Mammalia with 8 species, and Class Amphibia with 2 species (Figure 3). For the invertebrates, it was composed of Class Insecta with 49 species as the highest, 33 families, 8 orders, then Class Diplopoda with 4 species, 4 families, and 3 orders, Class Arachnida, Class Chilopoda, Class Malacostraca and Class Oligochaeta with 1 species, 1 family and 1 order each (Figure 4). For the orders under Class Insecta, Diptera was the highest with 18 species, then followed by Hymenoptera with 12 species, Lepidoptera with 9 species, Coleoptera with 7 species and 5 species and below for the Orthoptera, Odonata, Hemiptera, and Isoptera. The number of families constitutes 7 to 9 while the rest was below 5 (Figure 5).

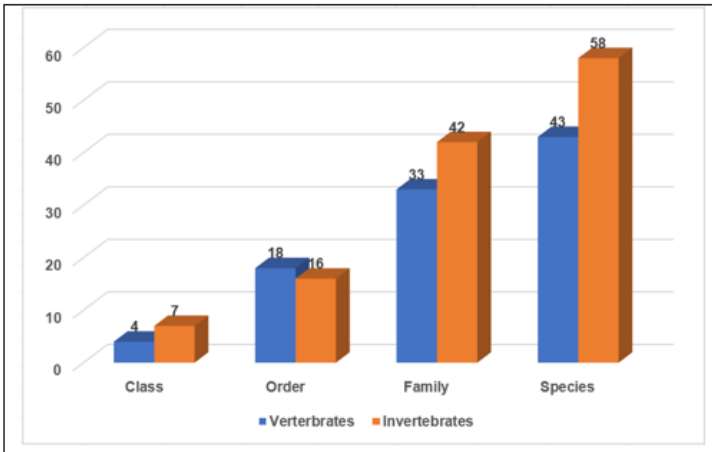


**Figure 2. Total number of classes, orders, families, and species of vertebrates and invertebrate animals found in Pajo, Ibo, Toledo City, Cebu, Philippines.**

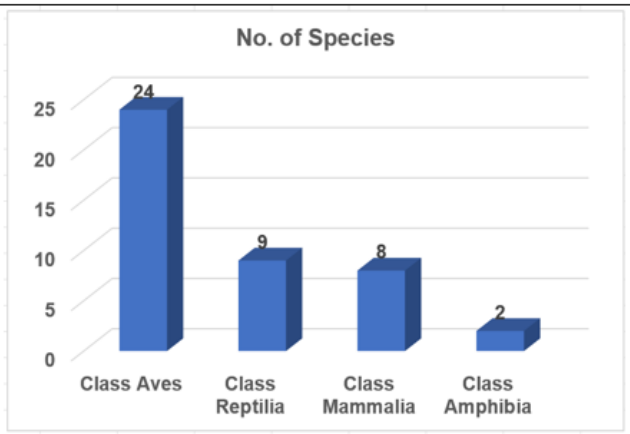


**Figure 3. Total number of species under the different classes of vertebrates found in Pajo, Ibo, Toledo City, Cebu, Philippines.**

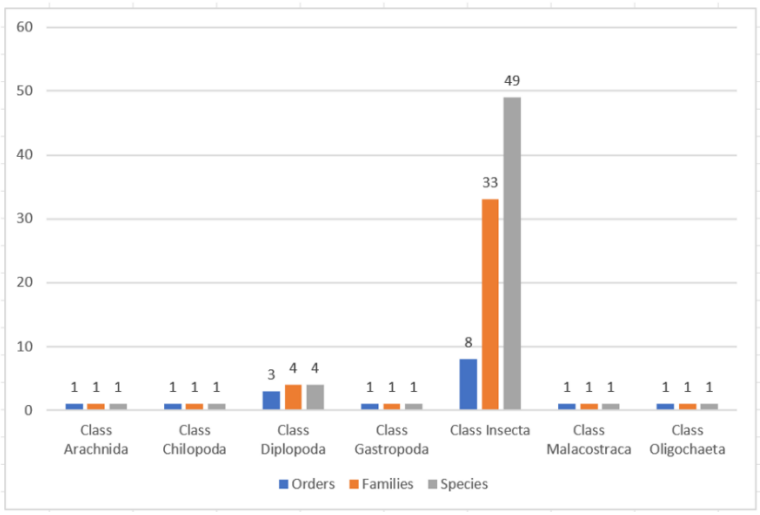


**Figure 4. Total number of orders, families and species under the different classes of invertebrates found in Pajo, Ibo, Toledo City, Cebu, Philippines.**

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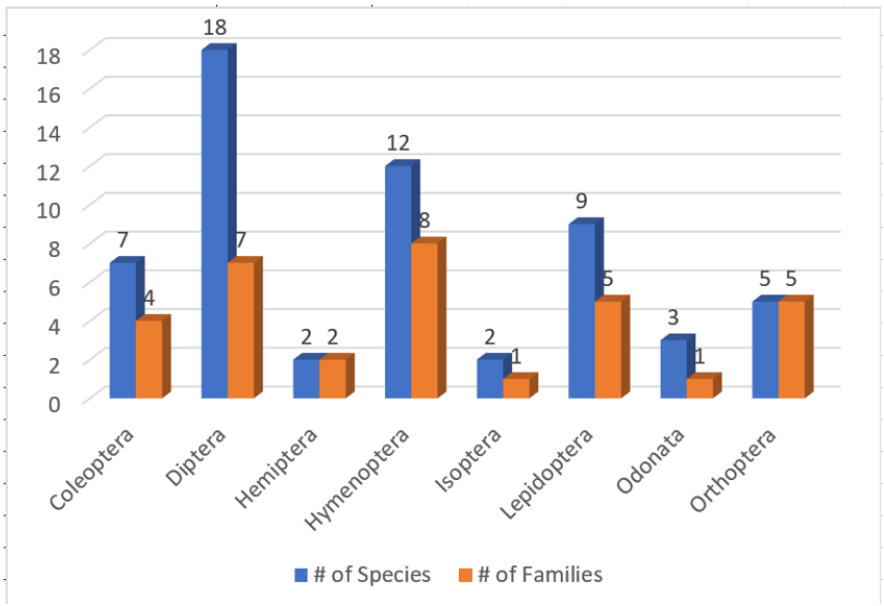


**Figure 5. Total number of species and families classified under Class Insecta found in Pajo, Ibo, Toledo City, Cebu.**

## DISCUSSION

It was observed that mobile animals like birds under Class Aves are hard to photograph because they are immediately flown when about to take photos. Chickens such as roosters and hens (Gallus gallus domesticus) are the domesticated birds identified. The rooster is used for cockfighting while hens are for egg laying, and sold as food. The Parakeets (Agapornis fischeri) or "Lovebirds" are used as pets and placed inside the cage probably to attract or entertain visitors. Woodchat shrike (Lanius senator) has an amazing color as compared to other species because the head is black. Buff-banded rail (Gallirallus torquatus) came out late in the afternoon from the bushes to find food in the grassland areas. Heron (Ardea purpurea) was seen near the cow herding. Frogmouth (Batrachostomus septimus) or night jar (Caprimulgus indicus) are aggressive when threatened. This bird is traditionally recognized as "ungo or abat" because of the mouth that would open when disturbed or threatened and the eyes turned red when focused by the flashlight. People were afraid caused panic and ran very fast. Woodchat shrike (Lanius senator) has an amazing color as compared to other species because the head is black (Figure 4). Buff-banded rail (Gallirallus torquatus) would come out late in the afternoon to find food in the grassland areas. Heron (Ardea purpurea) is seen near the cow herding. Most of these species of birds were mentioned by Mallari, et al. (2001) except the exotic as pets and domesticated animals.

The other birds like Cougal (Centropus melanops) and kingfisher (Halcyon chloris) were recognized by their vocalization, loud while perching on the branches of trees. Swiftleft (Cypsiurus parvus) was seen during the day feeding flying insects. Palm swift (Dicrusus balicassius) was found in Buri or Buli palm (Corypha utan). These birds were pinched and made holes in the trunk of the palm as their nests. The holes below were older than near the foliage. The height of Buri palm is about 40 meters and more than 30 years old. Chestnut munia (Lonchura mallaca), Eurasian tree sparrow (Passer montanus), and Zebra doves (Geopelia striata) were observed in the grassland area or ground to seek food. The Falcon (Microhierax sp.) at one time was noticed about to catch the chicks on the ground but failed due to the hen protection against the Falcon. The Oriental magpie robin (Copsychus saularis) was very entertaining because of its fan-tail fanning behavior when about to land on the ground or branches of the trees. Sunbird (Aethopyga sp.) was noticed on coconut trees and other fruit trees feeding on nectars of the flowers.

The only five domesticated animals identified under Class Mammalia were the following namely; Dogs (Canis lupus familiaris), cats (Felis catus), pigs (Sus scrofa domesticus), goats (Capra aegagrus hircus), Cows (Bos taurus), and carabaos (Bubalus bubalis carabanesis) except the horses. Dogs and cats were very common as friendly pets. Pigs, goats, horses, cows, and carabaos were raised as alternative sources of livelihood for the family to increase their income. Pigs and goats were either sold live or as meat during fiesta, weddings, and

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birthdays except the cows and carabaos but used in farming for tilling their land. The Civet cat (Vivera tagalunga) was not documented but was seen by the local people based on personal interviews. The local people hunted these civet cats by using traps made of screen bait since these animals were nocturnal in nature, predators of chickens. Reptiles are nocturnal but no animals were documented but found according to the people in the community. Bats were observed during the night while fruit bat was seen feeding on fruits of Aratiles (Ziziphus jujuba) while insect bats were observed prey on flying insects. For Class Amphibia, 2 species under Order Anura, the exotic and invasive Asiatic painted frog (Kaloula pulchra) and Bullfrog (Rhinella marina) probably not endemic in Cebu.

The Earthworm (Lumbricus terrestris) under Class Oligochaeta and Phylum Annelida was observed on the ground surface and probably came out due to dry soil since it was summer at the time. The arthropods under Phylum Arthropoda comprised the land snail, land crab, centipede, millipede, spiders, and insects. Land snail (Lissachatina fulica) was seen on the surface near the water- well. Land crab (Cardisoma carniflex) was sited that night through baiting and trap inside the cage, cooked and eaten since it is edible. The Cylinder millipede (Eurymerodesmus sp.) was seen crawling in coralline rocks and dry leaves while the Flat millipede (Orthomorpha coarctata) and Centipede (Scolopendra gigantea) were seen moving in dried leaves of herbs and grasses. Orb spider (Argiope sp.) was cited in the shrub constructing its owned web.

The makahiya or shameplant (Mimosa piduca) was visited by Dwarf bees (Apis cerana) and Sweat bee (Thyreus wallacei) to collect pollen for food. Beetles under Order Coleoptera cited were the Rhinocerus beetle (Oryctes rhinocerus), June beetle (Cotinis nitida), Chaffer beetle (Cetonia sp.), Soldier beetle (Cantharis pellucida), Carabid beetle (Brachinus sp.), Pumpkin beetle (Aulacophora similis) and Leaf beetle (Plagiodera versicolora). June beetle was cited under the leaf of Talisay tree while Rhinocerus beetle was attracted by light of the bulb in the house. Chaffer beetle and soldier beetle are diurnal while carabid beetle, pumpkin beetle, and leaf beetle are nocturnal. These nocturnal beetles are pests of squash and eggplant except carabid beetles as predators.

Butterflies under Order Lepidoptera cited were Brown butterfly (Aphantopus hyperanthus), Tiny grass blue (Chilades lajus), White lineblue (Nacaduba sp.), and bagworm. Swallow-tailed butterflies are the Menelaides polytes, Troides rhadamantus and Papilio rumanzuvia, yellow butterflies are the Eurema hecabe & Eurema blanda, Brush-footed butterlies are the Aphantopus hypercanthus and Ideopsis juventa and Lycaenids are the Chilades lajus and Nacaduba sp.). These species are diurnal and very hard to take pictures using digital camera because of their high mobility unless they are in a steady position.

Termites under Order Isoptera were the Milk termite (Captotermis vastator) found on the trunk of an old mango tree (Mangifera indica) and Mound termite (Macrotermis gilvus) found on the ground. Bugs under Order Hemiptera were Squash bug (Gonocerus acuteangulatus) and Cotton stainer/Red bugs (Dysdercus cingulatus) attacking okra and cotton plant. Flies under Order Diptera are the Stilt-legged fly (Micropeza sp.), Flesh fly (Sarcophaga sp.), Stomoxy fly (Stomoxys sp.), Blowfly or Screw worm (Cochliomyia hominivorax) and Picture-winged fly (Euxesta sp.). Mosquitoe (Culex sp.) is very common and Hoverfly (Syrphus sp.) is a pollen eater while the rest species are blood or flesh-eating dipteran flies. They are very mobile and sometimes seen visiting the flowers in the morning.

The species under Order Hymenoptera were the native honeybee (Apis cerana), Paper wasp (Polistes sp.), Vespid wasp (Vespula sp.), Carpenter bee (Xylocopa sp.), Spike ant (Polyrachis sp.), Sting wasp (Polistes sp.) and Parasitoid wasp or Ichneumonid wasp (Charops brachypterum). The other species are Blue-banded bee (Armigella sp.), Giant honeybee (Apis dorsata brevilegula), Stingless bee (Tetragonula biroi), Sweat bee (Thyreus wallacei) and Braconid wasp (Ecthromorpha sp.). The blue-banded bee, giant honeybee, stingless bee and sweat bee are seen early in the morning collecting pollen as their food in their colonies. They are mostly cited in site 1 including the Spike leaf ant (Polyrachis sp.) and red ant (Solenopsis sp.).

Species of insects cited under Order Orthoptera were the Short-horned grasshopper (Chortoicetes sp.), Forktailed-bush katydid (Scudderia sp.), Field cricket (Gryllus gryllus), Mole cricket (Gryllotalpa sp.) and Praying mantis (Stagmomantis religiosa). Short-horned grasshoppers and fork-tailed bush katydids were cited in shrubs, herbs, and grasses while the praying mantis was in coconut flowers probably waiting to catch its' prey. Field cricket and mole cricket are nocturnal and cited during the night attracted by the light of the bulb in the

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house. Order Odonata is composed of Neurothemis ramburi, Brachydiplax sp., and Orthetrum luzonicum. These dragonflies are diurnal and very good hunters of their prey on air. They are found in all sites. Only N. ramburi was photographed.

As observed that 47 insect species listed in Pajo, Ibo as compared to only 3 species of insects, namely; Apteronemodius sp., Odites sp., Polyrachis sp., including 2 species of spiders such as Hersilia savignyi, Tetragnatha sp., in Malhiao, Badian (Valenzuela, et al. 2013). Since most of the fauna are terrestrial in nature and so aquatic or marine species were not observed (Bendanillo, et al., 2013). Some endemic species of mammals, reptiles, amphibians, and birds were mentioned by (Mallari, et al, 2000; Valenzuela, et al., 2013; Pedregosa, et.al., 2006; Rosales, et.al., 2020; Hernandez and Borlaza, 2025;). The most important was the presence of some endangered species such as Python (Python reticularis), Monitor lizard (Varanus olivaceious), Buff-banded rail (Gallirallus torquatus), Long-tailed shrike (Lanius cristatus), Falcon (Microhierax sp.), Red-keeled flowerpecker (Dicaeum austral) and Orange-bellied flower (Dicaeum trigonostigma) that were cited in the study area.

## CONCLUSION AND RECOMMENDATIONS

Therefore, 100 species were listed composed of vertebrates with 4 classes, 18 orders, 33 families, and 42 species while invertebrates with 7 classes, 15 orders, 4 families, and 58 species. The vertebrates were composed of Class Aves with 24 species, Class Reptilia with 9 species, Class Mammalia with 8 species, and Class Amphibia with 2 species. While invertebrates were composed of Class Insecta with 49 species, 33 families, and 8 orders; Class Diplopoda composed of 4 species, 4 families, and 3 orders; Class Arachnida, Chilopoda, Gastropoda, Oligochaeta, and Malacostrata with only 1 species, 1 family, and 1 order each, respectively. Invertebrates had 58 species while vertebrates had 42 species documented. Insects are the most dominant invertebrates while birds are the most dominant vertebrates, and 7 species are domesticated animals. It is recommended that the unclassified species should be studied further. Further study to determine the diversity and ecological status of the animals is also needed. A good information drive should be organized for the protection and conservation of the faunal species. The listing of fauna with classification would give biological value to the people of Pajo, Ibo.

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**Table 1. Checklist of species of fauna documented in Pajo, Ibo, Toledo City, Cebu as of March to June 2020**

| **VERTEBRATES** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Common Name** | **Scientific name** | **Family** | **Order** | **Class** | **S 1** | **S 2** | **S 3** | **D/U** | **Status** |
| White duck “Pato” | Cairina moschata domestica | Anatidae | Anseriformes | Aves | + | + | | U | C |
| Swift left | Cypsiurus parvus | Apodidae | Apodiformes | “ | + | + | + | U | C |
| Palm swift | Dicrusus balicassius | “ | “ | “ | + | | | U | C |
| Frogmouth | Batrachostomus septimus | Podargidae | Caprimulgiformes | “ | | + | + | U | E |
| Night Jar | Caprimulgus indicus | Caprimulgidae | “ | “ | + | + | + | U | C |
| Zebra dove | Geopelia striata | Columbidae | Columbiformes | “ | | + | + | U | C |
| Kingfisher | Halcyon chloris | Alcedinidae | Coraciiformes | “ | + | + | + | U | C |
| Black faced coucal | Centropus melanops | Cuculidae | Cuculiformes | “ | + | + | + | U | C |
| Cuckoo | Cuculus sp. | Cuculidae | “ | “ | | + | + | U | C |
| Hens/Rooster | Gallus gallus domesticus | Phasianidae | Galliformes | “ | + | + | + | D | C |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Buff-banded rail | Gallirallus torquatus | Rallidae | “ | “ | + | + | + | D | C |
| Falcon | Microhierax sp. | Falconidae | Falconiformes | “ | + | + | + | U | C |
| Red-keeled flowerpecker | Dicaeum austral | Dicaeidae | Passeriformes | “ | + | + | + | U | C |
| Orange-bellied flower | Dicaeum trigonostigma | “ | “ | “ | + | + | + | U | C |
| Chestnut munia | Lonchura mallaca | Estrildidae | “ | “ | + | + | + | U | C |
| Brown shrike | Lanius sp. | Laniidae | “ | “ | + | | | U | C |
| Oriental magpie robin | Copsychus saularis | Muscicapidae | “ | “ | + | + | + | U | C |
| Sunbird | Aethopyga sp. | Nectariniidae | “ | “ | + | + | + | U | C |
| Sunbird | Nectarinia jugularis | “ | “ | “ | | + | + | U | C |
| Eurasian tree sparrow | Passer montanus | Passeridae | “ | “ | + | + | + | U | C |
| Pied fantail | Rhipidura sp. | Rhipiduridae | “ | “ | + | + | + | U | C |
| Heron | Ardea purpurea | Ardeidae | Pelecaniformes | “ | + | + | | D | C |
| Parakeet/Lovebirds | Agapornis fischeri | Psittaculidae | Psittaciformes | “ | | + | | D | E |
| Philippine trogon | Harpactes ardens | Trogonidae | Trogoniformes | “ | + | | | U | C |
| Cows | Bos Taurus | Bovidae | Artiodactyla | Mammalia | + | + | + | D | C |
| Carabaos | Bubalus bubalis carabanesis | “ | “ | “ | + | | | D | C |
| Goats | Capra aegagrus hircus | “ | “ | “ | + | + | + | D | C |
| Pigs | Sus scrofa domesticus | Suidae | “ | “ | + | + | + | D | C |
| Dogs | Canis lupus familiaris | Canidae | Carnivora | “ | + | + | + | D | C |
| Cats | Felis catus | Felidae | “ | “ | + | + | + | D | C |
| Insect bat | Roussetous sp. | Pteropodidae | Chiroptera | “ | + | + | + | U | C |
| Fruit bat | Cynopterus sp. | “ | “ | “ | + | + | + | U | C |
| House lizard | Hemidactylus sp. | Geckonidae | Squamata | Reptilia | | | | | C |
| Flying lizard | Draco volans | Agamidae | “ | “ | | | + | U | C |
| Sailfin lizard | Hydrosaurus | “ | “ | “ | | | + | U | C |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | postulosus | | | | | | | | |
| Monitor lizard | Varanus v. (olivaceous) | “ | “ | “ | | + | + | U | C |
| Cobra | Naja philippensis | Elapidae | “ | “ | + | | | U | C |
| Gecko | Gecko gecko | Gekkonidae | “ | “ | + | + | + | U | C |
| Python | Python reticularis | Pythonidae | “ | “ | | + | + | U | C |
| Skink | Tiliqua sp. | Scincidae | “ | “ | + | + | + | U | C |
| Blind snake | Indotyphlops sp. | Typhlopidae | “ | “ | + | | | U | C |
| Asiatic painted frog | Kaloula pulchra | Microhylidae | Anura | Amphibia | + | + | | D | E |
| Bullfrog | Rhinella marina | Dicroglossidae | “ | “ | + | + | + | D | E |
| **INVERTEBRATES** | | | | | | | | | |
| **Common Name** | **Scientific Names** | **Families** | **Orders** | **Classes** | | | | | |
| Earthworm | Lumbricus terrestris | Lumbricidae | Opisthopora | Oligochaeta | + | + | + | D | C |
| Orb spider | Argiope sp. | Argiopidae | Araneae | Arachnida | | + | + | D | C |
| Centipede | Scolopendra gigantea | Scolopendridae | Scolopendromorpha | Chilopoda | + | | | U | C |
| Flat millipede | Eurymerodesmus sp. | Eurymerodesmidae | Polydesma | Diplopoda | + | + | + | D | C |
| Flat millipede | Orthomorpha coarctata | Xystodesmidae | “ | “ | | + | + | D | C |
| Cylinder millipede | Julus sp. | Julidae | Julida | “ | + | + | + | D | C |
| Spirostrepid | Spirostreptus sp. | Spirostreptidae | Spirostreptida | “ | | + | + | D | C |
| Land snail | Lissachatina fulica | Achatinidae | Stylommatophora | Gastropoda | + | + | + | D | C |
| Land crab | Cardisoma carniflex | Gecarcinidae | Decapoda | Malacostraca | | | + | D | C |
| Shorthorned grasshopper | Chortoicetes sp. | Acrididae | Orthoptera | Insecta | + | + | + | D | C |
| Field cricket | Gryllus gryllus | Gryllidae | “ | “ | + | | | D | C |
| Mole cricket | Gryllotalpa sp. | Gryllotalpidae | “ | “ | + | | | U | C |
| Praying mantis | Stagmomantis religiosa | Mantidae | “ | “ | + | | | D | C |
| Forktailed bush katy | Scudderia sp. | Tettigoniidae | “ | “ | + | + | + | D | C |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Blue-banded bee | Armigella sp. | Anthoporidae | Hymenoptera | “ | + | | + | U | C |
| Giant honeybee | Apis dorsata brevilegula | Apidae | “ | “ | + | | | U | C |
| Native honeybee | Apis cerana | “ | “ | “ | + | + | + | D | C |
| Stingless bee | Tetragonula biroi | “ | “ | “ | + | | | D | C |
| Braconid wasp | Ecthromorpha sp. | Braconidae | “ | “ | + | | | U | C |
| Red ant | Solenopsis sp. | Formicidae | “ | “ | + | + | + | U | C |
| Spike leaf ant | Polyrachis sp. | “ | “ | “ | | + | + | D | C |
| Sweat bee | Thyreus wallacei | Halictidae | “ | “ | + | + | | U | C |
| Parasitoid wasp | Charops brachypterum | Ichneumonidae | “ | “ | + | | | U | C |
| Paper wasp | Polistes sp. | Vespidae | “ | “ | + | + | | D | C |
| Vespid wasp | Vespula sp. | Xylocopidae | “ | “ | | + | + | D | C |
| Carpenter bee | Xylocopa sp. | “ | “ | “ | + | + | + | D | C |
| Blowfly | Calliphora sp. | Calliphoridae | Diptera | “ | + | + | + | D | C |
| Screwworm-fly | Cochliomyia hominivorax | “ | “ | “ | | + | | U | C |
| Mosquitoe | Culex sp. | Culicidae | “ | “ | + | + | + | U | C |
| Stilt-legged fly | Micropeza sp. | Micropezidae | “ | “ | | + | + | D | C |
| Stomoxy fly | Stomoxys sp. | Muscidae | “ | “ | + | + | + | D | C |
| Flesh fly | Sarcophaga sp. | Sarcophagidae | “ | “ | + | + | + | D | C |
| Hoverfly | Syrphus sp. | Syrphidae | “ | “ | + | + | + | U | C |
| Picture-winged fly | Euxesta sp. | Ulidiidae | “ | “ | + | | | D | C |
| Rhinocerus beetle | Oryctes rhinocerus | Scarabaeidae | Coleoptera | “ | + | | | D | C |
| June beetle | Cotinis nitida | “ | “ | “ | + | | | D | C |
| Chaffer beetle | Cetonia sp. | “ | “ | “ | | + | + | D | C |
| Soldier beetle | Cantharis pellucida | Cantharidae | “ | “ | + | | | U | C |
| Carabid beetle | Brachinus sp. | Carabidae | “ | “ | + | | | U | C |
| Pumpkin beetle | Aulacophora similis | Chrysomelidae | “ | “ | + | + | + | D | C |
| Leaf beetle | Plagiodera versicolora | “ | “ | “ | + | + | + | D | C |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Skimmer dragonfly | Neurothemis ramburi | Libellulidae | Odonata | “ | + | + | + | D | C |
| Skimmer dragonfly | Brachydiplax sp | “ | “ | “ | + | + | + | U | C |
| Skimmer dragonfly | Orthetrum luzonicum | “ | “ | “ | + | + | + | U | C |
| Tiny grass blue | Chilades lajus | Lycaenidae | Lepidoptera | “ | + | + | | U | C |
| White line blue | Nacaduba sp. | “ | “ | “ | + | + | | D | C |
| Brown butterfly | Aphantopus hypercanthus | Nymphalidae | “ | “ | | + | + | D | C |
| Brush-footed butterfly | Ideopsis juventa | “ | “ | “ | | | + | D | C |
| Swallow butterfly | Menelaides polytes | Papilionidae | “ | “ | + | + | + | U | C |
| Swallow butterfly | Troides rhadamantus | “ | “ | “ | | | + | U | C |
| Swallow-tailed | Papilio rumanzuvia | “ | “ | “ | + | + | | U | C |
| Yellow butterfly | Eurema hecabe | Pieridae | “ | “ | + | + | + | D | C |
| Yellow butterfly | Eurema blanda | “ | “ | “ | + | + | + | U | C |
| Bagworm/casewor m | Crytothelia sp. | Psychidae | “ | “ | + | | | D | C |
| Cotton stainer | Dysdercus cingulatus | Pyrrhocoridae | Hemiptera | “ | + | + | + | D | C |
| Stink bug | Gonocerus acutecingulatus | Reduviidae | “ | “ | + | + | + | D | C |
| Milk termite | Captotermis vastator | Termitidae | Isoptera | “ | | + | + | D | C |
| Mound termite | Macrotermis gilvus | “ | “ | “ | + | + | + | D | C |
| **TOTAL** | **58** | **42** | **16** | **7** | **77** | **72** | **68** | **50/48** | |

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**Plate 1. Fauna (Animals) documented in Pajo, Ibo, Toledo City, Cebu as of Mapalate r to Jun 2020**

Fig. 1. Duck, *Cairina moschata domestica* (Anatidae Anseriformes Aves)

Fig. 2. Chicken, *Gallus gallus domesticus (*Phasianidae Galliformes Aves)

Fig. 3. Buff-banded rail, *Gallirallus torquatus (*Rallidae Gruiformes Aves)

Fig. 4. Long-tailed shrike, *Lanius cristatus* ssp. (LaniidaePasseriformes Aves)

Fig. 5. Heron, *Ardea purpurea* (Ardeidae Pelecaniformes Aves)

Fig. 6. Parakeets, *Agapornis fischeri (*Psittaculidae Psittaciformes Aves)

Fig. 7. Eurasian tree sparrow, *Passer montanus (*PasseridaePasseriformes Aves)

Fig. 8. Cow, *Bos Taurus* (Bovidae Artiodactyla Mammalia)

Fig. 9. Carabao, *Bubalus bubalis carabanesis (*Bovidae Artiodactyla Mammalia)

Fig. 10. Goat, *Capra aegagrus hircus (*Bovidae Artiodactyla Mammalia)

Fig. 11. Pig, *Sus scrofa domesticus* (Suidae Artiodactyla Mammalia)

Fig. 12. Dog, *Canis lupus familiaris (*Canidae Carnivora Mammalia)

Fig. 13. Cat, *Felis catus domesticus (*Felidae Carnivora Mammalia)

Fig. 14. Asiatic painted frog, *Kaloula pulchra (*Microhylidae Anura Amphibia)

Fig. 15. Painted frog, *Kaloula* sp. (Microhylidae Anura Amphibia)

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Fig. 16. Asian grass frog or Field frog, *Fejervarya limnocharis* (Dicroglossidae Anura Amphibia)

Fig. 17. Bullfrog, *Rhinella marina* (Dicroglossidae Anura Amphibia)

Fig. 18. Monitor lizard, *Varanus olivaceious (*Varaniidae Squamata Reptilia)

Fig. 19. Land snail, *Achatina fulica* (Achatinidae Stylommatophora Gastropoda)

Fig. 20. Land crab, *Cardisoma carniflex* (Gecarcinidae Decapoda Malacostraca)

Fig. 21. Cylinder millipede, *Scolopendra morsitans (*Scolopendridae Scolopendromorpha Diplopoda)

Fig. 22. Spirostreptid (millipede) *Spirostreptus* sp. (Spirostreptidae Spirostreptida Diplopoda)

Fig. 23. Flat millipede *Eurymerodesmus* sp. (Taken from Flickr/License, creator & copyright/Bryan E. Reynolds

Fig. 24. Black and yellow flat millipede, *Orthomorpha coarctata (*Xystodesmidae Polydesma Diplopoda)

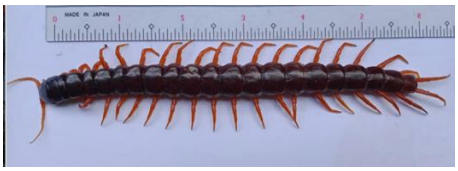

Fig. 25. Centipede, *Scolopendra gigantean (*Scolonpendridae Scolopendromorpha Chilopoda)

Fig. 26. Earthworm, *Lumbricus terrestris (*Lumbricidae Opisthopora Oligochaeta)

Fig. 27. Orb spider *Argiope* sp. 1 (Argiopidae Araneae Arachnida)

Fig. 28. Orb spider *Argiope* sp. 2

Fig. 29. Orb spider

Fig. 30. Orb spider *Argiope* sp. 4

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(Argiopidae Araneae Arachnida)

Fig. 31. Shorthorned grasshopper *Chortoicetes* sp. (Acrididae Orthoptera)

Fig. Leaf katydid, *Mecopoda* sp. (Tettigoniidae Orthoptera)

Fig. 34. Field cricket *Gryllus gryllus* (Gryllidae Orthoptera)

Fig. 37. Blue-banded bee, *Armigella* sp. (Anthoporidae Hymenoptera)

Fig. 40. Stingless bee *Tetragonula biroi*

*Argiope* sp. 3 (Argiopidae Araneae Arachnida)

Fig. 32. Short-horned grasshopper, *Spharagemon* sp. (Acrididae: Orthoptera)

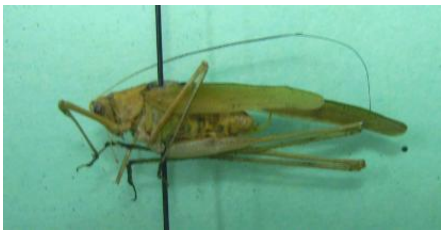

Fig. Katydid, *Conocephalus* sp. (Tettigoniidae Orthoptera)

Fig. 35. Mole cricket *Gryllotalpa* sp. (Gryllotalpidae Orthoptera)

Fig. 38. Giant honeybee *Apis dorsata brevilegula* (Apidae Hymenoptera)

Fig. 41. Sweat bee

(Argiopidae Araneae Arachnida)

Fig. 33. Fork-tailed bush katydid, *Scudderia* sp. (Tettigoniidae Orthoptera)

Fig. 36. Praying mantis *Stagmomantis religiosa* (Mantidae Orthoptera)

Fig. 39. Native honeybee *Apis cerana (*Apidae Hymenoptera)

Fig. 42. Carpenter bee

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(Apidae Hymenoptera)

Fig. 43. Ant, *Oecophylla* sp.
(Formicidae Hymenoptera)

*Thyreus wallacei*
(Halictidae Hymenoptera)

Fig. 44. Spike leaf ant
*Polyrachis* sp.
(Formicidae Hymenoptera)

*Xylocopa* sp.
(Xylocopidae Hymenoptera)

Fig. 45. Red ant
*Solenopsis* sp.
(Formicidae Hymenoptera)

Fig. 46. Ant, *Diacamma* sp.
(Formicidae Hymenoptera)

Fig. 47. Paper wasp
*Polistes* sp.
(Vespidae Hymenoptera)

Fig. 48. Paper wasp
*Polistes* sp. 2
(Vespidae Hymenoptera)

Fig. 49. Vespid wasp
*Vespula* sp. (Vespidae Hymenoptera)

Fig. 50. Blowfly
*Calliphora excellans*
(Calliphoridae Diptera)

Fig. 51. Screwworm-fly
*Cochliomyia hominivorax*
(Calliphoridae Diptera)

Fig. 52. Stomoxy fly
*Stomoxys* sp.
(Muscidae Diptera)

Fig. 53. Flesh fly
*Sarcophaga* sp. (Sarcophagidae Diptera)

Fig. 54. Picture-winged fly
*Euxesta* sp. (Ulidiidae Diptera)

Fig. 55. Hoverfly, *Syrphus* sp.
(Syrphidae Diptera)

Fig. 56. Stilt-legged fly
*Micropeza* sp.
(Micropezidae Diptera)

Fig. 57. Mosquito
*Aedes albopictus*
(Culicidae Diptera)

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Fig. 58 Robberfly, *Promachus* sp.
(Tabanidae Diptera)


Fig. 59. Cotton stainer
*Dysdercus cingulatus*
(Pyrrhocoridae Hemiptera)


Fig. 60. Stink bug
*Gonocerus acutecingulatus*
(Reduviidae Hemiptera)


Fig. 61. Stink bug
*Gonocerus* sp.
(Reduviidae Hemiptera)


Fig. 62. Red bug, *Dysdercus* sp.
(Pyrrhocoridae Hemiptera)


Fig. 63. Treehopper, *Tartessus ferrugineus (*Cicadellidae
Hemiptera)


Fig. 64. Moth-like planthopper, *Ricania speculum* (Ricaniidae Hemiptera)


Fig. 65. Milk termite
*Captotermis vastator*
(Termitidae Isoptera)


Fig. 66. Mound termite
*Macrotermis gilvus*
(Termitidae Isoptera)


Fig. 67. Rhinocerus beetle
*Oryctes rhinoceros*
(Scarabaeidae Coleoptera)


Fig. 68. June beetle
*Cotinis nitida*
(Scarabaeidae Coleoptera)


Fig. 69. Chaffer beetle
*Cetonia* sp.
(Scarabaeidae Coleoptera)


Fig. 70. Soldier beetle
*Cantharis pellucid*
(Cantharidae Coleoptera)


Fig. 71.
(Chrysomelidae Coleoptera)


Fig. 72. Leaf beetle
*Plagiodera versicolora*
(Chrysomelidae Coleoptera)

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Fig. 73. Carabid beetle, *Brachinus* sp. (Carabidae Coleoptera)



Fig. 74. Ladybird beetle, *Epilachna philippinensis*, (Coccinelidae Coleoptera)

Fig. 75. Firefly, *Pteroptyx* sp. (Lampyridae Coleoptera)

Fig. 76. Crimson or skimmer dragonfly *Neurothemis ramburi* (Libellulidae Odonata)

Fig. 77. Skimmer dragonfly *Brachydiplax* sp (Libellulidae Odonata)

Fig. 78. Skimmer dragonfly *Orthetrum luzonicum* (Libellulidae Odonata)

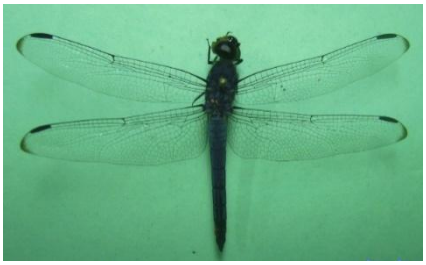

Fig. 79. Skimmer dragonfly *Brachydiplax* sp (Libellulidae Odonata)

Fig. 80. Tiny grass blue *Chilades lajus* (Lycaenidae Lepidoptera)

Fig. 81. White line blue *Jamides* sp. (Lycaenidae Lepidoptera)

Fig. 82. White line blue *Nacaduba* sp. (Lycaenidae Lepidoptera)

Fig. 83. Brown butterfly *Aphantopus hypercanthus* (Nymphalidae Lepidoptera)

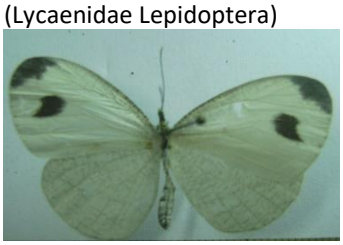

Fig. 84. White butterfly, *Pieris rapae (*Pieridae Lepidoptera)

Fig. 85. Brush-footed butterfly *Ideopsis juventa* (Nymphalidae Lepidoptera)

Fig. 86. Swallow butterfly *Menelaides polytes lebedouria* (Papilionidae Lepidoptera)

Fig. 87. Birdwing butterfly *Troides rhadamantus* (Papilionidae Lepidoptera)

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Fig. 88. Yellow butterfly
*Eurema hecabe*
(Pieridae Lepidoptera)

Fig. 89. Swallow-tailed butterfly
*Graphium agammemnon*
(Papilionidae Lepidoptera)

Fig. 90. Bagworm/caseworm
(Psychidae Lepidoptera)

Fig. 91. Rustic butterfly
*Cupha erymanthis*
(Nymphalidae Lepidoptera)

Fig. 92. Swallow-tailed, *Papilio demoleus*
(Larvae) (Papilionidae Lepidoptera)

Fig. 93. Grass skipper,
*Potanthus omaha*
(Hesperiidae Lepidoptera)

Fig. 94. Owlet moth, *Grammodes stolida*
(Erebidae Lepidoptera)

Fig. 95. Snouted tiger moth, *Asota egens*
(Erebidae Lepidoptera)

Fig. 96. Wasp moth, *Amata huebneri* (Syntomini sp.)
(Erebidae: Lepidoptera)

Fig. 97. Snouted tiger moth, *Asota* sp.
(Erebidae Lepidoptera)