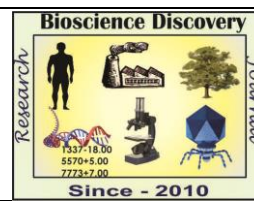


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Research Article



Inventory of Butterflies in Davao City, Philippines with a new locality record: An Urban biodiversity

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Abstract

Butterflies are well studied group of insects taxonomically, however, no research had been done on butterflies found in urban areas especially in Davao City. Thus, a survey was done in selected areas in the city to record and identify the butterfly species present. This study revealed 45 species belonging to Hesperidae, Lycaenidae, Peiridae, Nymphalidae and Papilionidae families, 12 of them were Philippine endemic. Specimens were identified *in situ* and was confirmed by the third and fourth author. A new locality record of Genus *Mycalesis* was identified. The authors suggested further research on *Mycalesis igoleta* and *Mycalesis mineus* on its seasonal variation which can be used as indication of seasonal changes in the area.

INTRODUCTION

Biodiversity can be found in the city whether native or exotic, ruderal, spontaneous, or domestic. It can be found on street edges, in the wasteland/dumpsites, under rocks, in houses, the roofs of houses, gardens, green areas, and wetlands, and many other places. Cities could even be considered as hotspot for urban biodiversity because they play a role in the conservation of local/regional species. (Illiassou *et al.*, 2016).

Butterflies like other insects are very important to the environment. They are excellent group for communication of information in science and conservation issues (Toledo and Mohagan, 2011). Ecologically, butterflies play an important role in our ecosystems. They are pollinators of various types of wild crops and economically important plants; without them the sustained balance in the ecosystem may collapse. It is a good bio-indicator, they represent the presence or absence of other organisms indicating ecosystems

overall health (Cabras *et al.*, 2016). An estimated 1,027 species of butterfly were recorded by Treadaway and Schroeder (2012) across the country. This inventory was conducted to know the butterflies present in Davao City. Even though butterflies are well studied group of insects taxonomically, no research had been done on butterflies found in urban areas especially in Davao City. Thus, this study was conducted to determine species composition of butterflies in the Davao City.

There are a number of studies of butterflies in Mindanao that account for the species richness and diversity of butterflies in Mindanao. Recent published reports on butterfly diversity of Mt. Nebo records 49 species, 33 genera, and 5 families of butterflies were one species was very common, 22 species were common, 10 species were rare and 16 species were undetermined (Sumagaysay and Sumagaysay, 2012), Mohagan and Treadaway, 2010 revealed 142 species and one new subspecies

in Mt. Hamiguitan. This study also revealed 7 possible new species, 44 endemics, 2 eastern Mindanao endemic, 4 Mt. Hamiguitan endemic, 16 Mindanao endemic, 22 Philippine endemic and seven species are new records in Mindanao. Species richness of Lepidoptera in Bega Watershed recorded 13 species butterflies (Nuñez *et al.*, 2016), species composition and status of butterflies in two selected waterfalls of Caraga, Davao Oriental recorded 28 species of butterflies with 3 Philippine endemic, one Mindanao endemic, and one site endemic also 7 species are recorded rare in the study Mangaoang *et al.*, 2016. Another study of Ramirez and Mohagan, 2012 revealed 104 species of butterflies belonging to 68 genera and 5 families, 57 species were common, 16 were rare, 12 were rare Philippine endemics, 6 were common Philippine endemics, 2 common Mindanao endemics, 1 rare Mindanao endemic, 1 very rare eastern Mindanao endemic, and 9 were undetermined. The study of Toledo and Mohagan, 2011 revealed 81 species in both mountains namely Mt. Hibok-hibok and Mt. Timpoong.

The study present the results of a preliminary inventory of butterflies in Davao City specifically, Brgy. Matina Pangi, Brgy. Puan, Brgy. Toril, Brgy. Calinan. This documentation provides the first report of butterflies in the selected barangays of Davao City. The short survey revealed new locality records for southeast Mindanao, Davao City. Though several workers on butterflies are stationed in many countries, there are still vast gaps in local studies where new species are likely to be discovered (Sumagaysay and Sumagaysay, 2012). Also the inconsistencies on the number of butterfly species diversity in the Philippines reported by the

different authors accentuates the need to survey the species of butterflies (Toledo and Mohagan, 2011).

MATERIALS AND METHODS

Table 1 shows the coordinates of the surveyed areas in Davao City. This survey was based on the several visits during June- October 2016 (June 10-19, July 29-31, August 19-21, September 18-20, October 21-23) and April 14, 17, 29, June 21, December 9, 2017. Visual encounters were employed to document and assess the butterfly in the areas. Specimens were identified *in situ* using field guide (Badon, 2014), journals, and photographs of identified specimens and confirmed by the 3rd and 4th author and photos were documented. No voucher specimens were collected but images are recorded and properly documented in the website of Philippine Lepidoptera Butterflies and Moths Inc. an organization that documents the butterflies across the country.

RESULTS AND DISCUSSION

A total of 45 species of butterflies were recorded in Davao City belonging to five families: Hesperidae, Lycaenidae, Peiridae, Nymphalidae and Papilionidae. Butterflies recorded were represented by 7 genera and 7 species of Hesperids as well; 11 genera and 13 species of Lycaenids; 2 genera and 3 species of Pierids; 13 genera and 18 species of Nymphalids and 3 genera and 4 species of Papilionids.

In this inventory figure 1 shows the distribution of butterfly species in family level, Nymphalidae has the highest percentage of the identified species (39%) and the least represented family Pieridae (7%) with 3 species identified.

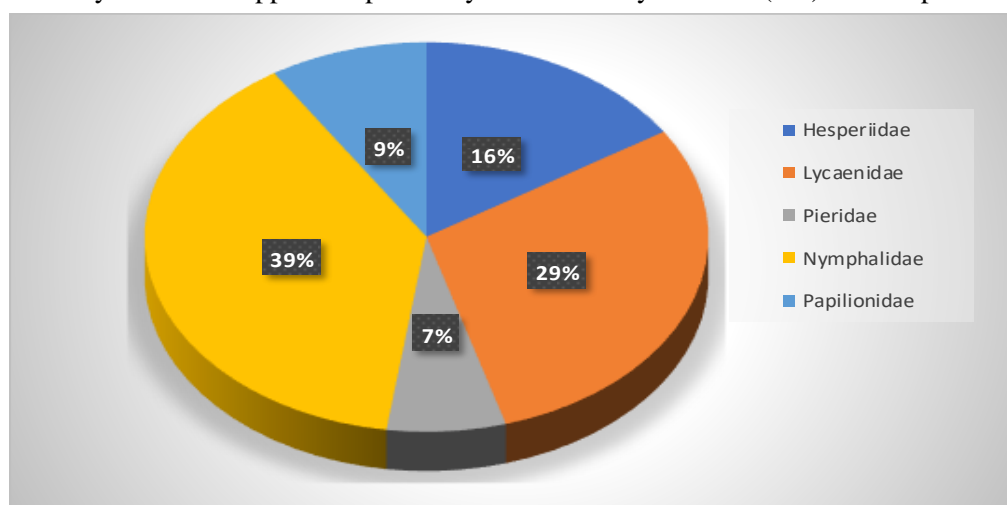


Figure 1. Distribution of butterfly species in Davao City by family

Coordinates of the surveyed areas in Davao City		
Brgy. Baliok	7° 02'48''N	125° 30'02''E
Brgy. Obrero	7° 05'13''N	125° 36'59''E
Brgy. Matina Pangi	7° 04'42''N	125° 34'04''E
Toril	7° 01'09''N	125° 29'54''E
Brgy. Malagos	7° 11'06''N	125° 25'20''E
Brgy. Macatabo	7° 10'03''N	125° 21'39''E

New Locality Record

Two new distribution or locality of butterfly species was recorded for southeast Mindanao, Davao City. *Mycalesis i-goleta* Felder and Felder, 1863 was photographed on August 20, 2016 then it was sighted again on the next visit in the area (Brgy. Matina Pangi) on May 25, 2017, I-goleta Bushbrown was previously recorded only in Alabat, Babuyan, Leyte, Luzon, Marinduque, and

Samar. *Mycalesis mineus* Linnaeus, 1758 is also a new locality record along with *M. i-goleta* it was recorded on October 21, 2016 in Brgy. Baliok. Dark Brand Bushbrown was previously recorded only Alabat, Bohol, Camotes, Cuyo, Guimaras, Jolo, Luzon, Mindoro, Negros, Palawan and Sibuyan. The two new records of *Mycalesis* species in Davao City all belongs to family Nymphalidae. *M. i-goleta* and *M. mineus* are suggested for further research.

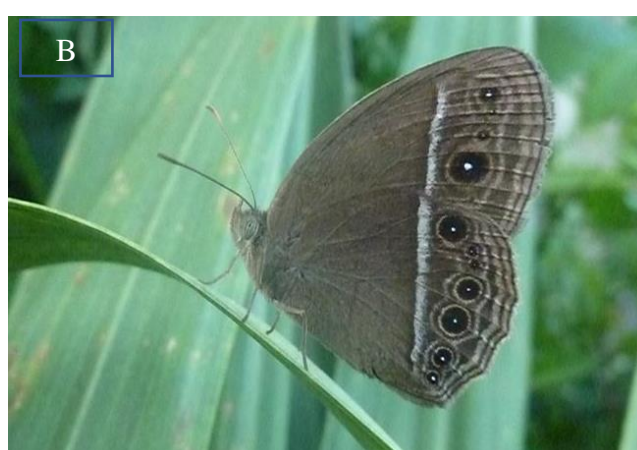


Figure 2. New locality record for Southeast Mindanao, Davao City *Mycalesis i-goleta* Felder & Felder, 1863 (A), *Mycalesis mineus* Linnaeus, 1758 (B)

Despite being fragmented Davao City supports a diverse butterfly species. Many of the recorded species of butterflies are endemic to the Philippines or more restricted geographic ranges within the Philippines. Recorded butterfly species that are endemic to the country are the following: *Cethosia luzonica magindanaica*, *Faunis phaon leucis*, *Cyrestis cassander orchomenus*, *Neptis mindorana pseudosoma*, *Mycalesis mineus*, *Mycalesis i-goleta*, *Mycalesis frederici*, *Ypthima stelleri stelleri*, *Euploea mulciber mindanensis*, *Rachana plateni plateni* syn: *Rachana navales*, *Oriens fons*, and *Troides rhadamantus rhadamantus* listed in the Cites Appendix II: that requires control in trade to avoid affecting their survival rate. Valid scientific name of the species with authority and

English name; names of species within a tribe with distribution across the country are provided below.

SYSTEMATIC LIST OF BUTTERFLIES IN DAVAO CITY

PAPILIONIDAE

Swallowtails & Birdwings

Subfamily: Papilioninae

tribe: Papilionini

1a. *Papilio demoleus demoleus* (Linnaeus, 1758)

English name: Common Lime

Philippine distribution: throughout Philippines

1b. *Menelaides deiphobus rumanzovia* (Eschscholtz, 1821)

English name: Scarlet Mormon

Philippine distribution: throughout Philippines excluding Balabac, Central and South Palawan and Tawitawi.

2a. *Menelaides polytes ledebouria* ♀ (Eschscholtz, 1821)

English name: Common Mormon

Philippine distribution: throughout Philippines excluding Batanes, Bongao, Sanga-sanga, Sibutu and Tawitawi.

2b. *Troides rhadamantus rhadamantus* (Lucas, 1835)

English name: Golden Birdwing

Philippine distribution: throughout Philippines excluding Balabac, Calamian, Dumaran, and Palawan

PIERIDAE

Whites & Sulfurs

Subfamily: Coliadinae

3a. *Eurema hecabe tamiathis* (Fruhstorfer, 1910)

English name: Common Grass Yellow

Philippine distribution: Philippines excluding Babuyan, Balabac, Calamian, Lubang, Luzon, Mindanao, Palawan and Sulu Archipelago.

3b. *Eurema blanda vallivolans* (Butler, 1883), **syn:**

Eurema blanda mensia Fruhstorfer, 1910

English name: Three-spot Grass Yellow

Philippine distribution: Basilan, Bohol, Bongao, Calamian, Cebu, Dinagat, Leyte, Mapun (Cagayan Sulu), Mindanao, Negros, Palawan, Panaon, Samar, Sarangani, Sibutu and Tawitawi.

Subfamily: Pierinae

4a. *Appias olferna peducaea* ♂ (Fruhstorfer, 1910)

English name: Striped Albatross

Philippine distribution: Bohol, Cebu, Camiguin, de Mindanao, Jolo, Luzon, Marinduque, Mindoro, Mindanao, Negros, and Palawan.

NYMPHALIDAE

Brushfooted Butterflies

Subfamily: Nymphalinae

tribe: Heliconiini

4b. *Cethosia luzonica magindanica* (Semper, 1888)

English name: Lacewing

Philippine distribution: Mindanao

Subfamily: Nymphalinae

tribe: Nymphaliini

5a. *Junonia hedonia ida* (Cramer, 1775)

English name: Brown Soldier

Philippine distribution: throughout Philippines

5b. *Junonia orithya leucasia* ♂ (Fruhstorfer, 1912)

English name: Blue Pansy

Philippine distribution: throughout Philippines excluding Mapun (Cagayan Sulu) and Sibutu.

6a. *Hypolimnas misippus* (Linnaeus, 1764)

English name: Danaid Eggfly

Philippine distribution: throughout Philippines

6b. *Hypolimnas bolina philippensis* ♂ (Butler, 1874)

English name: Great Eggfly

Philippine distribution: throughout Philippines excluding Batanes, Bongao, Jolo, Sanga-Sanga, Sibutu and Tawitawi

Subfamily: Nymphalinae

tribe: Cyrestini

7a. *Cyrestis cassander orchomenus* (Fruhstorfer, 1912)

English name: Mapwing

Philippine distribution: Basilan, Mindanao

Subfamily: Nymphalinae

tribe: Limenitidini

7b. *Neptis mindorana pseudosoma* (Moore, 1899)

English name: Typical Sailer

Philippine distribution: Basilan, Camiguin de Mindanao, Jolo, Mindanao, Sarangani, Siargo

Subfamily: Morphinae

tribe: Amathusiini

8a. *Faunis phaon leucis* (C. & R. Felder, 1861)

English name: Faun

Philippine distribution: Basilan and Mindanao

8b. *Amathusia phidippus pollicaris* (Butler, 1870)

English name: Palmking

Philippine distribution: throughout Philippines excluding Balabac, Bongao, Mapun (Cagayan Sulu), Negros, Sanga-Sanga, Sibutu, and Tawitawi

Subfamily: Satyrinae

9a. *Melanitis leda leda* (Linnaeus, 1758)

9b. *Mycalesis mineus* (Linnaeus, 1758); Figure 1B

English name: Dark Brand Bushbrown

Philippine distribution: Alabat, Bohol, Camotes, Cuyo, Guimaras, Jolo, Luzon, Mindoro, Negros, Palawan, and Sibuyan

New locality record Southeast-Mindanao, Davao and Samal Island

10a. *Mycalesis igoleta* (Felder & Felder, 1863)

English name: Igoleta Bushbrown Philippine

distribution: Ala, Bab, Ley, Luz, Mar, Sam

New locality record: Southeast- Mindanao, Davao City

10b. *Mycalesis frederici* (Aoki & Uémura, 1982)

English name: Frederici Bushbrown

Philippine distribution: Bohol, Camiguin de Mindanao, Leyte, Mindanao, Samar, Siargo

English name: Common Evening Brown

Philippine distribution: throughout Philippines

11a. *Ypthima stelleri stelleri* (Eschscholtz, 1821)

English name: Common Five Ring

Philippine distribution: Babuyan, Basilan, Bohol, Cebu, Camiguin de Mindanao, Camotes, Dinagat, Jolo, Luzon, Leyte, Marinduque, Mindoro, Mindanao, Negros, Panay, Panaon, Romblon, Samar, Siargo

New locality record: Catanduanes

Subfamily: Danaeinae

tribe: Danaeini

11b. *Ideopsis juvena manillana* (Moore, 1883)

English name: Grey Glassy Tiger

Philippine distribution: throughout Philippines excluding Babuyan, Balabac, Batanes, Calamian, Mapun (Cagayan Sulu), Palawan, and the Sulu Archipelago

12a. *Idea leuconoe obscura* (Staudinger, 1889)

English name: Paper Kite

Philippine distribution: Basilan, Bohol, Dinagat, Homonhon, Central and South Leyte, and Masbate

New locality record: Bohol

Subfamily: Danaeinae

tribe: Euploeini

12b. *Euploea tulliolus pollita* (Erichson, 1834)

English name: Purple Crow

Philippine distribution: Babuyan, Bohol, Cebu, Camiguin de Mindanao, Camotes, Dinagat, Guimaras, Leyte, Luzon, Marinduque, Masbate, Central and North Mindoro, Mindanao, excluding South West-Mindanao, Negros, North East-Panay, Panaon, Samar, Sibuyan, and Ticao.

New locality record: Catanduanes

13a. *Euploea mulciber mindanensis* (Staudinger, 1885)

English name: Striped Blue Crow

Philippine distribution: Mindanao

LYCAENIDAE

Harvesters, Hairstreaks & Blues

Subfamily: Lycaeninae

tribe: Polyommataini

13b. *Nacaduba berenice leei* (Hsu, 1990)

English name: Rounded-Six Line Blue

Philippine distribution: Basilan, Dinagat, Homonhon, Leyte, Luzon, Mindoro, Mindanao, Negros, Panay, Samar, and Sibuyan.

14a. *Prosotas nora semperi* (Fruhstorfer, 1916)

English name: Common Line Blue

Philippine distribution: Basilan, Cebu, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan, Panay, and Samar.

New Locality Record: Sibulan

14b. *Jamides cleodus cleodus* (Felder & Felder, 1865)

English name: White Cerulean

Philippine distribution: Basilan, Cebu, Camiguin de Luzon, Dinagat, Jolo, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Panay, Samar, Sarangani, Sanga-Sanga, Sibuyan, Siquijor, Sibutu, and Tawitawi.

New locality record: Catanduanes

15a. *Catochrysops strabo luzonensis* (Tite, 1959)

English name: Forget-Me-Not

Philippine distribution: Balabac, Basilan, Bohol, Cebu, Camiguin de Mindanao, Dinagat, Dumaran, Jolo, Leyte, Luzon, Masbate, Mindoro, Mindanao, Palawan, Panay, Samar, Sarangani and Sibuyan.

New locality record: Negros and Catanduanes

15b. *Catochrysops panormus exiguous* (Distant, 1886)

English name: Silver Forget-Me-Not

Philippine distribution: Balabac, Cebu, Dinagat, Masbate, Mindanao, Negros, Palawan, Sarangani, Sibutu and Tawitawi.

New locality record: Catanduanes

16a. *Lampides boeticus* (Linnaeus, 1767)

English name: Pea Blue

Philippine distribution: throughout Philippines

16b. *Zizeeria karsandra* (Moore, 1865)

English name: Dark Grass Blue

Philippine distribution: Cebu, Jolo, Luzon, Marinduque, Mindanao, Negros, and Palawan

New locality record: Catanduanes

17a. *Zizina otis oriens* (Butler, 1883)

English name: Lesser Grass Blue

Philippine distribution: Bohol, Cebu, Dinagat, Dumaran, Jolo, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan, and Sarangani.

New locality record: Catanduanes

17b. *Zizula hylax pygmaea* (Snellen, 1876)

English name: Tiny Grass Blue or Gaika Blue

Philippine distribution: Cebu, Leyte, Luzon, Marinduque, Palawan, Sibutu and Tawitawi

New locality record: Negros and Davao Oriental

18a. *Euchrysops cnejus cnejus* (Fabricius, 1798)

English name: Gram Blue

Philippine distribution: Balabac, Cebu, Dinagat, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan, Sarangani, and Tawitawi.

New locality record: Catanduanes and Batanes

18b. *Iraota rochana lazarena* (C. & R. Felder, 1862)

English name: Scarce Silverstreak

Philippine distribution: Babuyan, Bohol, Cebu, Dinagat, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Panaon, and Samar

19a. *Rachana plateni plateni* (Semper, 1890), syn: *Rachana navales* (Schröder & Treadaway, 1986)

English name: Banded Royal

Philippine distribution: Basilan, Leyte, Mindanao, Samar

19b. *Caleta argola argola* (Hewitson, 1876)

English name: Pierrot

Philippine distribution: Basilan, Bohol, Jolo, Leyte, Mindanao, Negros, Samar

HESPERIIDAE

Skippers

Family: Hesperidae; Pyrginae

20a. *Tagiades japetus titus* (Plötz, 1884)

English name: Common Snow Flat

Philippine distribution: Babuyan, Basilan, Biliran, Bohol, Bongao, Calamian, Cebu, Camiguin de Luzon, Camiguin de Mindanao, Camotes, Dinagat, Guimaras, Leyte, Lubang, Luzon, Masbate, Mindoro, Mindanao, Negros, Palawan, Panay, Polillo, Samar, Sanga-Sanga, Siargao, Sibuyan, Sibutu, and Tawitawi. New locality record: Catanduanes

Subfamily: Hesperinae

20b. *Notocrypta paralysos volux* ♂ (Mabille, 1883)

English name: Common Banded Demon

Philippine distribution: Basilan, Biliran, Cebu, Camiguin de Luzon, Camiguin de Mindanao, Dinagat, Homonhon, Leyte, Luzon, Marinduque, Masbate, Mindoro, Mindanao, Negros, Panay, Polillo, Samar, Sanga-Sanga, Sibuyan, and Tawitawi.

New locality record: Catanduanes and Bohol

21a. *Taractrocera luzonensis luzonensis* (Staudinger, 1889)

English name: Luzon Grass Dart

Philippine distribution: Balabac, Basilan, Cebu, Dinagat, Leyte, Luzon, Mapun (Cagayan Sulu), Marinduque, Masbate, Mindoro, Mindanao, Negros, Palawan, Panay, Samar, and Sibuyan.

New locality record: Catanduanes

21b. *Prusiana prusias matinus* (Fruhstorfer, 1911)

English name: Grass Skipper

Philippine distribution: Basilan, Biliran, Bohol, Cebu, Camiguin de Luzon, Camiguin de Mindanao, Camotes, Dinagat, Guimaras, Homonhon, Leyte, Luzon, Marinduque, Mindoro, Mindanao, Negros, Palawan, Panay, Panaon, Polillo, Sibuyan, and Tawitawi.

22a. *Borbo cinnara* (Wallace, 1866)

English name: Rice Swift or Formosan Swift

Philippine distribution: Balabac, Batanes, Camiguin de Mindanao, Jolo, Leyte, Lubang, Luzon, Masbate,

Mindoro, Mindanao, Negros, Palawan, Panay, Samar, Sanga-Sanga, Sibutu, and Tawitawi.

22b. *Oriens fons* (Evans, 1949)

English name: Dartlet

Philippine distribution: Basilan, Luzon, Mindoro, Mindanao, Panay, and Samar

23a. *Psolos fuligo fuligo* (Mabille, 1876)

English name: Coon or Dusky Partwing

Philippine distribution: Balabac, Basilan, Bohol, Cebu, Camiguin de Mindanao, Camotes, Jolo, Leyte, Luzon, Masbate, Mindoro, Mindanao, Negros, Palawan, Panay, Samar, Sibuyan, Sibutu, and Tawitawi.

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REFERENCES

Badon JAT, 2014. Butterflies of the Philippines Field Guide. *Mariposa Press*. FL, U.S.A.

Cabras AA, Calimutan MA and Mohagan AB, 2016. Development of *Idea leuconoe* Erichson 1834 (Lepidoptera: Nymphalidae) reared on *Parsonia sp.* Leaves. *University of Mindanao International, Multinational Research Journal*, **6**(1):137-142.

Illiasou SA, Oumani AA, Abdou L, Mahamane A and Saadou M, 2016. Urban Biodiversity: Perception, Preference, General Awareness, and Threats in Two Cities (Niamey and Maradi) of Niger. *Hindawi Publishing Corporation*. <http://dx.doi.org/10.1155/2016/1469530>

Mangaoang CC, Gumban CJ, Abarquez VR, Mohagan D and Mohagan A, 2016. Species composition and status of butterflies in two selected waterfalls of Caraga, Davao Oriental, Philippines. *Journal of Biodiversity and Environmental Sciences*, **8**(5): 45-51.

Mohagan AB and Treadaway CG, 2010. Diversity and Status of Butterflies across Vegetation Types of Mt. Hamiguitan, Davao Oriental, Philippines. *Asian Journal of Biodiversity*, **1**(1): 1-24

Nuñeza KJ, Nuñeza OM and Dupo AL, 2016. Species Richness of Lepidoptera in Bega Watershed, Prosperidad, Agusan del Sur, Philippines. *Bulletin of Environment, Pharmacology and Life Sciences*, **5**(8): 83-90.



Figure 3. 1a-2b. Species of Family Papilionidae; 3a-4a. Species of Family Pieridae; 4b-9b. Species of Family Nymphalidae



Figure 4. 10a-13a. Species of Nymphalidae; 13-17a. Species of Lycaenidae



Figure 5. 17b-19b. Species of Lycaenidae; 20a-23a. Species of Hesperidae

Ramirez RK and Mohagan A, 2012. Diversity and Status of Butterflies in Maitum Village, Tandag, Surigao del Sur, Philippines. *Asian Journal of Biodiversity*, **3**: 74-112.

Sumagaysay JB and Sumagaysay CJ, 2012. Biodiversity and Status of Butterflies in the Vicinity of Mountain View College, Mt. Nebo, Valencia City. *Asian Journal of Biodiversity*, **3**: 142-155

Toledo JMS and Mohagan AB, 2011. Diversity and Status of Butterflies in Mt. Timpoong and Mt. Hibok-hibok, Camiguin Island, Philippines. *JPAIR Multidisciplinary Journal*, **6**:10.

Treadaway CG and Schröder Heinz G, 2012. Revised checklist of the butterflies of the Philippine Islands (Lepidoptera: Rhopalocera). *Nachrichten des Entomologischen Vereins Apollo*, Supplementum **20**.

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