

DIGITIZATION AND GEOREFERENCING OF UPLB NATURAL HISTORY MUSEUM NEW SERIES CHIROPTERA HOLDINGS



JEZRYL JAEGER L. GARCIA

*Author, Presenter
Project Assistant*

*University of the Philippines Los Baños
Museum of Natural History*

Co-Authors:

PHILLIP A. ALVIOLA

JAN DEXTER D.F. LUMIBAO

EDISON A. COSICO





NATURAL HISTORY MUSEUMS

Serve as repositories of
knowledge about our
natural world

Locality (Spatial)
Date of Collection (Temporal)
Taxonomic information
Collector information



Occurrences





GBIF | Global Biodiversity Information Facility

Free and open access to biodiversity data

OCCURRENCES SPECIES DATASETS PUBLISHERS RESOURCES

Search

What is GBIF? About GBIF Philippines



Global Biodiversity Information Facility (GBIF)



"An international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth."



BIODIVERSITY INFORMATION FUND FOR ASIA



Photo by The Japan Times. Collection of maintained bat specimens located in the Institute of Biological Sciences, University of the Philippines Los Baños.

BIFA6_026

Digitization for individual datasets:

- a. UPLB MNH DS Rabor Chiroptera Collection
- b. UPLB MNH Bat Ectoparasite Collection
- c. **UPLB MNH Zoological and Wildlife Museum Chiroptera Collection**
- d. Philippine bat viruses and pathogens.



UPLB MNH NEW SERIES CHIROPTERA COLLECTION

2,400

Bat Specimens

Collected in 25 years

Our Problem

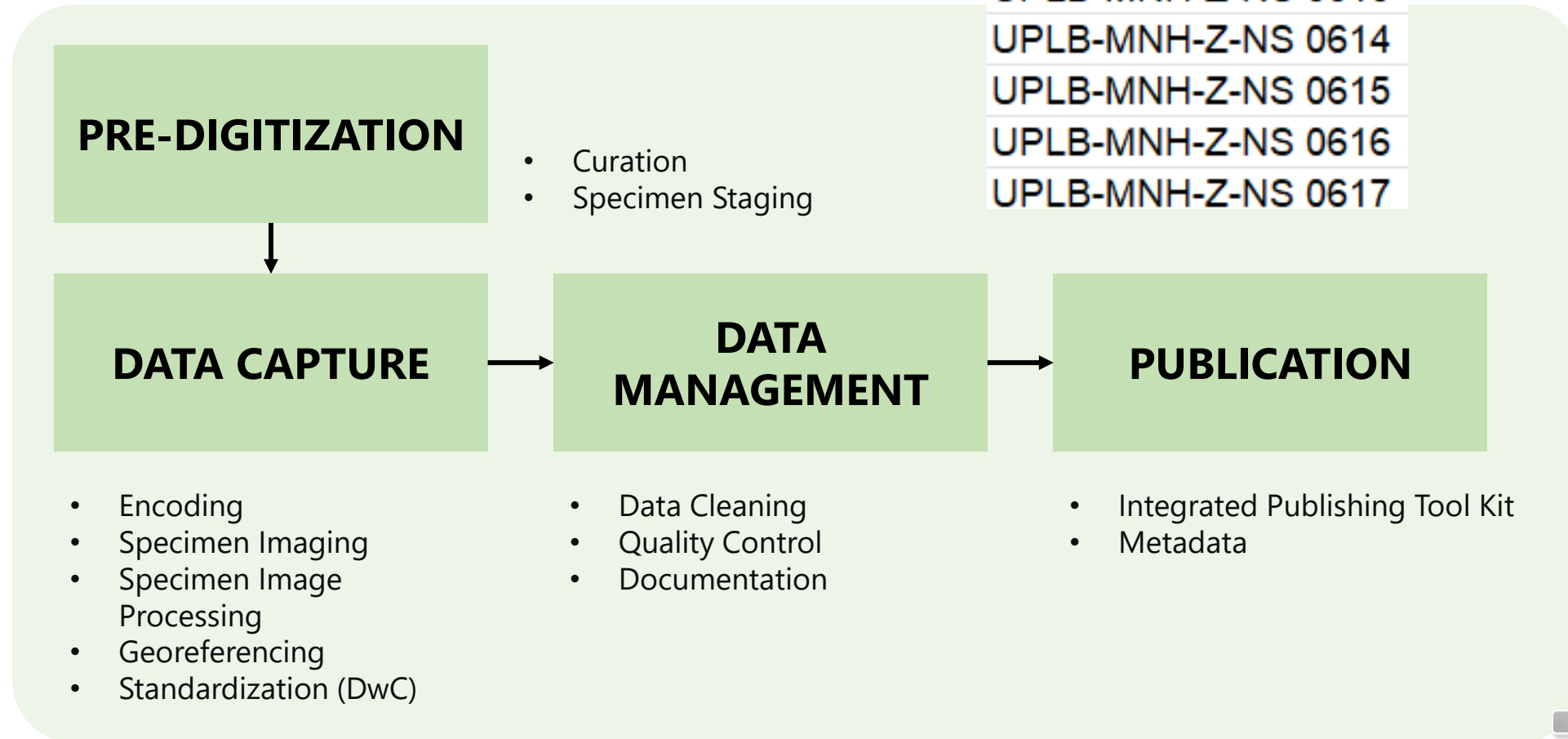
The present data in relation to the study are scattered, inaccessible and contain several gaps in Philippine diaspora.

Our Solution

Consolidate and digitize all historical records of bats present in our collection.

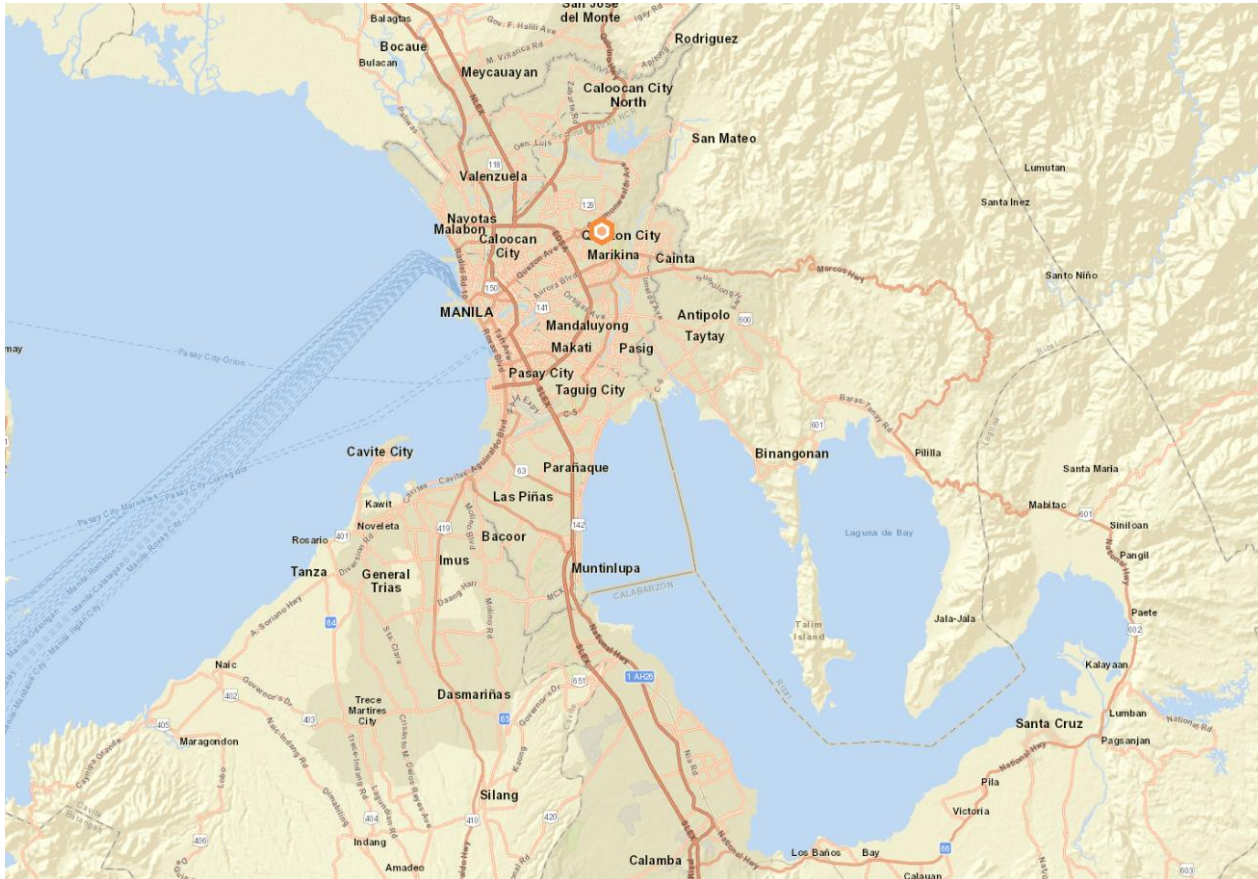


DIGITIZATION PROCESS



July 2008

Quezon City Metro Manila – UP Diliman and Ninoy Aquino
Parks and Wildlife Center – BMB (formerly PAWB)



Bat Species:

FAMILY PTEROPODIDAE

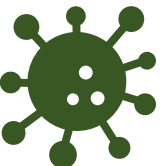
- *Cynopterus luzoniensis* – 22
- *Ptenochirus jagori* – 17
- *Rousettus amplexicaudatus* – 2
- *Eonycteris spelaea* – 1

FAMILY VESPERTILIONIDAE

- *Scotophilus kuhlii* – 5
- *Pipistrellus javanicus* – 3

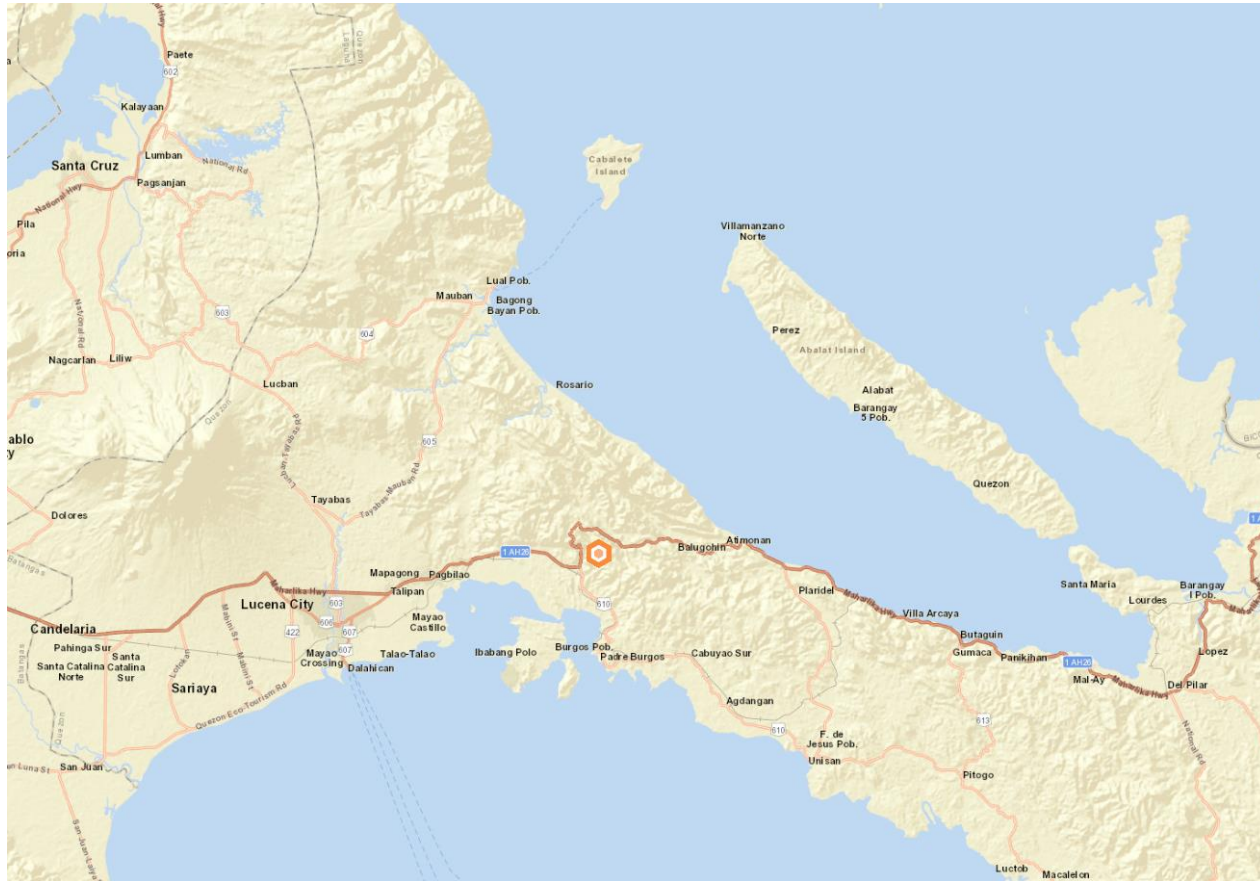
Reston Ebolavirus (Taniguchi, et al.,
2011)

Coronavirus (Watanabe, et al., 2010)



March 2009

Quezon – Quezon Protected Landscape



Bat Species:

FAMILY PTEROPODIDAE

- *Ptenochirus jagori* – 18
- *Cynopterus luzoniensis* – 11
- *Rousettus amplexicaudatus* – 8
- *Haplonycteris fischeri* – 6
- *Macroglossus minimus* – 2

FAMILY EMBALLONURIDAE

- *Emballonura alecto* – 9

FAMILY RHINOLOPHIDAE

- *Rhinolophus rufus* – 2

Reston Ebolavirus (Taniguchi, et al., 2011)

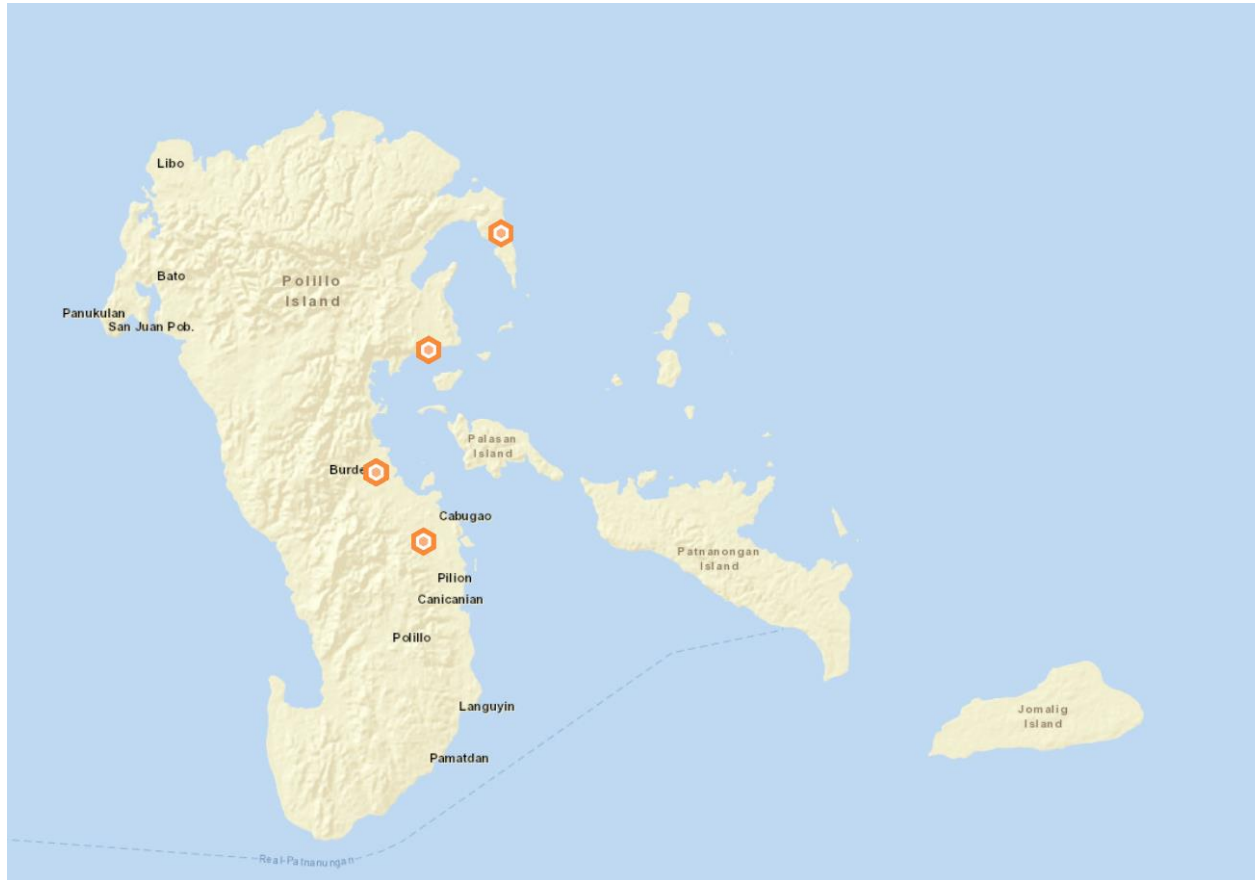
Hantavirus (Arai, et al., 2016)

Coronavirus (Tsuda, et al., 2012)



June 2009

Quezon – Burdeos, Polillo



Bat Species:

FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 12
- *Rhinolophus rufus* – 2
- *Rhinolophus philippinensis* – 1

FAMILY MINIOPTERIDAE

- *Miniopterus eschscholtzii* – 7
- *Miniopterus paululus* – 1

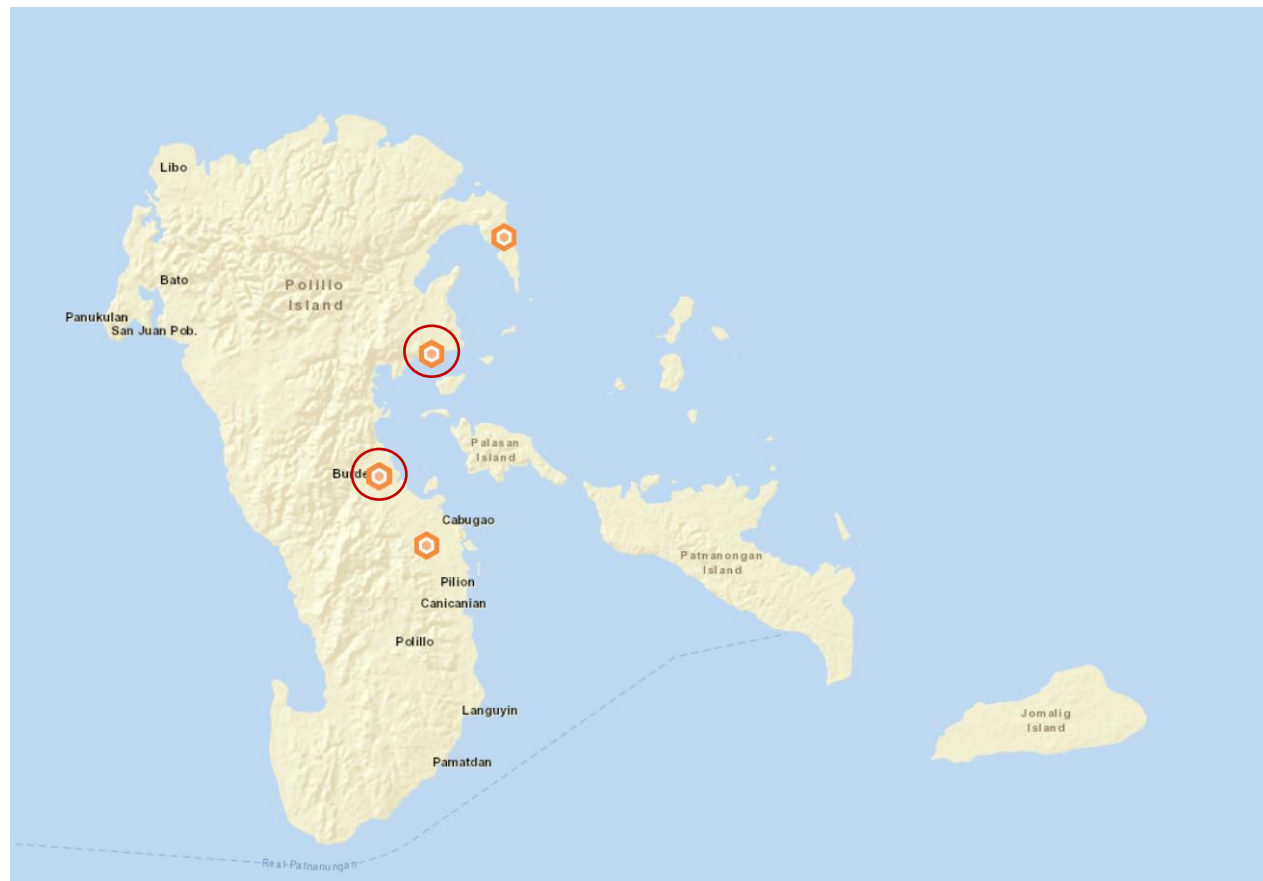
FAMILY VESPERTILIONIDAE

- *Myotis macrotarsus* – 6



June 2010

Quezon – Burdeos, Polillo



Bat Species:

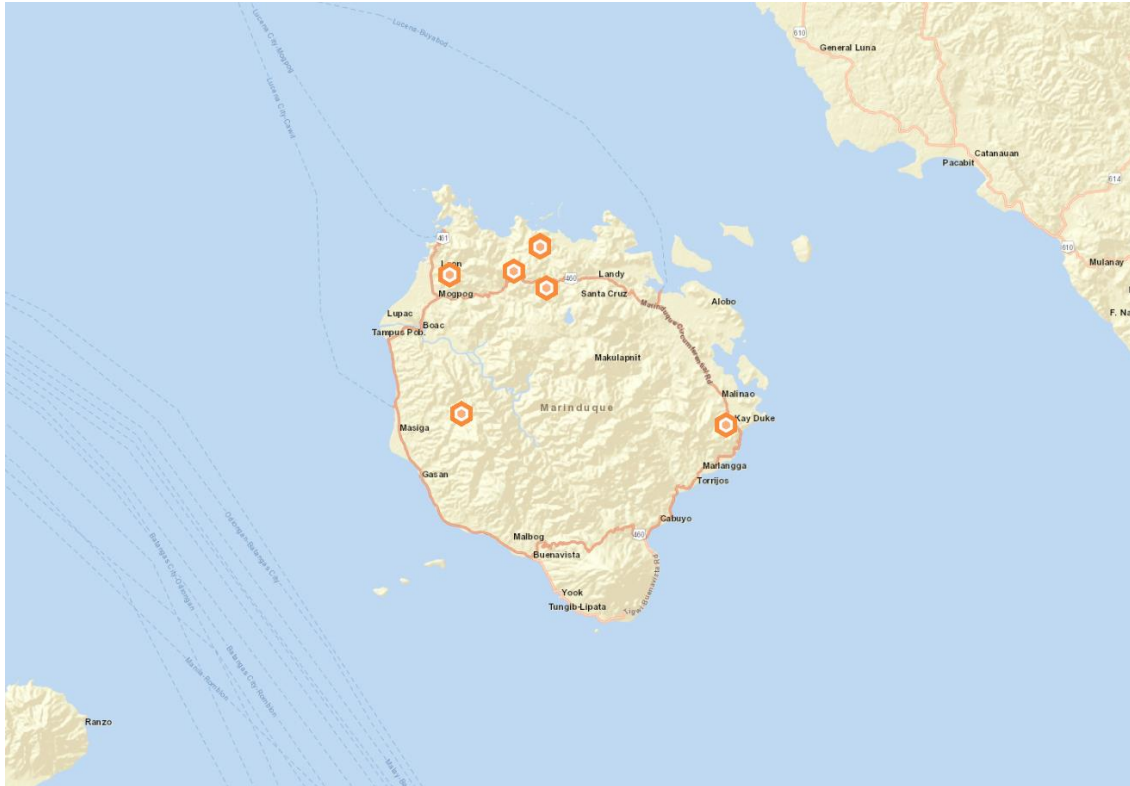
FAMILY HIPPOSIDERIDAE

- *Hipposideros diadema* – 16
- *Hipposideros pygmaeus* – 16
- *Hipposideros coronatus* – 2



June 2010

Marinduque



Bat Species:

FAMILY HIPPOSIDERIDAE

- *Hipposideros diadema* – 32
- *Hipposideros antricola* – 9

PTEROPODIDAE

- *Rousettus amplexicaudatus* – 10

FAMILY VESPERTILIONIDAE

- *Miniopterus eschscholtzii* – 32

MEGADERMATIDAE

- *Megaderma spasma* – 10

FAMILY MINIOPTERIDAE

- *Miniopterus paululus* – 32

EMBALLONURIDAE

- *Emballonura alecto* – 2

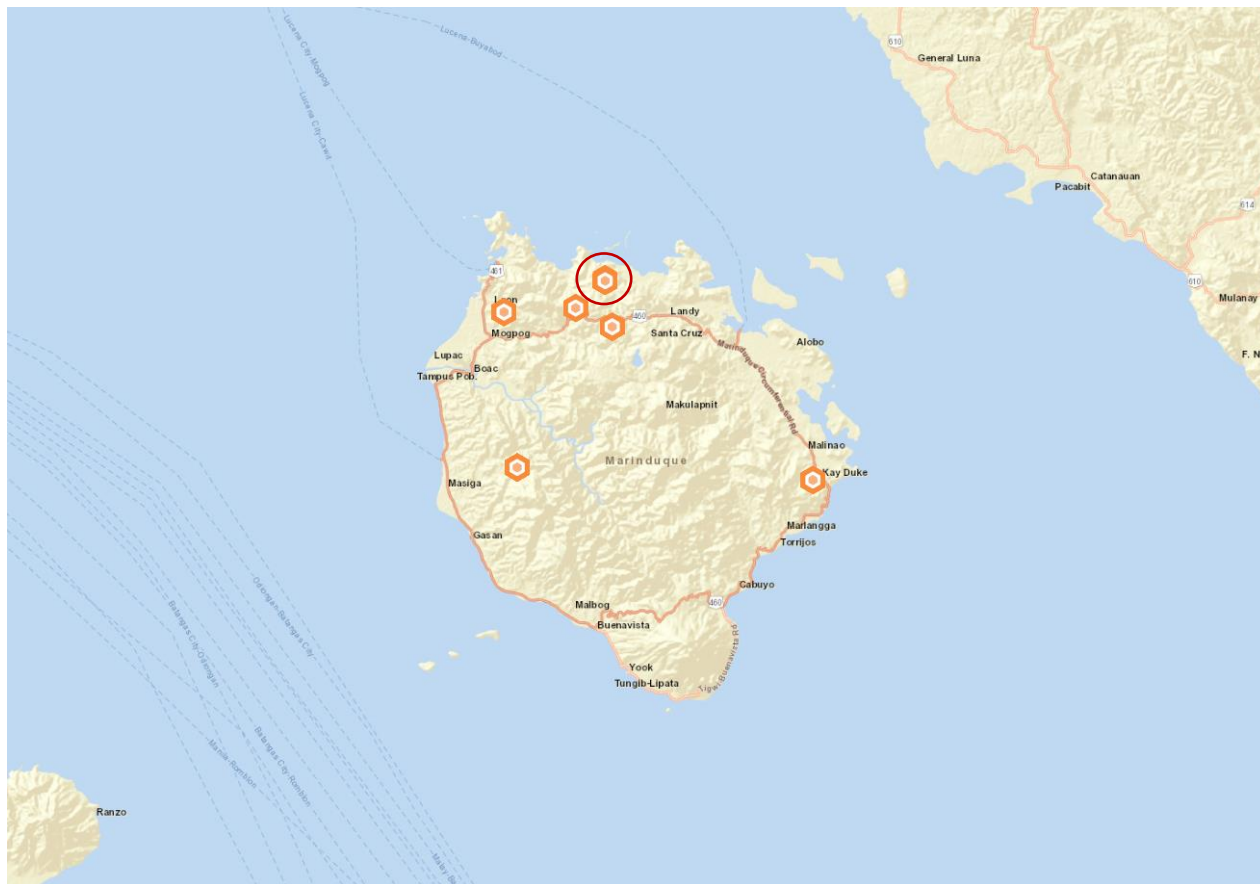
FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 9
- *Rhinolophus philippinensis* – 6
- *Rhinolophus sp.* – 5
- *Rhinolophus virgo* – 2
- *Rhinolophus rufus* – 1



January 2011

Marinduque



Bat Species:

FAMILY HIPPOSIDERIDAE

- *Hipposideros diadema* – 12
- *Hipposideros lekaguli* – 1

FAMILY PTEROPODIDAE

- *Rousettus amplexicaudatus* – 4
- *Cynopterus luzoniensis* – 2
- *Macroglossus minimus* – 1

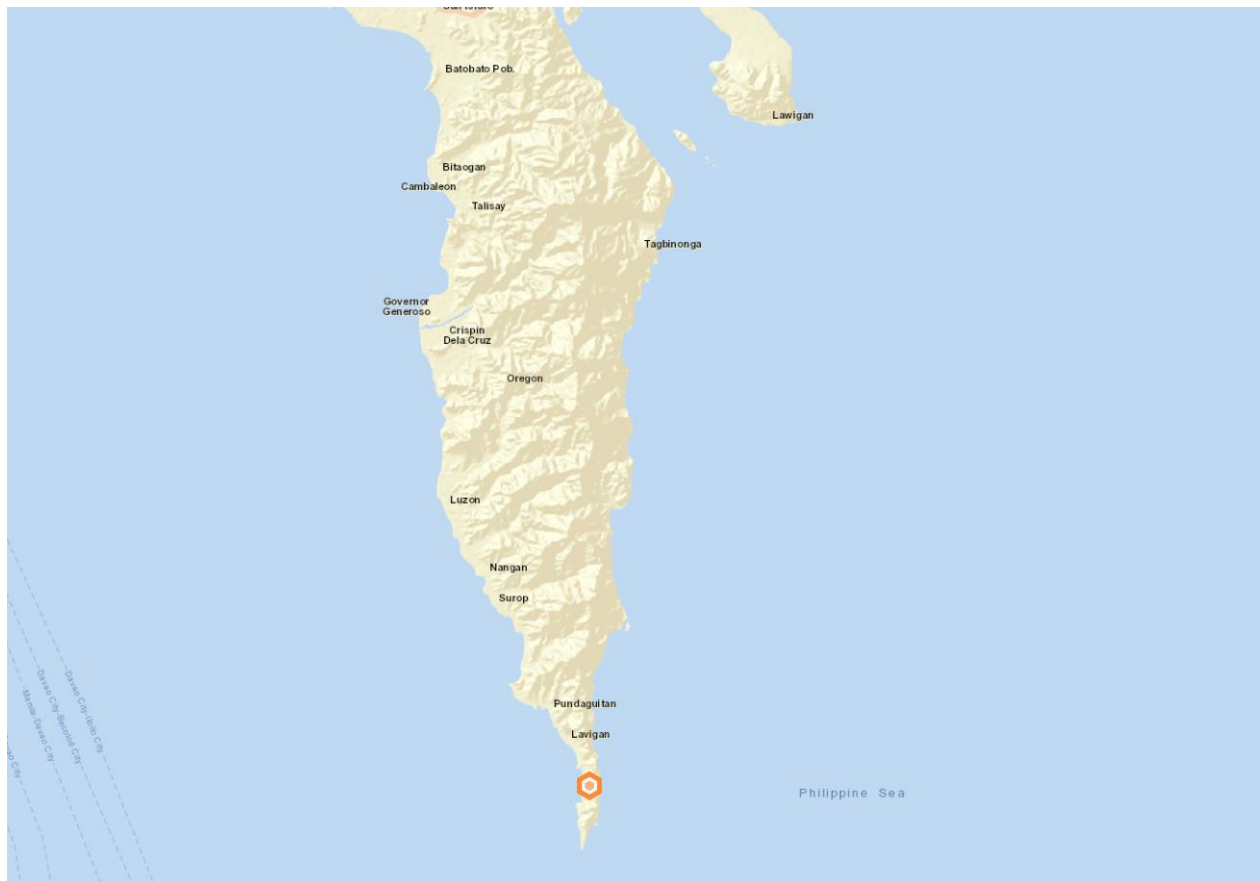
FAMILY MINIOPTERIDAE

- *Miniopterus eschscholtzii* – 2



August 2013

Davao Oriental



Bat Species:

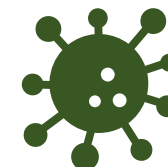
FAMILY PTEROPODIDAE

- *Rousettus amplexicaudatus* – 20

FAMILY HIPPOSIDERIDAE

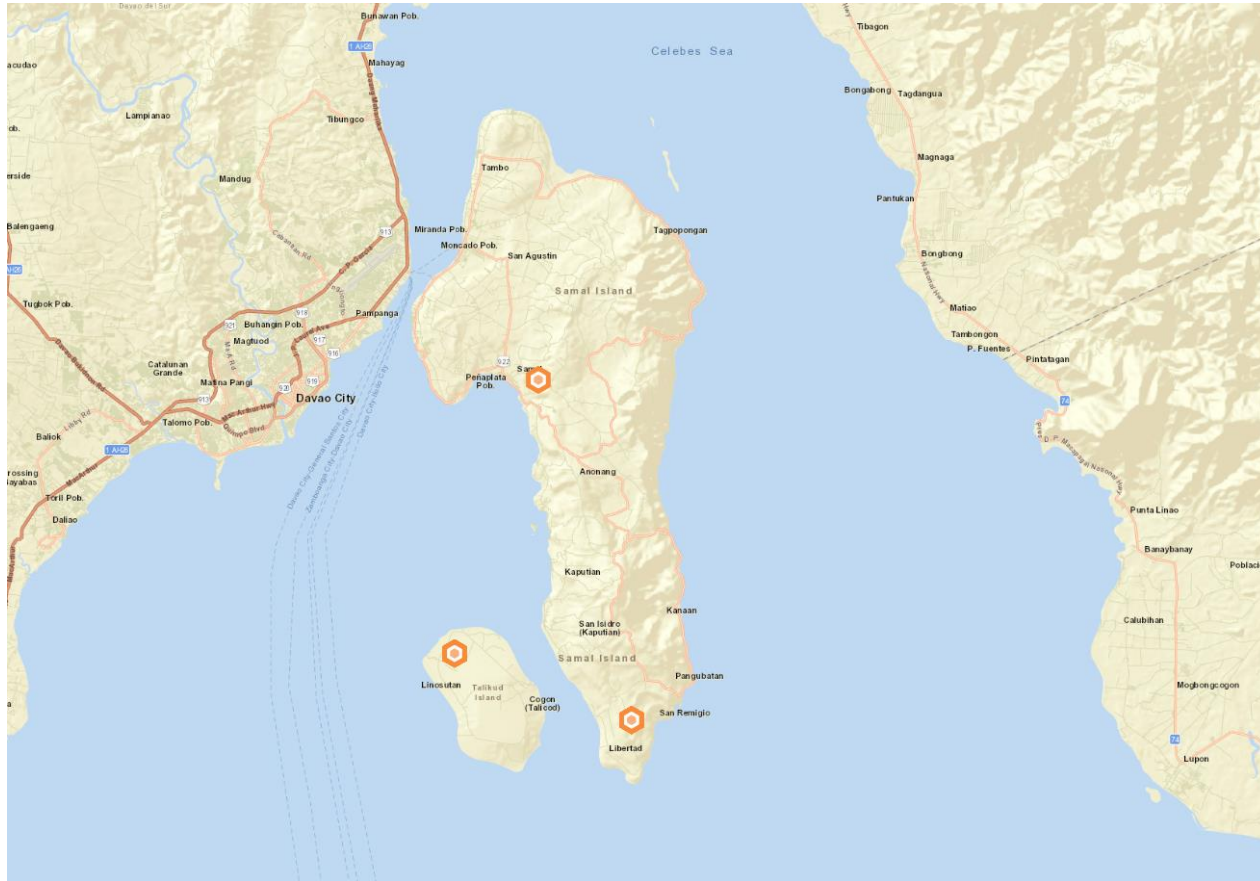
- *Hipposideros diadema* – 3

Pteropine Orthoreovirus
(Taniguchi, et al., 2017)



August 2013

Davao del Norte - Samal

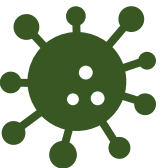


Bat Species:

FAMILY PTEROPODIDAE

- *Rousettus amplexicaudatus* – 48
- *Eonycteris spelaea* – 13

Pteropine Orthoreovirus
(Taniguchi, et al., 2017)



August 2013

Davao del Sur – Malagos Resort

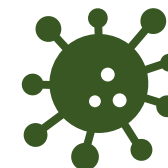


Bat Species:

FAMILY PTEROPODIDAE

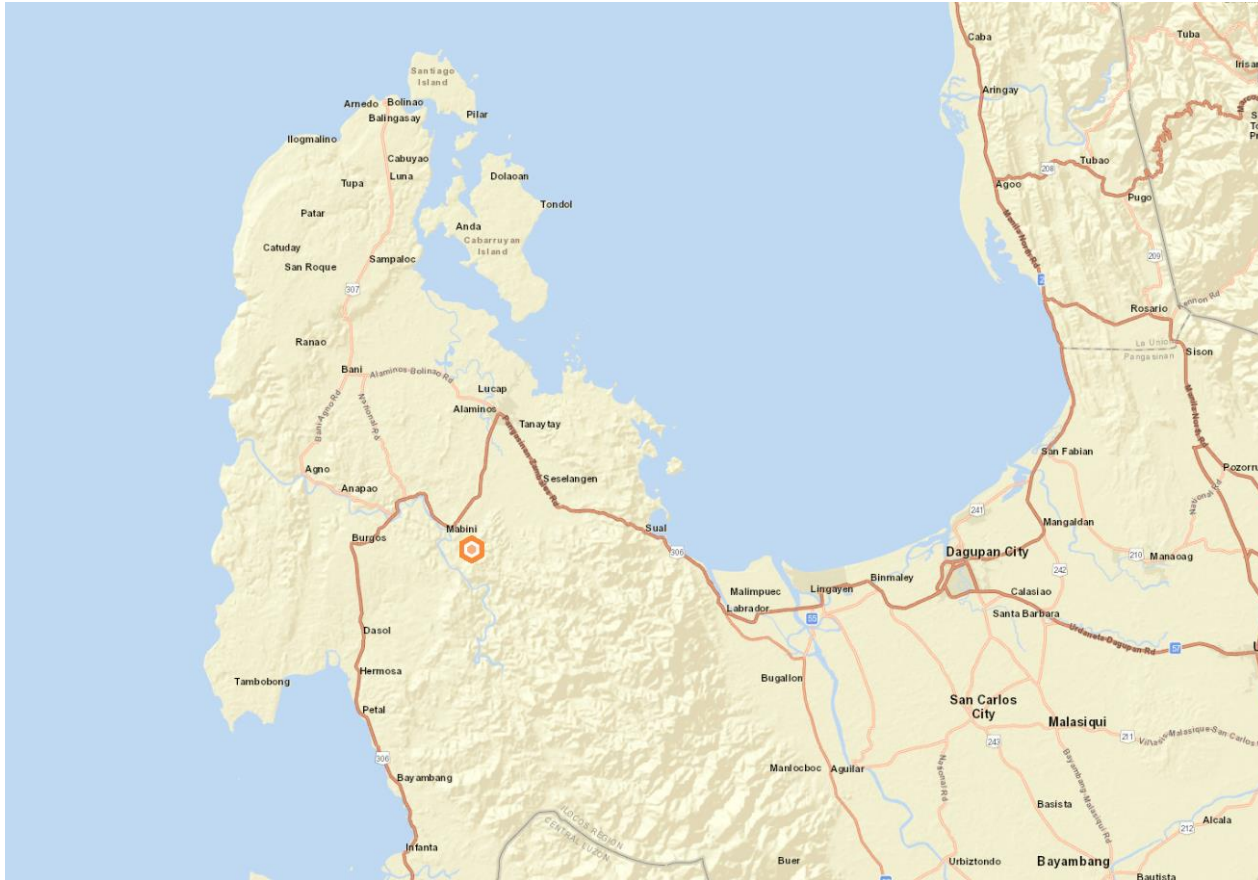
- *Cynopterus luzoniensis* – 5
- *Macroglossus minimus* – 2

Pteropine Orthoreovirus
(Taniguchi, et al., 2017)



February 2016

Pangasinan – Mabini



Bat Species:

FAMILY MINIOPTERIDAE

- *Miniopterus paululus* – 30
- *Miniopterus eschscholtzii* – 17

FAMILY PTEROPODIDAE

- *Cynopterus luzoniensis* – 24
- *Ptenochirus jagori* – 3
- *Rousettus amplexicaudatus* – 1

FAMILY HIPPOSIDERIDAE

- *Hipposideros antricola* – 4

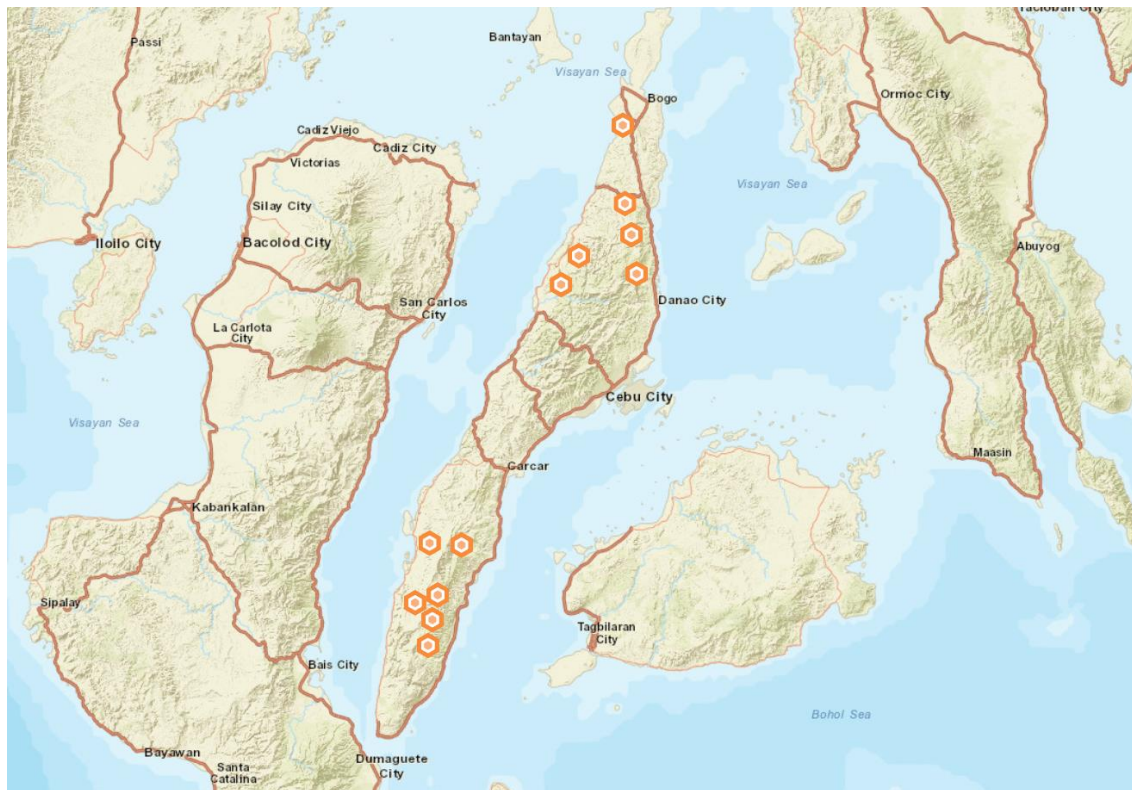
FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 3
- *Rhinolophus macrotis* – 1
- *Rhinolophus virgo* – 1



May 2016

Cebu



Bat Species:

FAMILY RHINOLOPHIDAE

- *Rhinolophus inops* – 10
- *Rhinolophus arcuatus* – 8
- *Rhinolophus philippinensis* – 7
- *Rhinolophus sp.* – 5
- *Rhinolophus virgo* – 4

FAMILY MINIOPTERIDAE

- *Miniopterus paululus* – 7
- *Miniopterus eschoscholtzii* – 5

FAMILY MEGADERMATIDAE

- *Megaderma spasma* – 1

FAMILY PTEROPODIDAE

- *Eonycteris spelaea* – 13
- *Rousettus amplexicaudatus* – 9
- *Eonycteris robusta* – 2

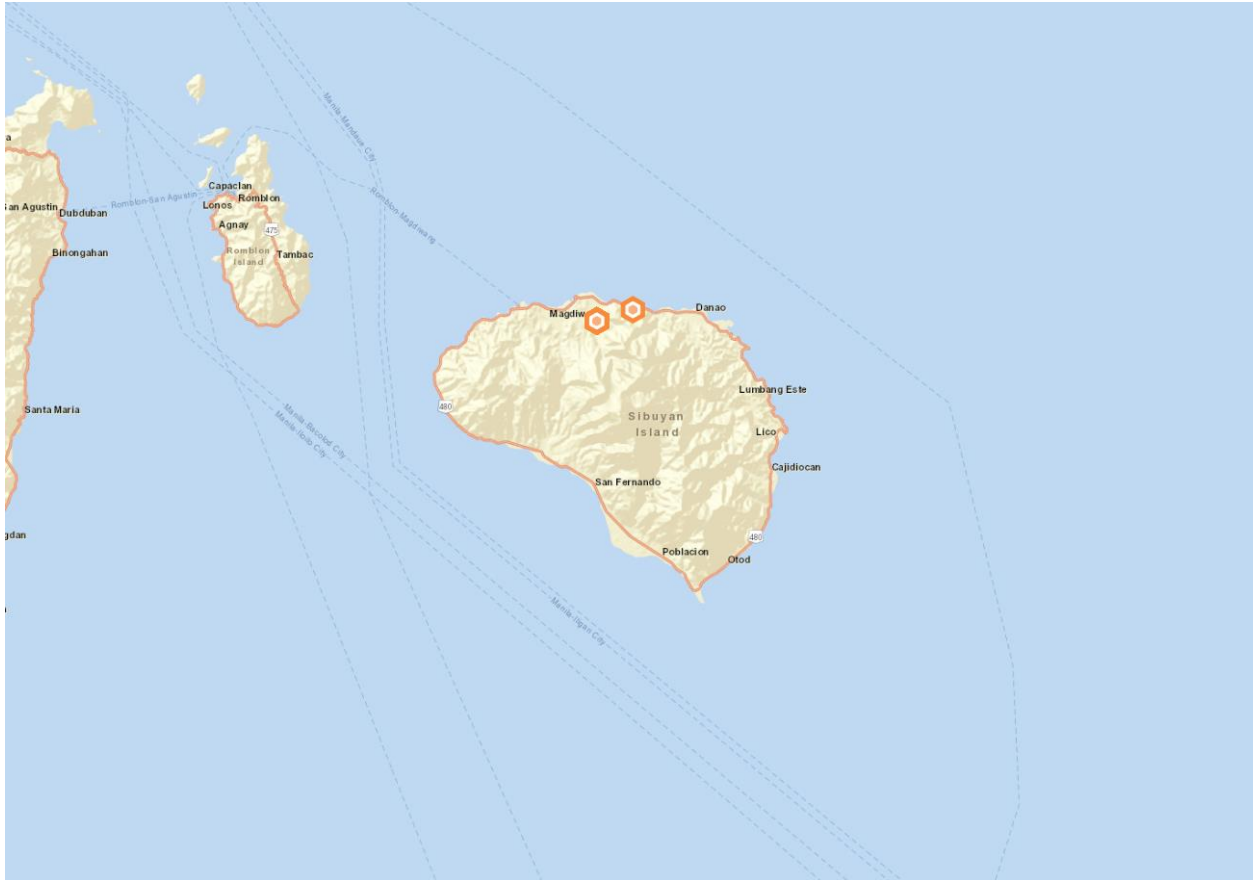
FAMILY HIPPOSIDERIDAE

- *Hipposideros diadema* – 10
- *Hipposideros antricola* – 2



October to November 2016

Romblon – Sibuyan Island – Mt. Guiting-Guiting



Bat Species:

FAMILY PTEROPODIDAE

- *Cynopterus luzoniensis* – 43
- *Haplonycteris sp.* – 31
- *Nyctimene rabori* – 5
- *Pteropus pumilus* – 2

FAMILY VESPERTILIONIDAE

- *Pipistrellus tenuis* – 17
- *Kerivoula whiteheadi* – 8
- *Scotophilus kuhlii* – 3
- *Myotis muricola* – 2

FAMILY HIPPOSIDERIDAE

- *Hipposideros obscurus* – 17

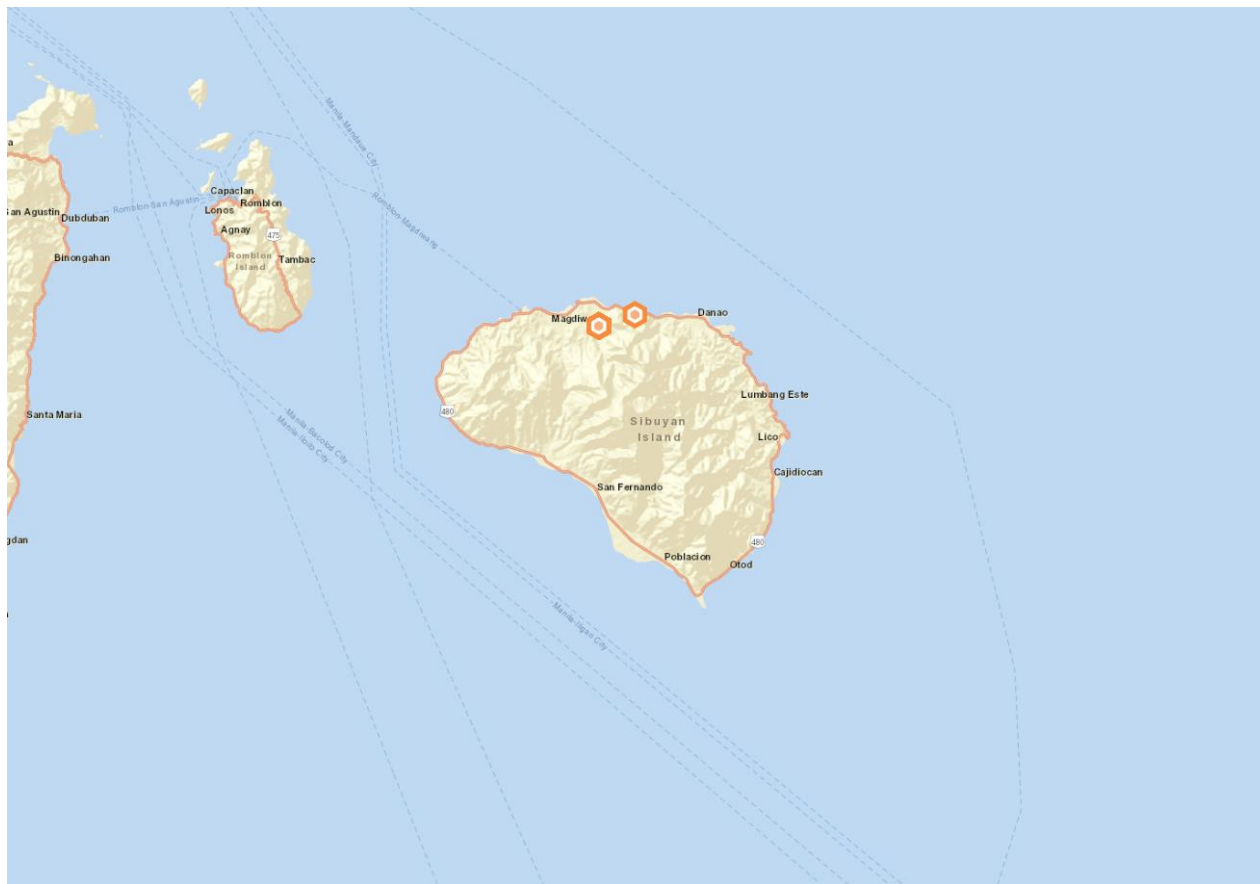
FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 15
- *Rhinolophus virgo* – 1



May to June 2017

Romblon – Sibuyan Island – Mt. Guiting-Guiting



Bat Species:

FAMILY VESPERTILIONIDAE

- *Pipistrellus tenuis* – 20
- *Kerivoula whiteheadi* – 11
- *Pipistrellus javanicus* – 1

FAMILY HIPPOSIDERIDAE

- *Hipposideros obscurus* – 26
- *Hipposideros antricola* – 1

FAMILY PTEROPODIDAE

- *Haplonycteris sp.* – 9
- *Rousettus amplexicaudatus* – 1
- *Macroglossus minimus* – 1

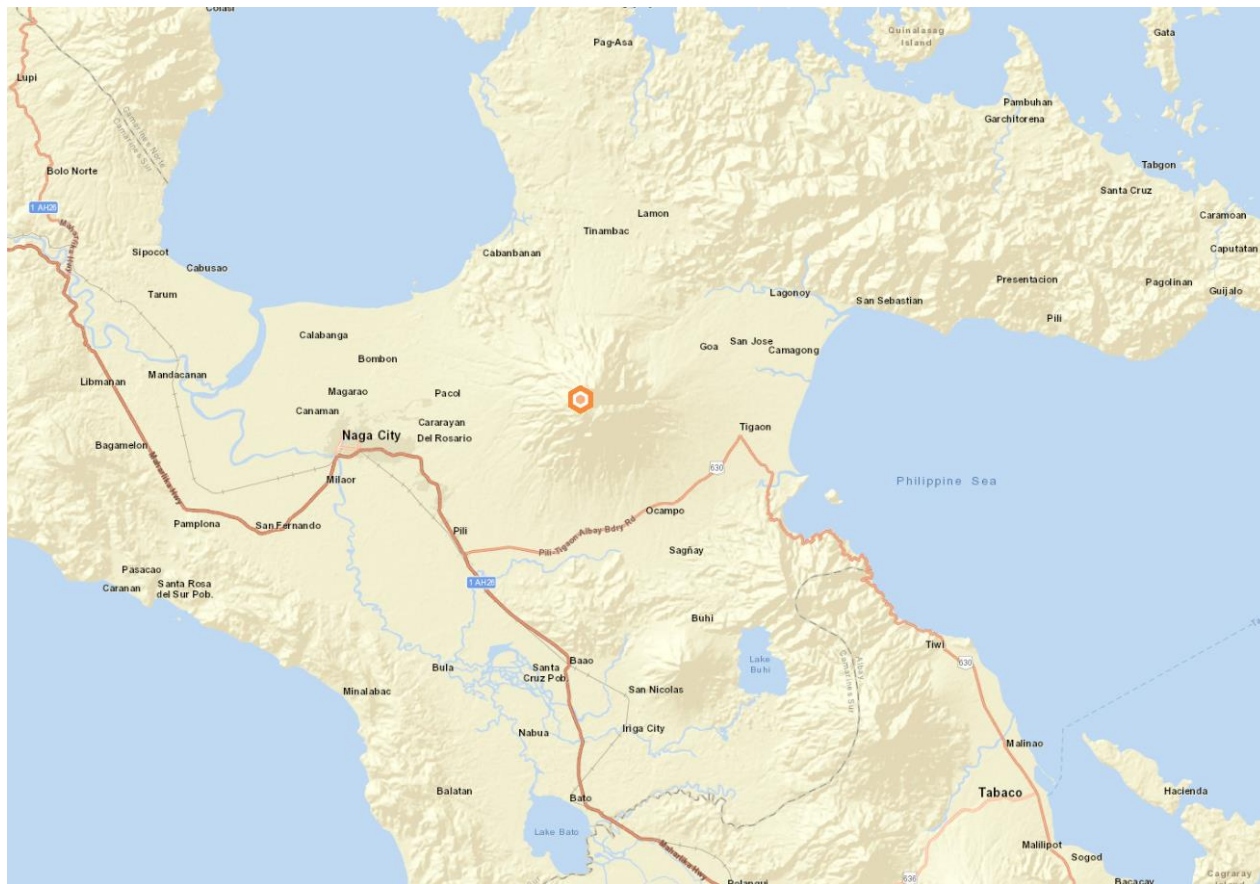
FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 5
- *Rhinolophus virgo* – 1



January 2019

Camarines Sur – Mt. Isarog Natural Park



Bat Species:

FAMILY PTEROPODIDAE

- *Cynopterus luzoniensis* – 30
- *Ptenochirus jagori* – 22

FAMILY VESPERTILIONIDAE

- *Scotophilus kuhlii* – 13

FAMILY RHINOLOPHIDAE

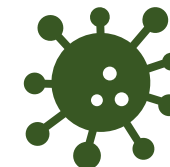
- *Rhinolophus arcuatus* – 2
- *Rhinolophus macrotis* – 1



June 2019

Surigao del Norte – Siargao Island

Henipavirus



Bat Species:

FAMILY PTEROPODIDAE

- *Cynopterus luzoniensis* – 22
- *Ptenochirus jagori* – 17
- *Macroglossus minimus* – 9
- *Rousettus amplexicaudatus* – 3
- *Eonycteris spelaea* – 2

FAMILY HIPPOSIDERIDAE

- *Hipposideros diadema* – 26
- *Hipposideros pygmaeus* – 12
- *Hipposideros obscurus* – 2
- *Hipposideros coronatus* – 1

FAMILY MINIOPTERIDAE

- *Miniopterus eschscholtzii* – 6

FAMILY RHINOLOPHIDAE

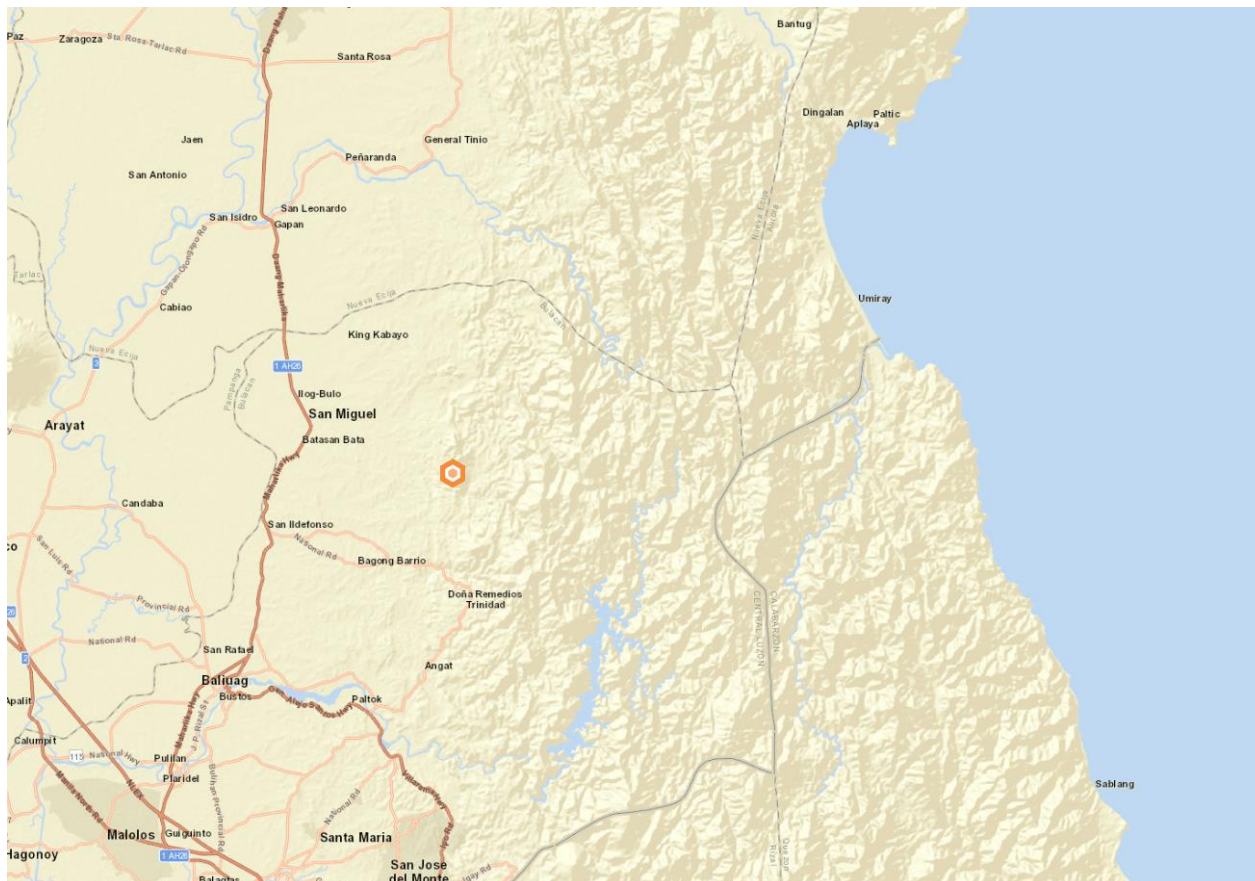
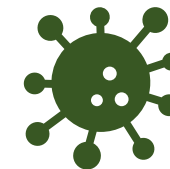
- *Rhinolophus arcuatus* – 1



February to March 2020

Bulacan – Biak-na-Bato National Park

Poxvirus



Bat Species:

FAMILY PTEROPODIDAE

- *Cynopterus luzoniensis* – 28
- *Ptenochirus jagori* – 27
- *Macroglossus minimus* – 1
- *Rousettus amplexicaudatus* – 1

FAMILY MOLOSSIDAE

- *Chaerephon plicatus* – 30

FAMILY MINIOPTERIDAE

- *Miniopterus paululus* – 13
- *Miniopterus eschscholtzii* – 4

FAMILY VESPERTILIONIDAE

- *Myotis horsfieldii* – 13

FAMILY RHINOLOPHIDAE

- *Rhinolophus arcuatus* – 3



CONCLUSION

<50%

1,118 occurrences from 2008 to 2020

36 Species

9 Families

13 Provinces

Biodiversity

Mobilization

Workshop





OCCURRENCE DATASET | REGISTERED JULY 31, 2022

UPLB Museum of Natural History Zoology and Wildlife Museum Chiroptera Collection

Published by [University of the Philippines Los Baños Museum of Natural History](#)

Alviola P • Garcia J J • Cosico E • Lumibao J D

DATASET PROJECT METRICS ACTIVITY DOWNLOAD

1,118 OCCURRENCES 2 CITATIONS

This dataset is part of the BIFA6_026 project and specifically will cover records of bats from the UPLB Museum of Natural History Zoology and Wildlife Museum New Series collection for the last 30 years.

Project ID: BIFA6_026

Publication date: August 1, 2022

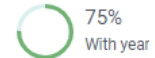
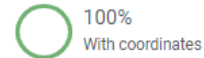
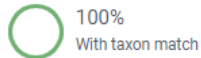
Metadata last modified: August 1, 2022

DOI: 10.15468/ym3up5

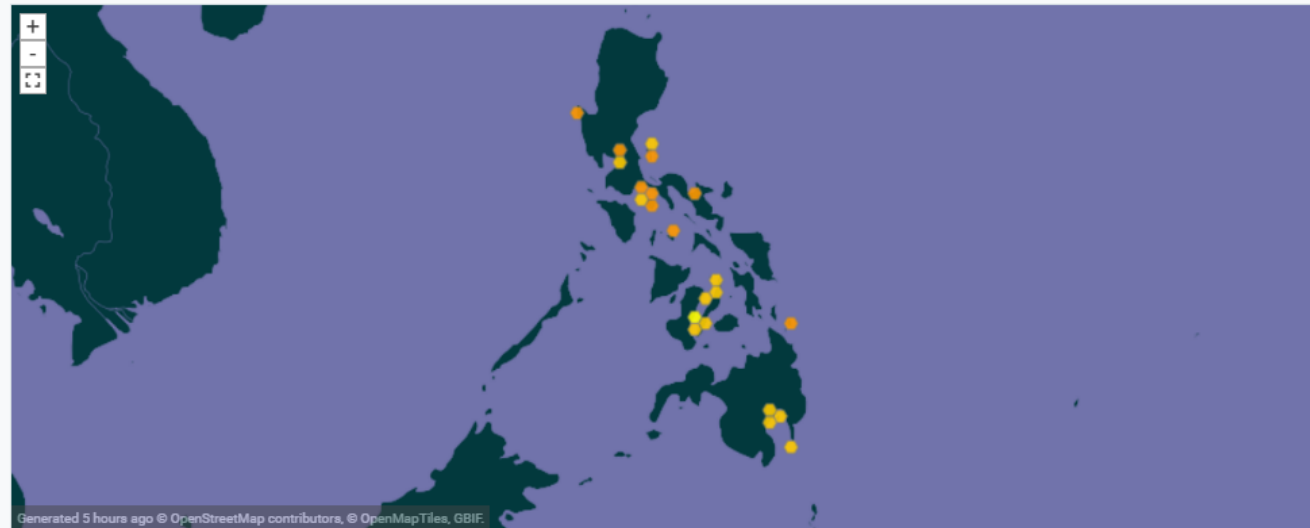
How to cite

DOI: 10.15468/ym3up5

https://doi.org/10.15468/ym3up5



1,118 GEOREFERENCED RECORDS



Generated 5 hours ago @ OpenStreetMap contributors, © OpenMapTiles, GBIF.

Any year 2008 - 2020

EXPLORE AREA



Taniguchi, S., Maeda, K., Horimoto, T., Masangkay, J.S., Puentespina, R. Jr., Alvarez, J., Eres, E., Cosico, E., Nagata, N., Egawa, K., Singh, H., Fukuma, A., Yoshikawa, T., Tani, H., Fukushi, S., Tsuchiaka, S., Omatsu, T., Mizutani, T., Une, Y., Yoshikawa, Y., Shimojima, M., Saijo, M., Kyuwa, S. (2017). First isolation and characterization of pteropine orthoreoviruses in fruit bats in the Philippines. *Arch Virol.* 2017 Jun;162(6):1529-1539. doi: 10.1007/s00705-017-3251-2. Epub 2017 Feb 11. PMID: 28190201.

Arai, S., Taniguchi, S., Aoki, K., Yoshikawa, Y., Kyuwa, S., Tanaka-Taya, K., Masangkay, J.S., Omatsu, T., Puentespina, R. Jr., Watanabe, S., Alviola, P., Alvarez, J., Eres, E., Cosico, E., Quibod, M.N.R.M., Morikawa, S., Yanagihara, R., Oishi, K. (2016). Molecular phylogeny of a genetically divergent hantavirus harbored by the Geoffroy's rousette (*Rousettus amplexicaudatus*), a frugivorous bat species in the Philippines. *Infect Genet Evol.* 2016 Nov;45:26-32. doi: 10.1016/j.meegid.2016.08.008. Epub 2016 Aug 8. PMID: 27516187.

Tsuda, S., Watanabe, S., Masangkay, J.S., Mizutani, T., Alviola, P., Ueda, N., Iha, K., Taniguchi, S., Fujii, H., Kato, K., Horimoto, T., Kyuwa, S., Yoshikawa, Y., Akashi, H. (2012). Genomic and serological detection of bat coronavirus from bats in the Philippines. *Arch Virol.* 2012 Dec;157(12):2349-55. doi: 10.1007/s00705-012-1410-z. Epub 2012 Jul 26. PMID: 22833101; PMCID: PMC7086765.

Taniguchi, S., Watanabe, S., Masangkay, J.S., Omatsu, T., Ikegami, T., Alviola, P., Ueda, N., Iha, K., Fujii, H., Ishii, Y., Mizutani, T., Fukushi, S., Saijo, M., Kurane, I., Kyuwa, S., Akashi, H., Yoshikawa, Y., Morikawa, S. (2011). Reston Ebolavirus antibodies in bats, the Philippines. *Emerg Infect Dis.* 2011 Aug;17(8):1559-60. doi: 10.3201/eid1708.101693. PMID: 21801651; PMCID: PMC3381561.

Watanabe S, Masangkay JS, Nagata N, Morikawa S, Mizutani T, Fukushi S, Alviola P, Omatsu T, Ueda N, Iha K, Taniguchi S, Fujii H, Tsuda S, Endoh M, Kato K, Tohya Y, Kyuwa S, Yoshikawa Y, Akashi H. (2010). Bat coronaviruses and experimental infection of bats, the Philippines. *Emerg Infect Dis.* 2010 Aug;16(8):1217-23. doi: 10.3201/eid1608.100208. PMID: 20678314; PMCID: PMC3298303.

