

Data mobilization of Indonesian butterfly collections at Museum Zoologi Bogor, Indonesia (year 2: family Pieridae, Riodinidae, and butterfly type specimens)

Programme: BIFA

Project ID: BIFA5_018

Project lead organization: Research Center for Biology, Indonesian Institute of Sciences

Project implementation period: 15/7/2020 - 30/9/2021

Report approved: 4/11/2021

Narrative Final report

Executive Summary

We aim to digitize and mobilize 9,300 specimens under BIFA5_018 project, thus we can increase the percentage of digitized MZB butterfly collection by 19%. Prior to the BIFA project, we had only fewer than 5% specimens catalogued. Under BIFA4_037, we digitized and mobilized over 9,400 specimens of swallowtails and other highly traded butterflies. The implementation of BIFA5_018 has been full of challenges from the start to the end of the project because of the COVID-19 pandemic restrictions. Yet we are truly grateful that this project has made data capture, data management, and data publishing possible. By September 2021, the overall digitized and mobilized MZB butterfly specimens are over 9,800 specimens, about 33% of the total estimated 58,000 specimens. Datasets of MZB's butterfly type specimens, pierid and riodinid butterfly specimens are made available through GBIF. Some members of Pieridae are difficult to identify but the world expert on Pieridae systematics, Prof. Dr. Osamu Yata (emeritus professor) of Kyushu University Museum, Japan has agreed to verify the identification of doubtful species. We are also in collaboration with Dr. Christoph Häuser of Museum für Naturkunde, Berlin, Germany, and with Dr. Luc Willems and his team of Naturalis, Leiden, the Netherlands. We held an online workshop on September 18, 2021 and had a great success of receiving about 1,000 butterfly photos taken from various locations in Indonesia, which can be uploaded to GBIF as observation record of occurrence spatially and temporally.

Progress against milestones

Has your project completed all planned activities?: Yes

Has your project produced all deliverables?: Yes

Report on Activities

Activity implementation summary

The BIFA5_018 project started on 4 August 2021, and we had to adjust our working days during this COVID-19 pandemic. The work has been somewhat affected by this pandemic but we have made good progress, considering all risks. We had to struggle to meet the goals of this project.

Preparation of drawers, unit trays, envelopes to store unmounted specimens have been conducted with no trouble at all, though we needed to make additional envelopes.

As of curatorial work, the technicians helped sort the specimens, and then I did all identifications and verifications of these specimens into valid species and subspecies. On a few occasions, Prof. Osamu Yata confirmed the identity of particular species. The curatorial work has taken much energy as literally every single specimen needs to go pass my inspection and be identified at least until species

level.

All processes of specimen handling were undertaken. Information on the label data was documented into data sheet. Photos of upperside and underside of male and female representatives of each species were taken. Interpretation of label data was conducted later on, including geo-referencing the locations. Data checking and data mapping were conducted afterwards. Data quality was monitored and checked. Datasets were then uploaded and published through InaBIF's IPT to GBIF. Any technical issue was solved quickly by our IT staff.

As of 30 September 2021, we have documented over 9,800 specimens of the family Pieridae, Riodinidae and butterfly type specimens deposited at the insect collection room of Museum Zoologi Bogor.

Due to the strict limitation in June and July 2021, we had to postpone the workshop until towards the end of the project. The workshop was held online on September 18, 2021. We made a pre-recorded video to show our workplace and collection room to participants, so they could see the activities and implementation of the project. In the workshop, we introduced this project and encouraged butterfly enthusiasts to contribute data of butterfly occurrence through butterfly photographs. The responses have been great and we are still working on processing the photos which will keep us busy for the next month or so.

Completed activities

Activity name: Preparation

Description: Preparing specimen drawers, unit trays, envelopes for unmounted specimens

Start Date - End Date: 4/8/2020 - 28/5/2021

Verification Sources: <https://drive.google.com/file/d/1SNTFu8tfUnFbVTSjR9YIIMRDohDRRtnA/view?usp=sharing>

Activity name: Curatorial work

Description: involves sorting, identifying and validating specimens of Pieridae, Riodinidae, and handling type materials.

Start Date - End Date: 4/8/2020 - 24/9/2021

Verification Sources: https://docs.google.com/document/d/14_o_KKGs4_a_0REssjuEt4-QSAO12Mch/edit?usp=sharing&oid=104557308428532510073&rtpof=true&sd=true

Activity name: Specimen handling and data recording

Description: includes registering collection data, applying QR code and specimen code, and taking photograph of representative specimen of each species

Start Date - End Date: 3/8/2020 - 24/9/2021

Verification Sources: <https://docs.google.com/document/d/10MetE-MI6vIxLVBP8sLKEaH6m13ZwHrP/edit?usp=sharing&oid=104557308428532510073&rtpof=true&sd=true>

Activity name: Data management

Description: Interpreting specimen labels, geo-referencing specimen data, checking data, mapping into Darwin core, preparing metadata to upload and publish data to GBIF

Start Date - End Date: 4/8/2020 - 30/9/2021

Verification Sources: <https://drive.google.com/file/d/1feyl09K-gjpou6IFQK7UJiFVvXdeFkFi/view?usp=sharing>

Activity name: Workshop

Description: Workshop held to introduce the project of digitizing and mobilizing data, and to encourage butterfly enthusiasts to participate. Leaflet is provided.

Start Date - End Date: 18/9/2021 - 18/9/2021

Verification Sources: <https://drive.google.com/file/d/1M0Pcjcll5tbL7zqufwm8oE8bvaLrSHhm/view?usp=sharing>

Report on Deliverables

Production of Deliverables - Summary

Datasets of MZB's butterfly type specimens, pierid, and riodinid butterfly collection have been uploaded

to GBIF.

Leaflet to introduce the project and the activities involved in the project has been produced, and was used as a tool during the workshop.

Print out of specimen data is going to be made available upon completion of the project. A draft of manual book on data mobilization of MZB butterfly collection will be prepared and finalized within the next year.

Production of deliverables

Title: Pierid butterfly specimens (Part 1: Aoa, Belenois, Cepora, Prioneris, Saletara) at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Pierid butterfly specimens (Part 1: Aoa, Belenois, Cepora, Prioneris, Saletara) at Museum Zoologi Bogor, Indonesia}

Expected number of records: 1858

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor - BRIN (previously LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/vkba76>

Expected date of publication:

Title: Leaflet

Type: Other

Description: a leaflet was prepared to introduce the project and to facilitate the workshop.

Sources of verification:

https://drive.google.com/file/d/1DDQvS0bMPn6_QFGcXW4X4nsTw5mB40i6/view?usp=sharing

Title: Catalog of specimens

Type: Other

Description: Print out of specimen data as catalog are going to be available after the completion of the project

Sources of verification: to be printed

Title: Draft of manual book

Type: Other

Description: A draft of manual book on data mobilization of MZB - Indonesian butterfly collection will be prepared after completion of this project

Sources of verification: to be processed

Title: Pierid butterfly specimens (Part 2: Dercas, Gandaca) at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Pierid butterfly specimens (Part 2: Dercas, Gandaca) at Museum Zoologi Bogor, Indonesia}

Expected number of records: 220

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor - BRIN (previously LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/ps6tdt>

Expected date of publication:

Title: Pierid butterfly specimens (Part 3: Appias, Elodina, Leuciacria, Udaiana) at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Pierid butterfly specimens (Part 3: Appias, Elodina, Leuciacria, Udaiana) at Museum Zoologi Bogor, Indonesia}

Expected number of records: 2289

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor - BRIN (previously LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/u6kj6b>

Expected date of publication:

Title: Butterfly observation records based on photographs taken by butterfly enthusiasts in Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Butterfly observation records based on photographs taken by butterfly enthusiasts in Indonesia}

Expected number of records: 342

Data holder: Butterfly enthusiasts

Data host institution: Museum Zoologi Bogor - InaBIF - BRIN (LIPI)

Sampling method: occurrence records based on observation through photographs

% complete: 35

DOI: <https://www.gbif.org/dataset/4d236e9c-fa04-4a94-9356-382c9f7c84c0>

Expected date of publication:

Title: Butterfly type specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Butterfly type specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 254

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor - InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/ga5uve>

Expected date of publication:

Title: Riodinid butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Riodinid butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 333

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/u4qxzw>

Expected date of publication:

Title: Catopsilia butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Catopsilia butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 2177

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/jdyzwj>

Expected date of publication:

Title: Leptosia butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Leptosia butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 427

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/jgy993>

Expected date of publication:

Title: Delias butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Delias butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 1020

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/mt7g3m>

Expected date of publication:

Title: Ixias butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Ixias butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 742

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/a3kcjb>

Expected date of publication:

Title: Pareronia butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Pareronia butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 439

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN (LIPI)

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/5petb6>

Expected date of publication:

Title: Eurema butterfly specimens at Museum Zoologi Bogor, Indonesia

Type: Dataset

Status update: uploaded

Dataset scope: Eurema butterfly specimens at Museum Zoologi Bogor, Indonesia}

Expected number of records: 716

Data holder: Museum Zoologi Bogor - Indonesia

Data host institution: Museum Zoologi Bogor, InaBIF - BRIN

Sampling method: specimen-based records

% complete: 100

DOI: <https://doi.org/10.15468/47wve9>

Expected date of publication:

Impact of COVID-19 pandemic on project implementation

During pandemic, most research staff have been allowed to come to office 2-3 days a week and technicians including our hired assistants have been allowed 3 days a week. The limitation also include the work hours, from previously 7.30 - 16.00 into 8.30 - 15.00 (flexible time) to reduce the risk of fatigue working in the closed, air-conditioned room at the insect collection room. All health protocols to work safely have been followed. Starting January 2021, we have added 2 days of working from home to do interpretation, georeferencing, specimen photo trimming, and data checking and cleaning as we have accumulated more data.

We have been impacted so much by the pandemic condition and restrictions in June and July 2021, when we had to limit our activities and could not go to the collection room. Our workshop had been postponed until September 18, 2021. As a result, we are now still processing the photographs received from butterfly enthusiasts to be uploaded as an update to the dataset submitted already.

Events

Workshop BIFA5_018

Dates: 2021-09-18 - 2021-09-18

Organizing institution: LIPI

Country: Indonesia

Number of participants: 60

Comments: We have developed great relationships with butterfly enthusiasts from many areas in Indonesia. The online workshop has proved to be cost-efficient, though we could not meet in person.

Website or sources of verification: Please see report of the workshop

Communications and visibility

We have prepared a leaflet (attached) that we have used also as an introduction to the project during the workshop. The workflow of the activities was shown on the leaflet. We have also maintained a WhatsApp group for butterfly enthusiasts and hopefully we can continue with many exciting activities. Periodically I can give an informal lecture on butterfly identification and we can share knowledge about how to obtain reliable location data. They are so excited to receive small token of appreciation (see attached). Apparently the workshop held online has proved to be cost-effective and could have a wide coverage of attendance.

On a different note, I have also participated in the 2020 ECN (Entomological Collections Network) Virtual Meeting on November 9, 2020. I gave a presentation with the title: "Working on data mobilization of butterfly collections at Museum Zoologicum Bogoriense, Indonesia, supported by BIFA-GBIF, during the COVID-19 pandemic". (see attached).

Monitoring and evaluation

Final Evaluation

First of all, we would like to thank BIFA for the support that has enabled us to have a very improved condition of butterfly specimens, in term of labelling and application of QR codes and accessibility of the data. The GBIF Secretariat team have been very helpful and have provided us with much needed support, which we appreciate very much. I know we will be able to do better in a normal situation, but the time limitation and other restrictions during the implementation of the project at this pandemic time have somewhat put us in a situation where we could only try our best, and indeed we achieved all goals.

Best Practices and Lessons Learned

Please accept my apology for the mistakes in coordinate issues on midterm report. My thanks are due to GBIF staff who spotted the mistakes.

Implementation of this project has been tough, but indeed this project is worth the effort.

Ideally I could identify and verify butterfly specimens at an earlier stage so that I could monitor the data entry processes more closely to avoid mistakes of coordinate entries etc. On the other hand, by working simultaneously on the curatorial works, I could access the resources of unit trays and insect drawers at the same time and the specimens did not have to be handled multiple times. On a few occasions, I felt exhausted because I need to check all specimens before they can be handled for data entry, QR code application, and further process of documentation up to publishing the data to GBIF.

After all, we are thankful that we can achieve the goals and produce all deliverables.

Post Project Activity(ies)

I am particularly excited about the interest and participation of citizen science, in this case butterfly enthusiasts all over Indonesia. We are going to continue to process the butterfly photos, about 1,000 photos, submitted by butterfly enthusiasts: identifying, giving QR code to each photo, and preparing to upload to GBIF. So far I have identified over 750 entries and some still need to be processed with the QR code insertion on the photos.

Sustainability plans

We will strive our best to continue the work.

We are also going to go through the data. The data might provide some records not reported before, so we will write a manuscript based on some findings of the data.

Later on, we can also work on digitizing specimens of Nymphalidae, Lycaenidae, and Hesperidae.

GBIF leads the Biodiversity Information Fund for Asia (BIFA), a programme funded by the Ministry of the Environment, Government of Japan. The programme provides supplementary support for activities addressing the needs of regional researchers and policymakers through mobilization and use of biodiversity data.

