



The Biodiversity Fund for Asia (**BIFA**) Program

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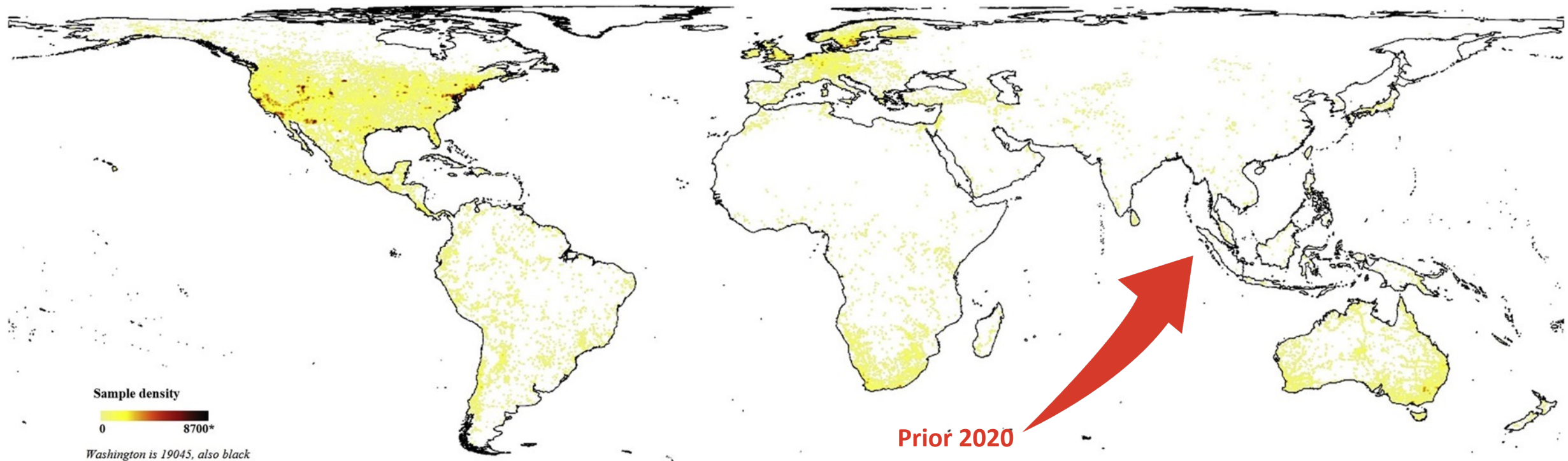
World Bees Day.

Photographed by:
Varat Sivayapram
Phanuwt Senawong
Wasin Nawaneti Wong
Salisa Sajapipat

Knowledge on bee diversity in SEA is **scarce**

What can we do with limited resources and know how?

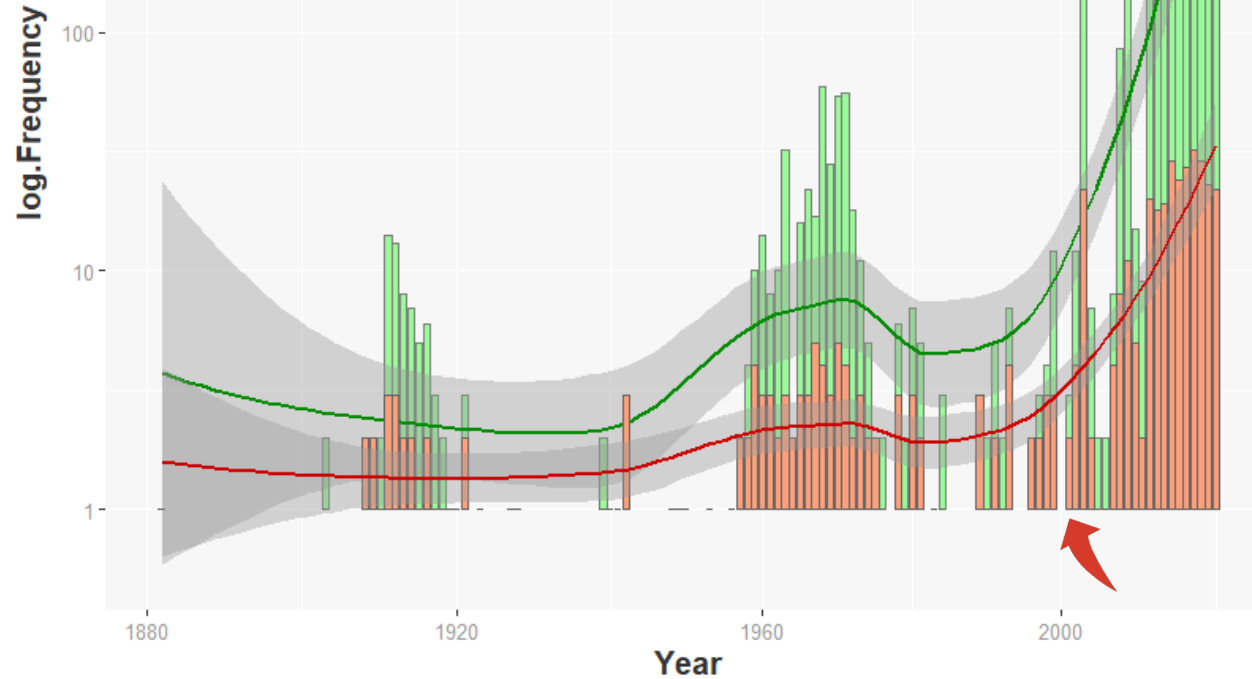
Orr et al., 2021: showing public database spatial coverage and sampling density





Number of Bee occurrences

- staff always occupied with other activities including field collecting
- **no one** has time to pin, labeling, and photographing specimens



Bee and Spider Research Unit (BSRU)

Insect collection in association with **Chulalongkorn University Museum of Natural History**

Department of Biology, Faculty of Science, Chulalongkorn University



GBIF

Global Biodiversity
Information Facility

How GBIF encourage worldwide organization to involve in biodiversity data Briefly review here.

Regional
grant funding

Ex. **BIFA** (Asia)

Museum /
Affiliations

**Project proposal*

Research opportunities and
encouragement

Data publishing

Data **validation** by toolkit for
long-term database development

Citation census

High **accessibility**

Other opportunities purposed in
proposal to sustainable
community development

Workshop

Database preparing, cleaning, validation, ...
& Core format (DwC, Audobon, ...)

Usage of **IPT** (Integrated Publishing
Toolkit) in **GBIF cloud server**

Concept for further
planning ad **long-term**
development

Workshop: knowhow & infrastructure development

“Biodiversity Data Mobilization Course”



Biodiversity Data Mobilisation, Basic Badge

This badge certifies that the wearer has sufficient understanding of the process of producing digital biodiversity datasets and publishing them on the internet following internationally accepted standards, in particular those accepted by the Global Biodiversity Information Facility (GBIF). The wearer has successfully completed a workshop on this topic, which included the development of data mobilisation strategies and the production, curation and publishing of datasets via the GBIF network.

Earned by: Pakorn N.

Issued by: Global Biodiversity Information Facility

Issued on: 18.01.2021

Expires on: 17.01.2024



Biodiversity Data Mobilization, Advanced Badge

This badge certifies that the wearer has sufficient understanding of the process of producing digital biodiversity datasets and publishing them on the internet following internationally accepted standards, in particular those accepted by the Global Biodiversity Information Facility (GBIF). The wearer has successfully completed a workshop on this topic, which included the development of data mobilization strategies and the production, curation and publishing of datasets via the GBIF network.

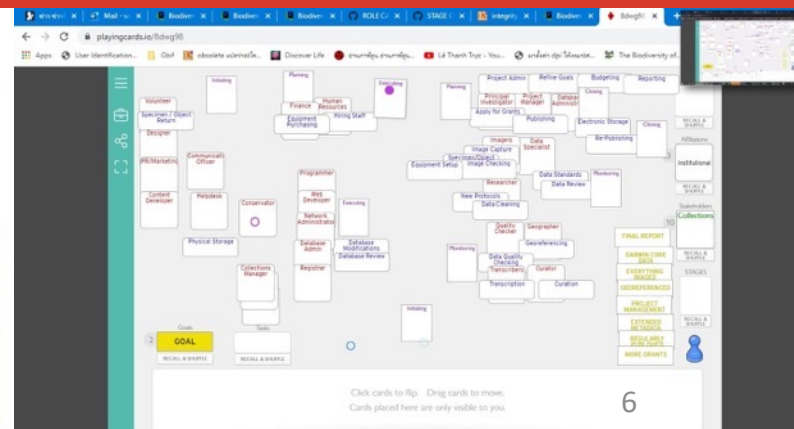
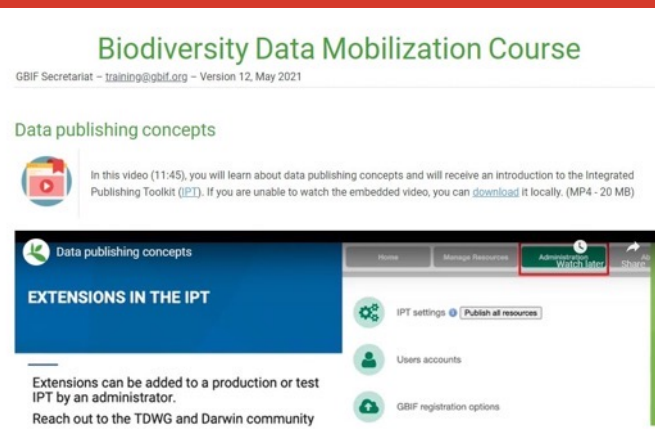
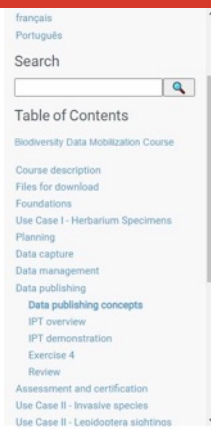
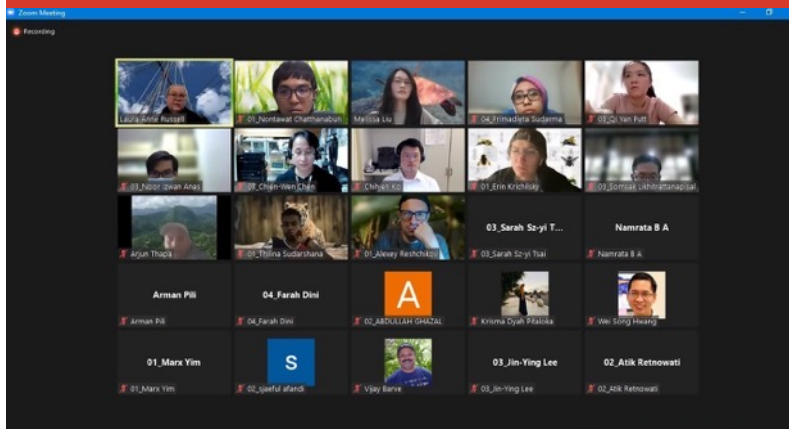
Earned by: Nontawat Chatthanabun

Issued by: Global Biodiversity Information Facility

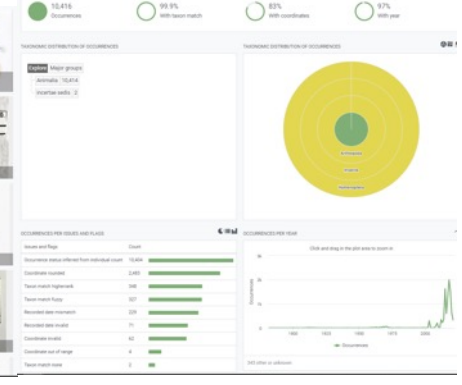
Issued on: 06.04.2022

Expires on: 05.04.2025

*COVID-19 issues



- **First** comprehensive Thai bee database
- Help in **digitizing** tremendous biodiversity data
- Enlighten **systematic biodiversity** mobilization
- Biodiversity **infrastructures** development
- Promote scientific **collaboration: international networks**



First comprehensive online database of bee pollinators in SEA

BIFA5-005

(2020-2021)

OCCURRENCE DATASET | REGISTERED JANUARY 28, 2021

Database and digitization of bees in Thailand

Published by [Chulalongkorn University, Department of Biology](#)
Nalinrachatakan P • Chatthanabun N • Thanooosing C • Warrit N

DATASET PROJECT METRICS ACTIVITY [DOWNLOAD](#)

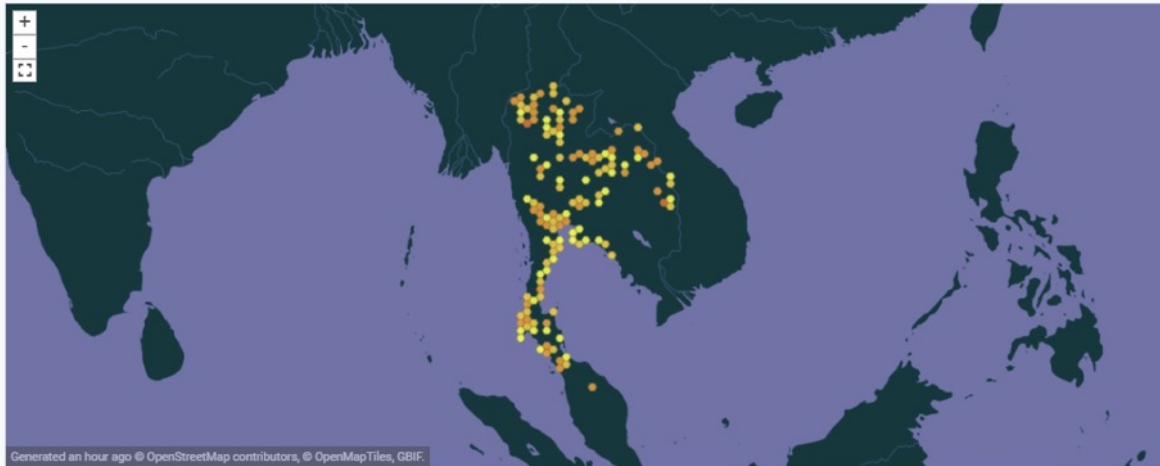
10,416 OCCURRENCES 7 CITATIONS

Public species occurrence database such as GBIF provides specimen geographical records for global bee distribution, which is an invaluable resource for researchers studying bee diversity and pollination ecology. However, most records are biased toward specimens collected in North America and Europe. On the contrary, bees from Southeast Asia (SEA) are poorly understood and are not well represented in public databases. The Chulalongkorn University Natural History Museum (CUNHM) in Thailand holds a... [More](#)

Project ID: BIFA5_005
Publication date: April 25, 2022
Metadata last modified: April 25, 2022
Hosted by: GBIF Secretariat
Licence: CC BY-NC 4.0
[How to cite](#) [DOI](#) 10.15468/1f4ejd



8,602 GEOREFERENCED RECORDS



Any year 1903 - 2021

EXPLORE AREA

BIFA6-009

(2021-2022)

OCCURRENCE DATASET | REGISTERED APRIL 29, 2022

Database and digitization of bees from TIGER project (Thailand)

Published by [Chulalongkorn University, Department of Biology](#)
Nalinrachatakan P • Chatthanabun N • Thanooosing C • Kamram T • Liangchuea A • Sanunsilp N • Yendee S • Phaengphongsai S • Warrit N

DATASET PROJECT METRICS ACTIVITY [DOWNLOAD](#)

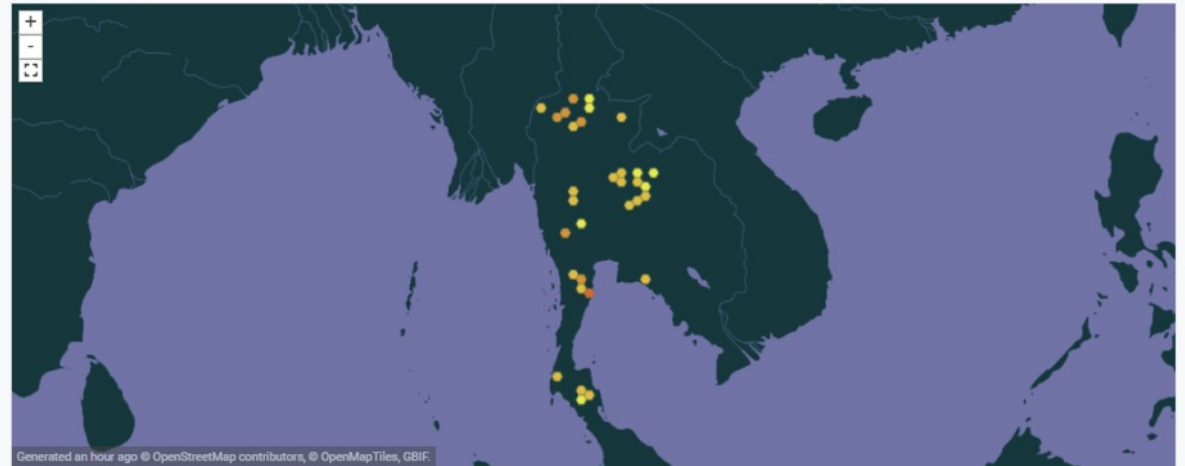
3,393 OCCURRENCES 1 CITATION

Bees (Apoidea: Anthophila) are one of the most important groups of global insect pollinators. Public species occurrence database such as GBIF provides occurrence records for global bee distribution, an invaluable resource for bee conservation and pollination ecology. Our former GBIF project (BIFA5_05) provided the first digitized occurrence records of bees in Thailand and SEA [The dataset was published online under doi.org/10.15468/1f4ejd]. Nevertheless, most of the bee data provided to GBIF we... [More](#)

Project ID: BIFA6_009
Publication date: October 28, 2022
Metadata last modified: October 28, 2022
Hosted by: GBIF Secretariat
Licence: CC BY-NC 4.0
[How to cite](#) [DOI](#) 10.15468/p6zfcz



2,889 GEOREFERENCED RECORDS



Any year 2006 - 2009

EXPLORE AREA



THAILAND: Ubon Ratchathani Prov., Na Chaluai Dist., Na Chaluai Subdist., Phu Chong Na Yoi Nat. P., Pha Lan Pa Chad. 14° 26' 4.24" N, 105° 15' 37.83" E. Alt. 286 m. 27.IX.2020., Aerial net, N. Warrit et al.

BSRU
AB-2570

Creator: CUNHM
Record licence: <http://creativecommons.org/licenses/by-nc/4.0/>
Identifier: <http://61.91.64.2...-2570-Lateral.jpg>
Suggested attribution: Coelioxys Latreille, 1809 collected in Thailand (licensed under <http://creativecommons.org/licenses/by-nc/4.0/>)

Creator: CUNHM
Record licence: <http://creativecommons.org/licenses/by-nc/4.0/>
Identifier: <http://61.91.64.2...AB-2570-Label.JPG>
Suggested attribution: Coelioxys Latreille, 1809 collected in Thailand (licensed under <http://creativecommons.org/licenses/by-nc/4.0/>)

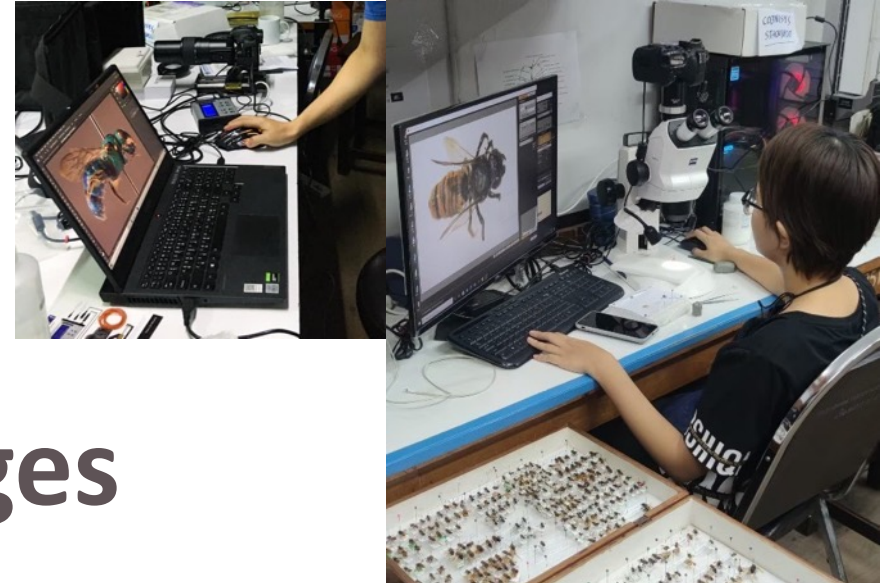


Creator: CUNHM
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Creator: CUNHM
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Suggested attribution: Coelioxys Latreille, 1809 collected in Thailand (licensed under <http://creativecommons.org/licenses/by-nc/4.0/>)

Overall >32,000 images



Get data How-to Tools Community About

SEARCH OCCURRENCES | 6,394 WITH IMAGES

TABLE GALLERY MAP TAXONOMY METRICS DOWNLOAD

Occurrences

Search all fields

Simple Advanced

Occurrence status

Licence

Scientific name

Basis of record

Location

Administrative areas (gadm.org)

Coordinate uncertainty in metres

Year

Month

Dataset

Database and digitization of bees in Thailand

Country or area

Continent

Issues and flags

Media type

Publisher

Institution code

Collection code

Catalogue number

Type status

Arnegilla himalayensis Radoszkowski, 1852

Apis andreniformis Smith, 1857

Apis florea Fabricius, 1787

Apis cerana Fabricius, 1793

Apis florea Fabricius, 1787

Apis cerana Fabricius, 1793

Apis cerana Fabricius, 1793

Ceratina unimaculata Smith, 1879

Ceratina unimaculata Smith, 1879

Ceratina collaris Cockerell, 1919

Ceratina sutepensis

Thyreus Panzer, 1806

Ceratina sutepensis

Thyreus Panzer, 1806

Ceratina sutepensis

Eufriaranea Thomson, 1872

Ceratina sutepensis

Eufriaranea Thomson, 1872

Ceratina sutepensis

Hierades Spinola, 1808

Paracella Pasteels, 1965

Megachile diffridata Smith, 1853

Megachile diffridata Smith, 1853

Megachile laticeps Smith, 1853

THAILAND: Tak Prov. 2020. Aerial net, T. Sippawat. Between Jan-March. BSRU AB-1111

THAILAND: Tak Prov. 2020. Aerial net, T. Sippawat. Between Jan-March. BSRU AB-1113

THAILAND: Tak Prov. 2020. Aerial net, T. Sippawat. Between Jan-March. BSRU AB-1112

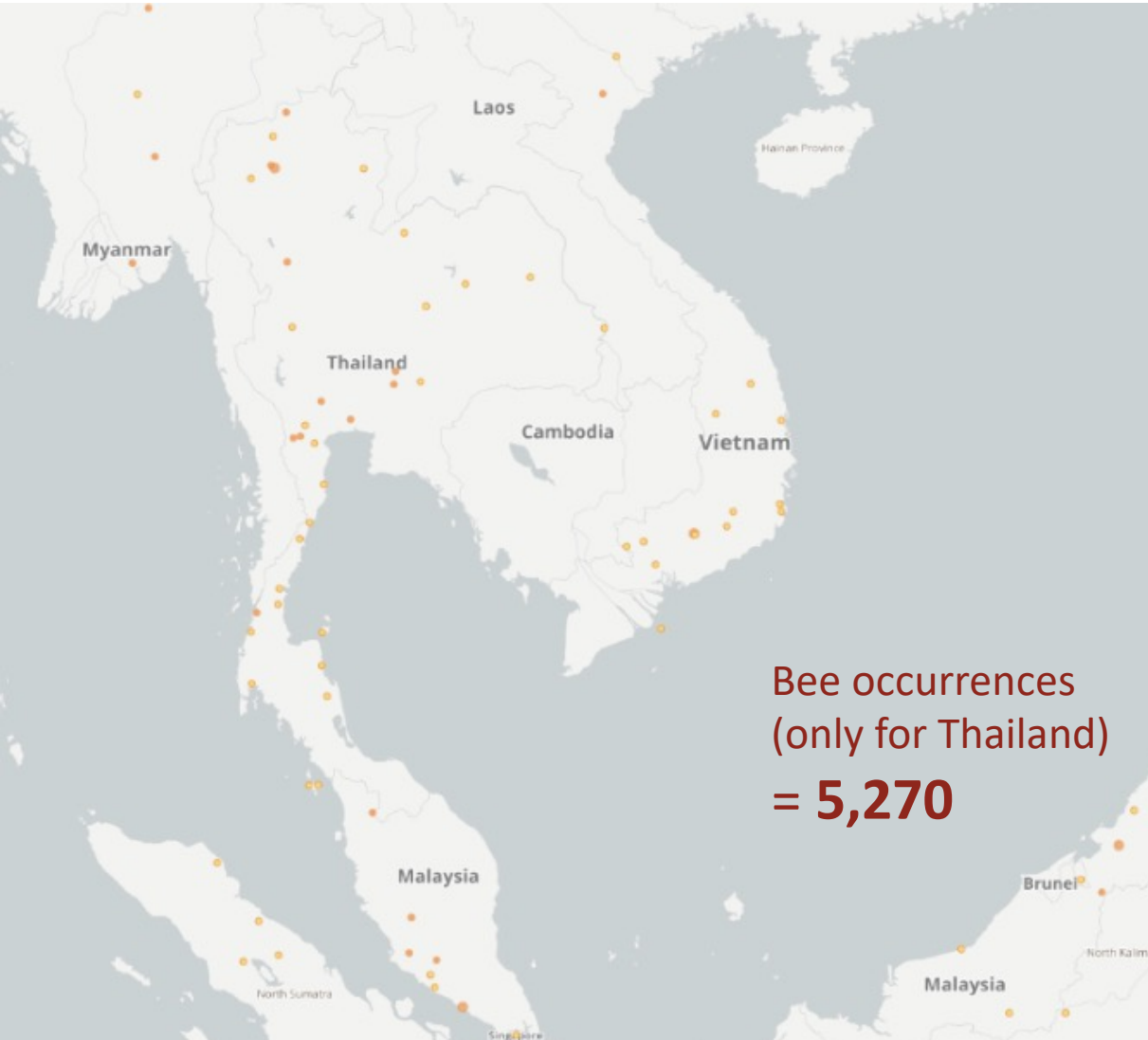
THAILAND: Tak Prov. 2020. Aerial net, T. Sippawat. Between Jan-March. BSRU AB-1109

THAILAND: Tak Prov. 2020. Aerial net, T. Sippawat. Between Jan-March. BSRU AB-1104

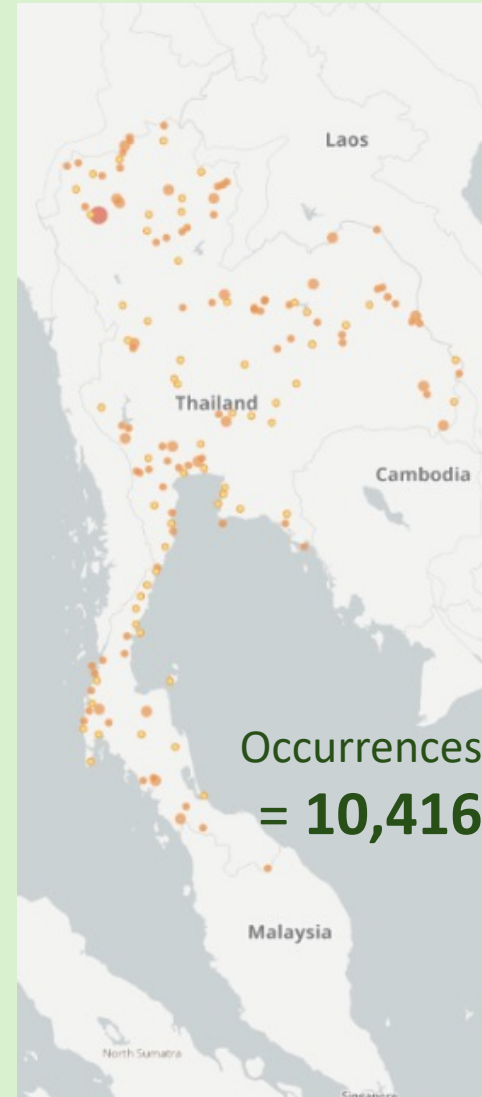
THAILAND: Ubon Ratchathani Prov., Na Chaluai Dist., Na Chaluai Subdist., Phu Chong Na Yoi Nat. P., Pha Lan Pa Chad. 14° 26' 4.24" N, 105° 15' 37.83" E. Alt. 286 m. 27.IX.2020., Aerial net, N. Warrit et al. 08.00 AM - 11.00 AM. BSRU AB-2146

Previous bee records hosted in GBIF

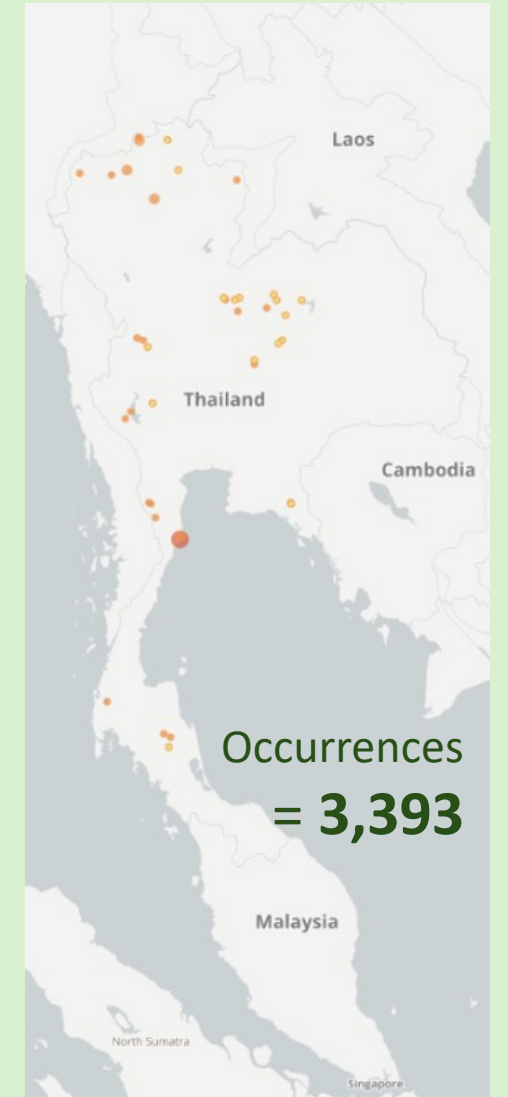
Data retrieved: 15-Nov-2022



2020
BIFA5-005



2021
BIFA6-009

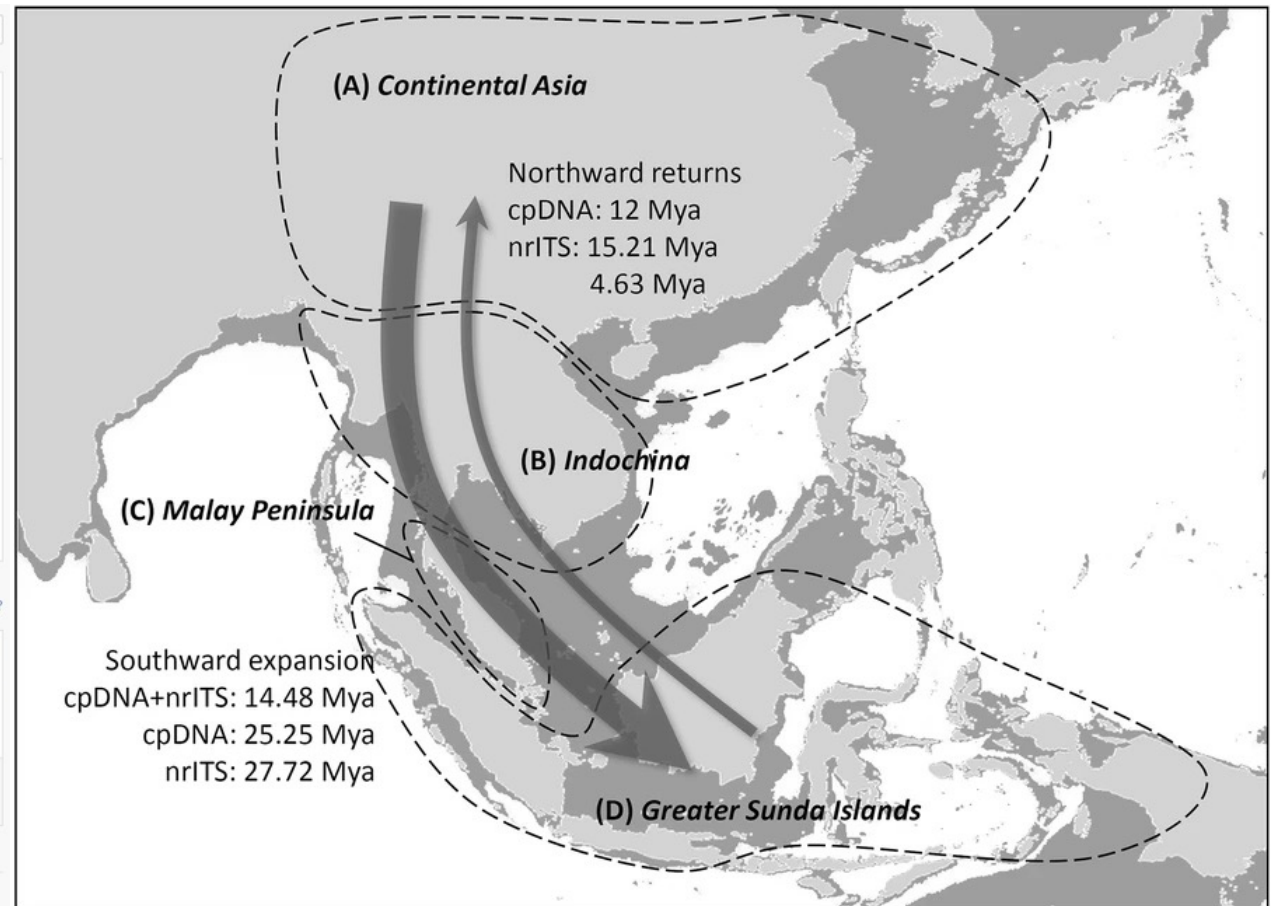


backbone data for furthering bee systematic surveys in neighboring countries

Thailand: biogeographical junction between flora and fauna in the mainland Asia and the Sundaland regions.

Ex. Yang et al. 2018: expansion of *Lithocarpus* (Fagaceae) on the Asian continent and islands

The screenshot shows an iNaturalist observation for *Lithocarpus lepidocarpus*. It includes a photo of a hand holding several green, bumpy fruits. The observation is by user 'hsiangai' (694 observations), observed on Oct 18, 2021, and submitted on Oct 20, 2021. A map shows the location in Taiwan (竹山鎮, TW). The 'Community Taxon' section shows 3 cumulative IDs for *Lithocarpus lepidocarpus*, with a progress bar at 2/3rds. The 'Activity' section shows suggestions for 'Stone Oaks' and *Lithocarpus lepidocarpus*.



Ex. "Stone oak"

iNaturalist, 2022

Lithocarpus lepidocarpus (Hayata) Hayata

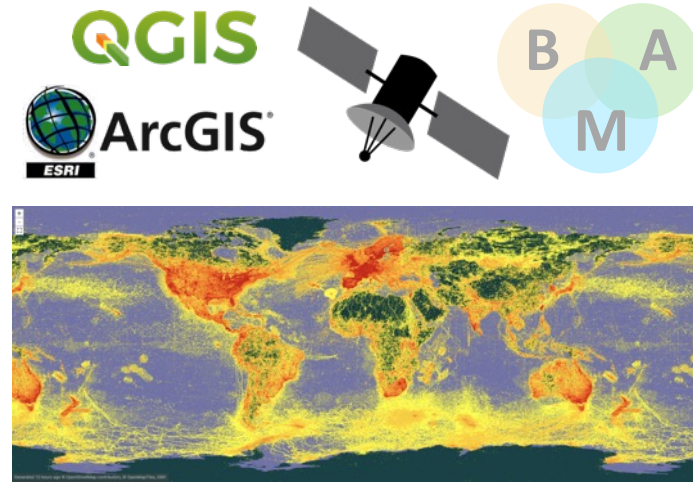
<https://www.inaturalist.org/observations/98773002>

Bee pollinator aspects: potential outcome

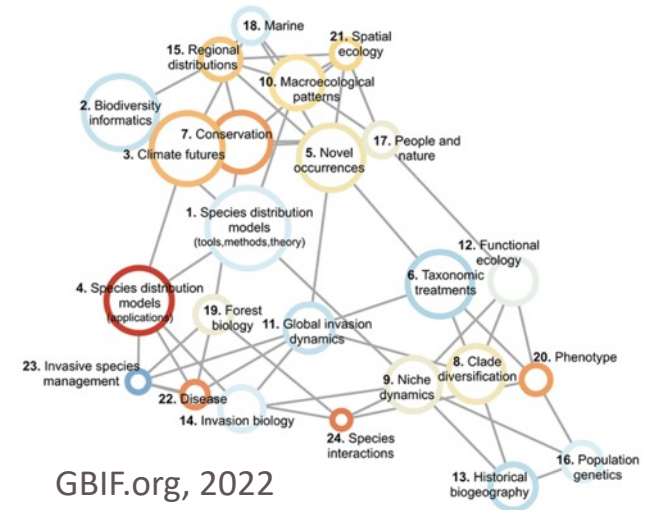
Our databases: currently 8 citations within first 1-2 years
,also involved with global scale pollination research (in prep.)



Backbone & Checklist
(taxonomy, biodiversity & natural history information)



Distribution & Model
(Spatial prediction and drivers related works)



GBIF.org, 2022

Cooperative network
(international connections)

and
much
more...

primary knowledge, management, conservation, climate change, pollination, another research possibilities, ...

Example: Prediction of bee in future scenarios

Sirois-Delisle & Kerr, 2018: North American Bumblebee vs Climate changes



Target: Bumblebees

Ex. *Bombus affinis* Cresson, 1863

- future projections in 2070 -



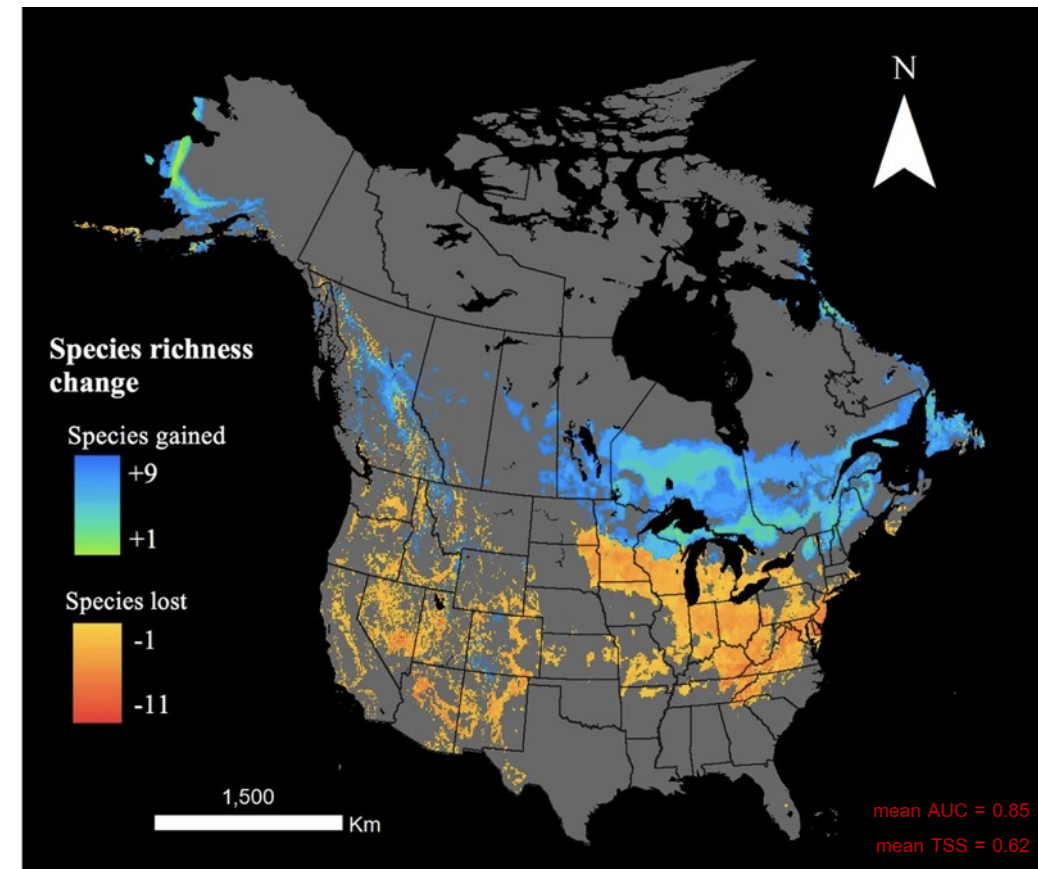
- Processed primary data -



Environmental factors
& Future climate
prediction models



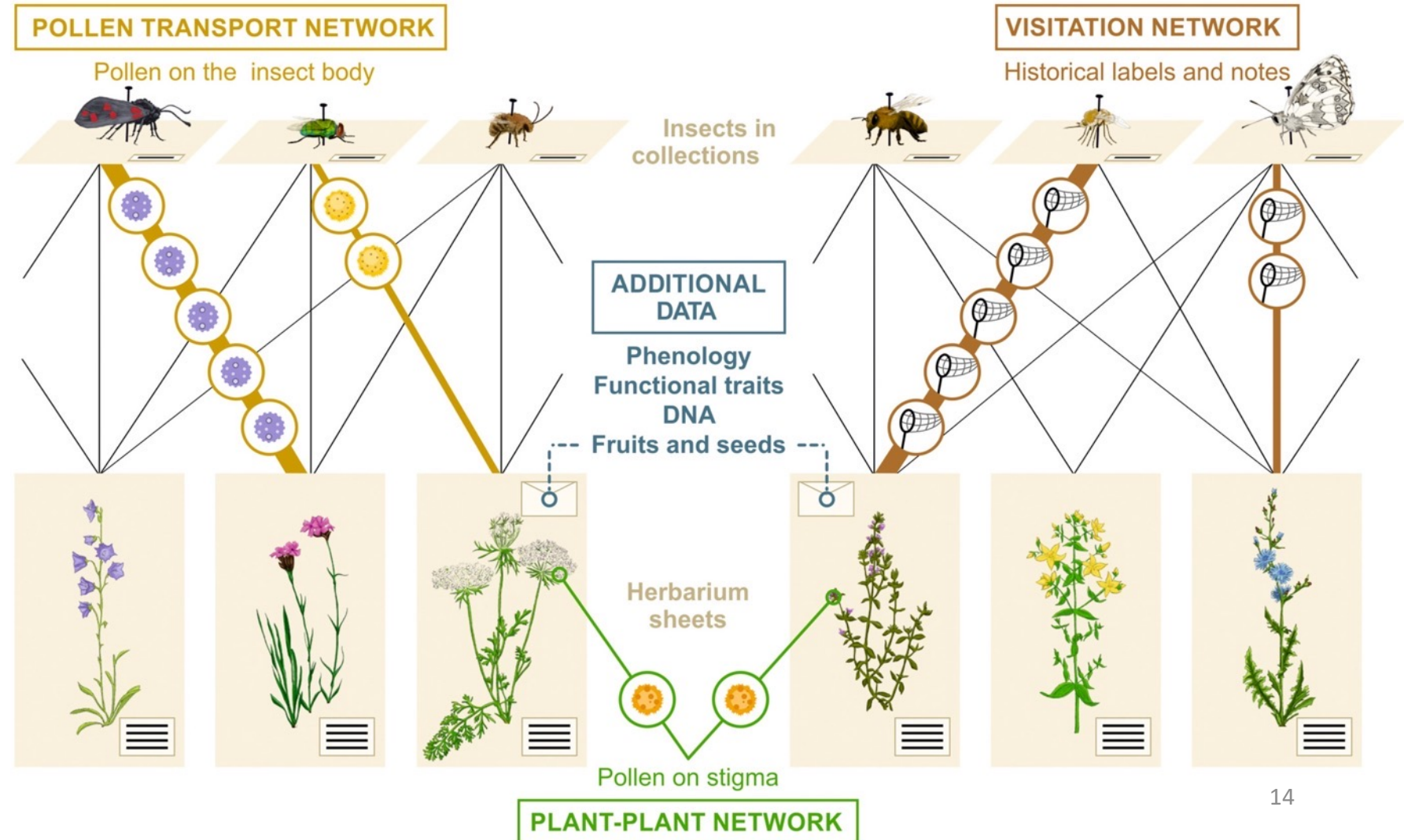
Modeling works



Bee historical data into the integrative researches

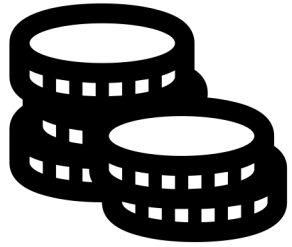
- Keypoint -

GBIF already contain information of potentially suitable collections from usually understudied regions (our database)

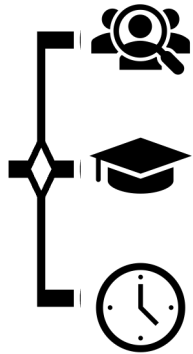


Rakosy et al. 2022:
Perspective on the
integrative research on
plant-pollinator interaction

The Biodiversity Fund for Asia (**BIFA**) Program



Funding



Opportunity for projects that are rarely funded nationally and internationally

Support undergraduate part time salaries

Money delivered on time



Professional and courteous



Coordination & progress tracking



Instructions links relating to application, mid-term and final reports are available and very resourceful





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