

Digitizing and data basing specimens of the Sumatran Flora deposited at Herbarium Universitas Andalas (ANDA)-Part 2

Ahmad Taufiq – *Herbarium of Universitas Andalas*

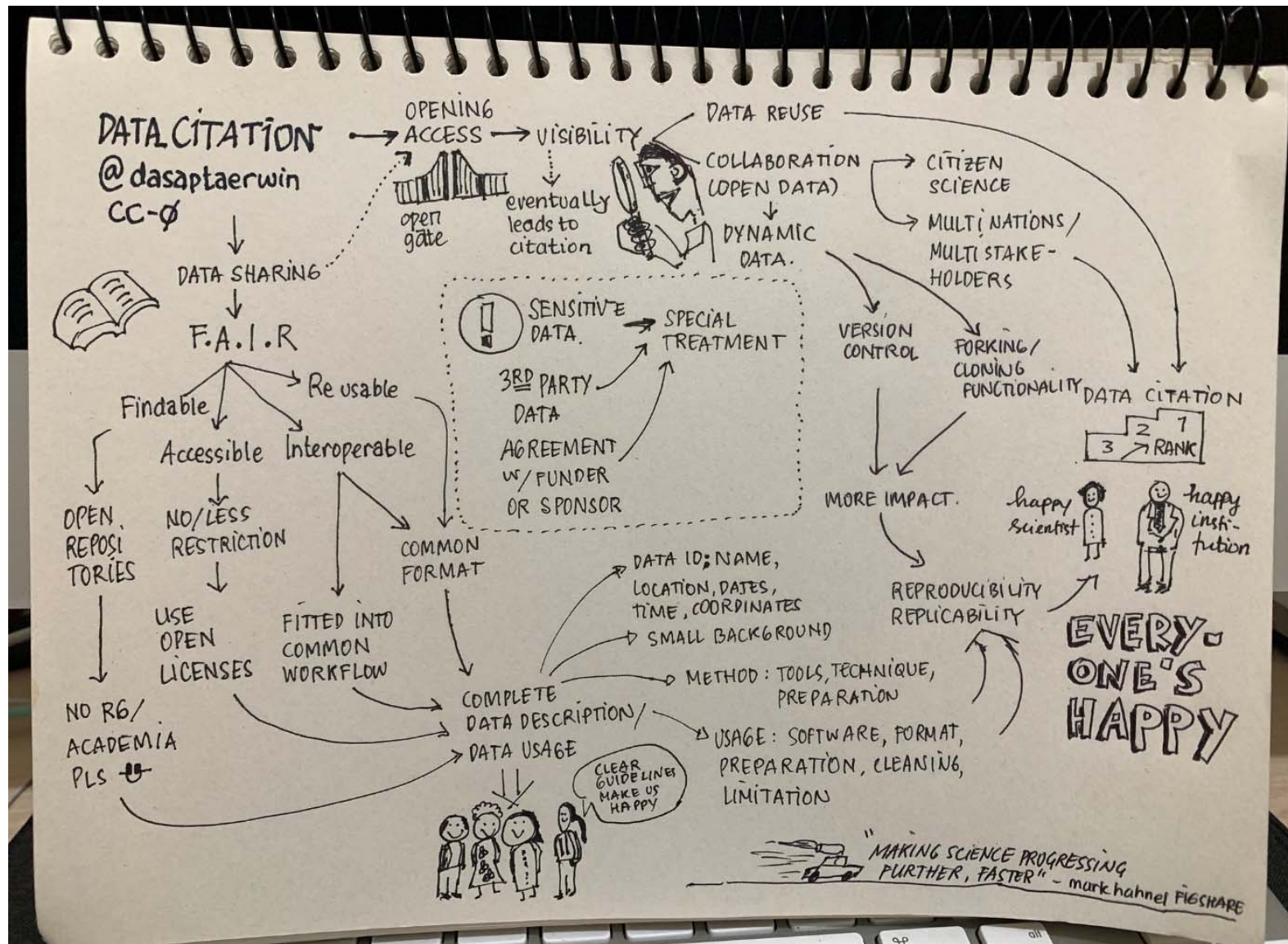
GREETINGS FROM PADANG



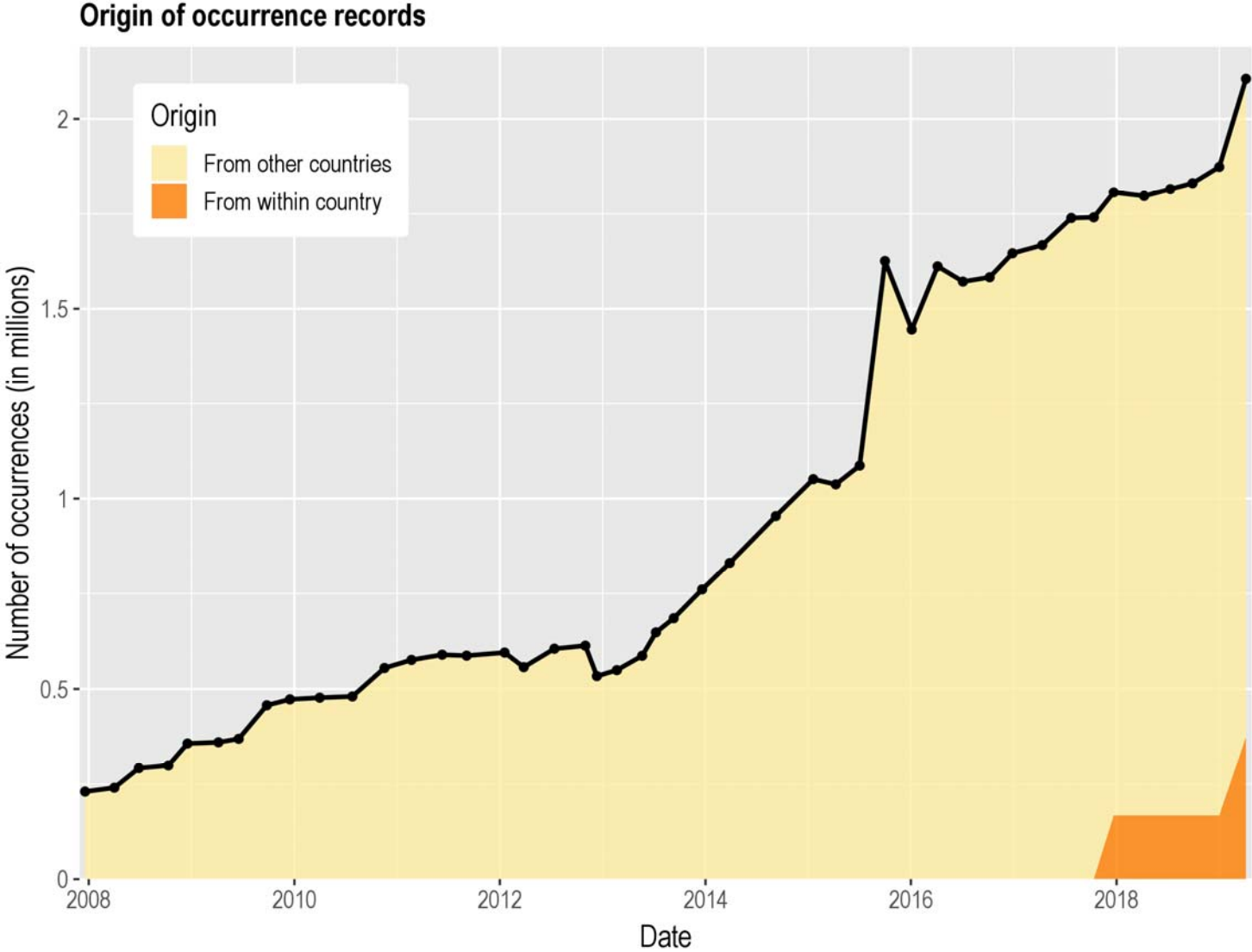
PROJECT OBJECTIVES



PROJECT OBJECTIVES



PROJECT OBJECTIVES



PROJECT OBJECTIVES

we will focus on:

- 1) to digitize and manage 20,000 sheets of herbarium specimens hosted at Herbarium ANDA that will be connected to the GBIF online database, and
- 2) to build an offline digital database incorporating more detailed information for sensitive specimens.

DATA SOURCES

Preserved specimen of
Sumatran plant
 ± 65.000 sheets



A BRIEF REPORT

BIFA 3 (2018)

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PROJECT | IN PROGRESS

Digitizing and databasing Sumatran flora

📅 1 Apr 2018 - 31 Mar 2019 € 15,000

[ABOUT](#) [DATASETS](#)



13,568 done

DATA MOBILIZATION WORKSHOP



STAKEHOLDERS MEETING



WORKSHOP FOR VOLUNTEER



DATA CAPTURING AND CLEANING



DATA PUBLISHING

**GBIF** INTEGRATED PUBLISHING TOOLKIT (IPT)
free and open access to biodiversity data

[ENGLISH](#)


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- Rights
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- Geographic Coverage
- Taxonomic Coverage
- Temporal Coverage
- Project Data

Flora of Sumatra: Vascular plant collection of selected families deposited at Herbarium of Andalas University (ANDA)

Latest version published by Herbarium of Andalas University on Apr 30, 2019

Herbarium of Andalas University (ANDA) is one of the active herbaria on Sumatra, Indonesia. Currently, the herbarium hosts about 65,000 sheets of herbarium collections, consisting of vascular plants and moss. The main collections are from Sumatra and adjacent islands. The herbarium serves both for research and education. Since 2018, we worked with the Global Biodiversity Information Facility (GBIF) to catalog and digitize our collections to improve the accessibility of the specimens. Since then, we have cataloged up to 13,568 of geo-referenced data from 374 species in 85 genera within 15 families of vascular plants. Among all of the families we have cataloged are Balsaminaceae, Begoniaceae, Dipterocarpaceae, Euphorbiaceae, Fagaceae, Gesneriaceae, Nepenthaceae, Polygalaceae, Rosaceae, Sapotaceae, Symplocaceae, Pandaceae, Phyllanthaceae, Putranjivaceae and Chrysobalanaceae. Among them are 40 species that are endemic to Sumatra. The program is our first step to improve research and education for species on Sumatra.



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DATA PUBLISHING



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PUBLISHER | SINCE NOVEMBER 9, 2018

Herbarium of Andalas University

ABOUT

METRICS

13,568 OCCURRENCES

1 DATASET

Description: Herbarium of Andalas University is a national herbarium in Indonesia, administered under the management of Andalas University, Padang, West Sumatra, Indonesia and registered in Index Herbariorum with the abbreviation ANDA. Herbarium ANDA has become the center of plant information for Sumatran species that used by local and national government agencies and researchers from several countries. It comprises about 65,000 sheets of dry collection of plant specimens that collected mostly from Sumatran floristic area. More than 12,000 sheets herbarium specimen were digitized by the collaboration with GBIF on Biodiversity Information Fund for Asia (BIFA3-17 2018). The data arranged using the Darwin Core format.



Endorsed by: [Indonesian Biodiversity Information Facility](#)

Technical contact: [Ahmad Taufiq](#)

Country or area: [Indonesia](#)

+

-



DATA PUBLISHING

OCCURRENCE DATASET | REGISTERED MARCH 4, 2019

Flora of Sumatra: Vascular plant collection of selected families deposited at Herbarium of Andalas University (ANDA)

Published by [Herbarium of Andalas University](#)

✉ Nurainas Nurainas • Ahmad Taufiq • Heru Handika • Syamsuardi Syamsuardi

DATASET PROJECT METRICS ACTIVITY [DOWNLOAD](#) [HOME PAGE](#)

13,568 OCCURRENCES

Herbarium of Andalas University (ANDA) is one of the active herbaria on Sumatra, Indonesia. Currently, the herbarium hosts about 65,000 sheets of herbarium collections, consisting of vascular plants and moss. The main collections are from Sumatra and adjacent islands. The herbarium serves both for research and education. Since 2018, we worked with the Global Biodiversity Information Facility (GBIF) to catalog and digitize our collections to improve the accessibility of the specimens. Since then,...

[More](#)



Project ID: BIFA3_17

Metadata last modified: April 30, 2019

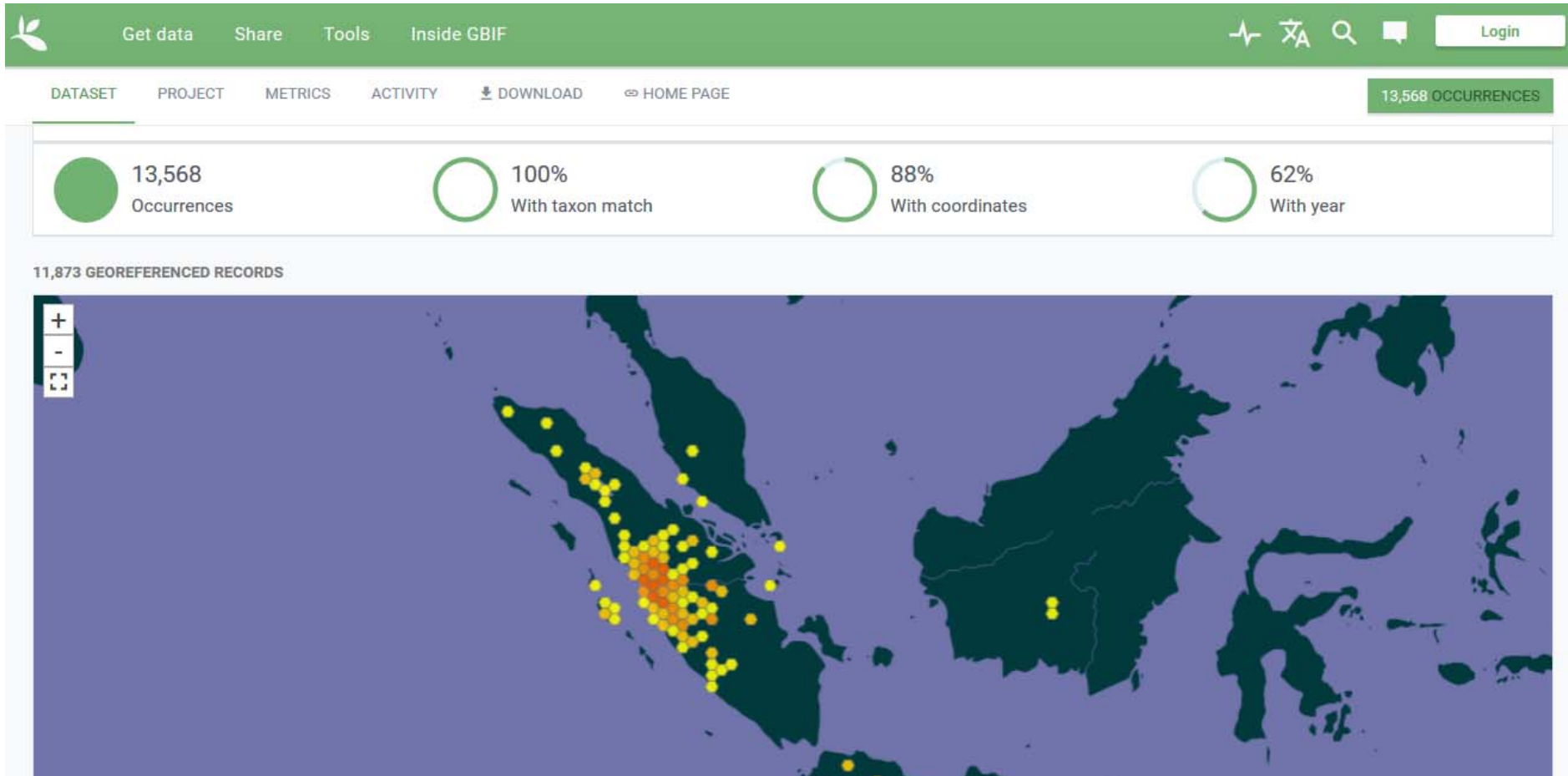
Data last changed: April 8, 2019

Hosted by: [Research Center For Biology - Indonesian Institute of Sciences \(LIPI\)](#)

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[How to cite](#) [DOI](#) 10.15468/sncpxn

DATA PUBLISHING



DATA PUBLISHING

The screenshot displays the GBIF Occurrences interface. At the top, a green navigation bar contains the GBIF logo, 'Get data', 'Share', 'Tools', 'Inside GBIF', and a 'Login' button. Below this, a green header for the 'Occurrences' page includes a back arrow, the title 'Occurrences', and a notification icon with the number '1'. A search bar labeled 'Search all fields' is positioned above a filter sidebar. The sidebar contains a 'Simple' (selected) and 'Advanced' search mode toggle, and several filter categories: License, Scientific name, Basis of record, Location, Year, Month, Dataset, and Country or area. The 'Dataset' filter is expanded, showing a checked box for 'Flora of Sumatra: Vascular plant collection of selected families deposited at Herbarium of Andalas University (ANDA)'. The URL 'https://www.gbif.org/occurrence/2006002965' is visible at the bottom of the sidebar. The main content area is a grid of 15 plant specimen images, each with a scientific name label below it:

- Didymocarpus Wall.
- Begonia aberrans Irmsch.
- Begonia harauensis Girm.
- Begonia droopiae Ardl.
- Begonia vuijckii Koord
- Begonia padangensis Irmsch.
- Monophylea horsfieldii
- Begonia section
- Begonia beludruvenea M.Hughes
- Begonia aberrans Irmsch.
- Begonia vuijckii Koord
- Cyrtandra populifolia Miq.
- Begonia gracilicyma Irmsch. ex M.Hughes
- Begonia droopiae Ardl.
- Mallotus peltatus Müll.Arg.

DATA PUBLISHING

Description

Purpose

Temporal scope

Geographic scope

Taxonomic scope

Methodology

Additional info

Bibliography

Contacts

Data description

GBIF registration

Citation

Family

[Balsaminaceae](#) Jewelweed

[Begoniaceae](#) Begonia

[Chrysobalanaceae](#) Maranthes

[Dipterocarpaceae](#) Keruing

[Euphorbiaceae](#) Cooper leaf

[Fagaceae](#) Oak

[Gesneriaceae](#) Mapele

[Nepenthaceae](#) Pitcher plant

[Pandaceae](#) Kayu busih

[Phyllanthaceae](#) Andarupis

[Polygalaceae](#) Sasapuan

[Putranjivaceae](#) Bintang mabas

[Rosaceae](#) Rose

[Sapotaceae](#) Manatu

[Symplocaceae](#) Asiatic sweetleaf

Genus

[Acalypha](#) Cooper leaf

[Agrostistachys](#) Gelimum

[Alchornea](#) Khang poi

[Aleurites](#) Bunsangil

[Anisoptera](#) Keruing

[Antidesma](#) Buah jerawai

[Aporosa](#) Kumpang

[Baccaurea](#) Belebik

[Baliospermum](#) Neruvam

[Begonia](#) Begonia

[Bischofia](#) Java cedar

[Breynia](#) Fart bush

[Bridelia](#) Kanidei

[Epithema](#) Fleshy epthema

[Eriobotrya](#) Berry

[Euphorbia](#) Fire plant

[Flueggea](#) Patala

[Galearia](#)

[Ganua](#) Ganua

[Glochidion](#) Sakah-sakah

[Hancea](#) Enserai

[Henckelia](#) Bracted stone flower

[Hevea](#) Rubber

[Homalanthus](#) Bangki

[Homonoia](#) Willow leaved water croton

[Hopea](#) Merawan

[Hura](#) Sandbox tree

[Nepenthes](#) Pitcher

[Palaquium](#) Nato nasi

[Paraboea](#)

[Parashorea](#) White meranti

[Payena](#) Bee taul

[Phyllanthus](#) Meniran

[Planchonella](#) Nyatoh nangka merah

[Pleionuma](#)

[Polygala](#) Sasapuan

[Prunus](#) Janteli

[Quercus](#) Oak

[Rhaphiolepis](#) Snow maiden

[Rhynchoglossum](#) Malayalam

[Rhynchotechum](#) Assamese

https://www.gbif.org/occurrence/search?q=Acalypha&dataset_key=3e0987c4-375f-4d68-b2ac-5e4e3a6d3d6d&advanced=1

DATA PUBLISHING

The screenshot shows the GBIF Publishers interface. At the top, there is a green navigation bar with a leaf icon, 'Get data', 'Share', 'Tools', 'Inside GBIF', and utility icons (home, language, search, chat, login). Below this is a green sidebar with 'Publishers' and a search bar. The main content area is filtered by 'Country or area' to 'Indonesia'. Three publisher cards are visible:

- Indonesia** (filter)
- Herbarium of Andalas University**
 - Joined 8 months ago
 - Herbarium of Andalas University is a national herbarium in Indonesia, administered under the management of Andalas University, Padang, West Sumatra, Indonesia and registered in Index Herbariorum with ...
 - 1 dataset Indonesia
- Tambora Muda Indonesia**
 - Joined 9 months ago
 - Tambora Muda Indonesia is a network of Indonesian young conservationists. We seek to increase the participation from Indonesian conservationists to increase the quality of conservation practices in In...
 - 1 dataset Indonesia
- Research Center For Biology - Indonesian Institute of Sciences (LIPI)**
 - Joined 6 years ago
 - 1 dataset Indonesia

DATA PUBLISHING

A CATALOGUE OF SUMATRAN PLANTS
STORED IN HERBARIUM ANDA



Impatiens ekapaksiana Utami.

Nurainas, Ahmad Taufiq, Heru Handika, Syamsuardi



ANDALAS UNIVERSITY

Jalan Universitas Andalas, Limau Manis, Pauh, Limau Manis, Pauh, Kota Padang, Sumatera Barat 25163
Phone: (0751) 71181 Website: <https://unand.ac.id/id/>

DATA PUBLISHING

239

Flora of Sumatra: Vascular plant collection of selected families deposited in Herbarium of Andalas University (ANDA)

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ABSTRACT
 Herbarium of Andalas University (ANDA) is one of the active herbaria on Sumatra, Indonesia. Currently, the herbarium hosts about 80 years sheets of herbarium collections, consisting of vascular plants and moss. The main collections are from Sumatra and adjacent islands. The herbarium serves both for research and education. Since 2018, we worked with the Global Biodiversity Information Facility (GBIF) to catalog and digitize our collections to improve the accessibility of the specimens. Since then, we have cataloged up to 13,367 of your-referenced data from 374 species in 23 genera within 13 families of vascular plants. Among all of the families we have cataloged are Rubiaceae, Burseraceae, Dipterocarpaceae, Euphorbiaceae, Tapacaceae, Gramineae, Nepentaceae, Polypodiaceae, Burseraceae, Sapotaceae, Symplocaceae, Pandanaceae, Phyllanthaceae, Passifloraceae and Chrysobalanaceae. Among them are 421 species that are endemic to Sumatra. The program is our first step to improve research and education for species on Sumatra.

INTRODUCTION
 Herbarium of Andalas University (ANDA) hosts holotype and isotype specimens, consisting of 421 sheets of specimens in 11 species. There are seven species of holotype specimens: *Nepenthes spicata*, *N. crinita*, and *N. pinguicula*; *N. siaga*, *N. rigidifolia*, *N. longiloba*, and *N. jordanii*. For the isotype specimens, the herbarium also hosts seven of them: *Nepenthes javanica*, *N. pinnatifida*, *N. obscura*, *N. rigidifolia*, *N. pinguicula*, *N. longiloba*, and *N. jordanii*.
 The aim of this project is to digitize the specimens housed at the Herbarium ANDA, to publish a checklist of the flora of Sumatra, and to promote the database of Sumatran plant diversity.

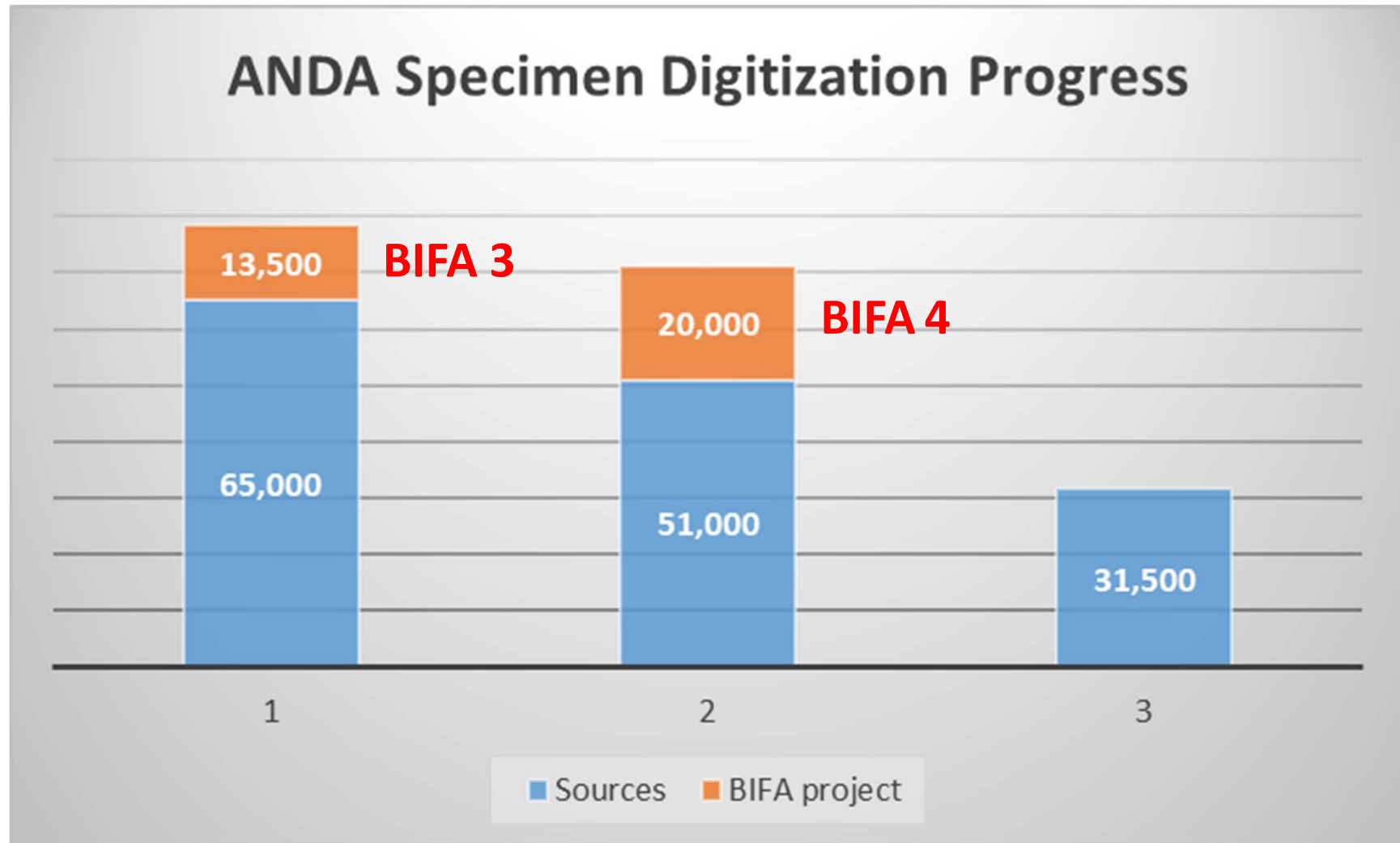
TAXONOMIC SCOPE
 The specimens housed at the Herbarium of Andalas University (ANDA) are primarily from Sumatra. With 421,461 km² in area, the island is the sixth largest island in the world. It is tropical island located at the coordinates 7° of 0' N, and 101° of 0' E. The specimens housed at the herbarium were from several provinces, such as West Sumatra, Jambi, Riau, North Sumatra, Aceh, Bengkulu and Lampung. In addition, the herbarium also hosts several specimens from West Java, Selangor Malaysia, and Kagoshima Prefecture Japan. All of these specimens were obtained by foreign plant collectors during the herbarium.
 The specimens were also collected from conservation areas on Sumatra, such as the Kerinci Seblat National Park, Siburan National Park, Lestari Hutan Nelayan Reserve, Bukit Punt Naturo Reserve, Lestari Biogeny Nature Reserve, Bukit Barisan Forest Park Conservation Area, and Sempit Harau Forest Park Conservation Area. All of the collections were collected from wide range of altitudinal elevations and habitats from lowland tropical forest up to highland forest as well as montane forest on the Bukit Barisan Mountains. In general, the collections were from volcanoes on Sumatra, such as Mt. Sibayak, Mt. Sumbing, Mt. Suro, Mt. Merapi, Mt. Pangalihan, Mt. Sibayak, Mt. Talang, Mt. Sopo, Mt. Merapi, Mt. Sumbing, Mt. Tondoh, Mt. Gajah, Mt. Talang, Mt. Tajo, Mt. Kerinci, Mt. Pongor.

Number of Specimens

Types of *Nepenthes pinguicula* - Critically Endangered *Nepenthes pinguicula*

ACKNOWLEDGMENTS We wish to thank the GBIF for financing the mobilization of data to Global Biodiversity Information Facility (GBIF) through the Global Biodiversity Information Facility (GBIF) Global Data Portal. We also thank the Department of Biology, Andalas University (ANDA) for providing the facilities and equipment for this project. We also thank the GBIF (Global Biodiversity Information Facility) for providing the GBIF Global Biodiversity Information Facility (GBIF) Global Data Portal. We also thank the GBIF (Global Biodiversity Information Facility) for providing the GBIF Global Biodiversity Information Facility (GBIF) Global Data Portal. We also thank the GBIF (Global Biodiversity Information Facility) for providing the GBIF Global Biodiversity Information Facility (GBIF) Global Data Portal.

DATA SOURCES



PROJECT TIMELINE

Activity	2019								2020			
	M	J	J	A	S	O	N	D	J	F	M	A
Preparation and national stakeholders meeting	X											
Open recruitment for volunteers		X										
Mandatory attendance of a project team member to the BIFA Capacity Enhancement Workshop (expenses for attending the workshop are covered by the BIFA program)			X									
Workshop for volunteers			X									
Capturing specimen images		X	X	X	X							
Capturing specimen data			X	X	X							
Data cleaning					X	X						
Data publishing						X	X					
Deadline for mid-term report – 31 October 2019						X						
Mandatory milestones attached to the mid-term report:												
- Gain certification at BIFA Capacity Enhancement Workshop												
- At least one dataset has been published to GBIF.org												
Creating an offline database							X	X	X			
Writing data papers										X	X	
Deadline for final reporting – 30 April 2020												X
Mandatory milestones attached to the final report:												
- All deliverables have been produced												
- Sustainability and next steps have been documented												

PROJECT SUSTAINABILITY

We will continue the activities after the project end, with the specific plans:

1. to continue the data digitization for the remaining specimens using our independent funds,
2. to adapt the specimen data management and digitization as a part of materials for a class on “the Plant Specimens and Collection Management” that has been a part of the department curriculum,
3. to strengthen a collaboration with InaBIF as the main partner on Sumatra,
4. to work together with InaBIF to promote Indonesian species database,
5. to increase communication and collaborations with experts on designated taxa to verify species identification

TERIMAKASIH..
THANK YOU..

