

Consortium of Midwest Herbaria Portal Campaign

Office Hours - April 13, 2023



iDigBio
Integrated Digitized Biocollections



Introductions

Agenda

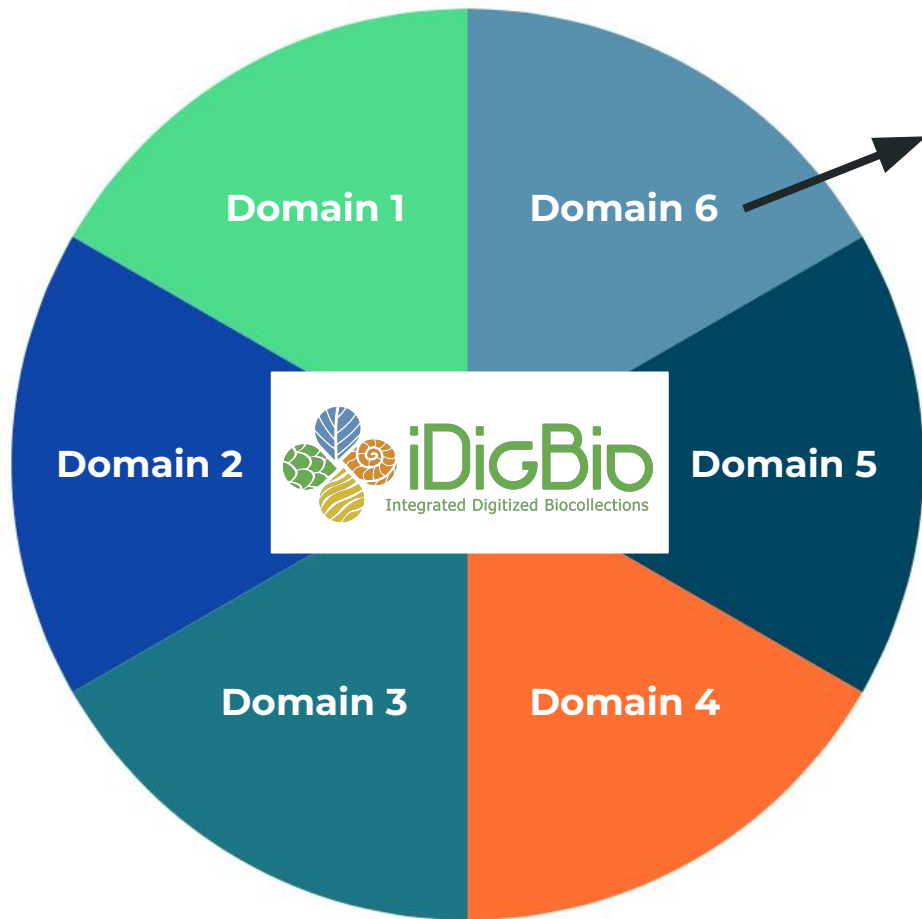
1. Refresher: what/who are **iDigBio** and the **Symbiota Support Hub**?
2. Portal Advancement Campaign: goals and schedule
3. Portal history, stats, and activity
4. Resources and services available
5. Portal housekeeping
6. Your needs and wants
7. Next week prep

Questions and comments welcome!
(use chat and/or raise your Zoom hand)

Who are iDigBio & the Symbiota Support Hub?



- National Resource for Advancing Digitization of Biodiversity Collections (ADBC) funded by the National Science Foundation
- 1st NSF grant 2011-2016, 2nd grant 2016-2022, **3rd grant 2022-2027 (sustaining)**



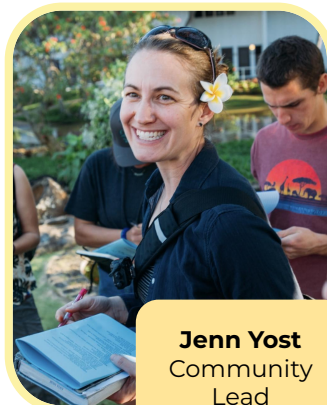
Symbiota Support Hub (SSH) Mission



- **Help Desk support** for portal data access, publication, sharing, and management.
- Scalable development, management, and dissemination of **documentation** for all categories of Symbiota users.
- Hosting **webinars, trainings, and workshops** to improve community capacity.
- Implementation of a **sustainable business plan** for Symbiota portal communities.

help@symbiota.org

Symbiota Support Hub Team



Jenn Yost
Community
Lead

Katie Pearson
Project & Data
Manager



Greg Post
IT & System
Administrator

Samanta Orellana
Community Coordinator
for Latin America



Laura Prado
Biodiversity
Informatician



Lindsay Walker
Community
Manager



Nico Franz
Management @ ASU



Ed Gilbert
IT Management
Lead



Mark Fisher
Developer

SSH is here to **support**
existing communities
and managers, not
replace them.



Agenda

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Portal Advancement Campaign: Goals

- **Improve data quality, accessibility, and mobilization**
 - Ensure metadata is up to date
 - Provide data cleaning services
 - Discuss duplicate georeferencing harvesting protocols

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- **Build capacity in portal community**
 - Training and improved documentation
 - Troubleshooting to overcome current roadblocks
 - Incorporation of data from collections not currently in the portal

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- Build capacity in portal community
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 - Troubleshooting to overcome current roadblocks
 - Incorporation of data from collections not currently in the portal
- **Discuss next steps**
 - Identify and incorporate portal improvements or desired modules
 - Identify current needs and potential avenues for future support from iDigBio and/or SSH

Portal Advancement Campaign: Schedule

- **April 13:** CMH & SSH intros, existing needs and resources
 - Intro to the campaign
 - Your feedback and needs
 - General housekeeping
- **April 20:** Data quality issues and data cleaning
 - Demo data cleaning tools
 - Questions about batch cleaning options and Darwin Core alignment
- **April 27:** Data mobilization – from collectors to Symbiota to GBIF
 - Data entry in the portal for collectors
 - Why and how to publish to GBIF
- **May 4:** Campaign summary, new portal tools, and improvements
 - What tools exist in other portals that CMH would like in theirs?
 - Wish list: tally of tools that could be developed by future grants

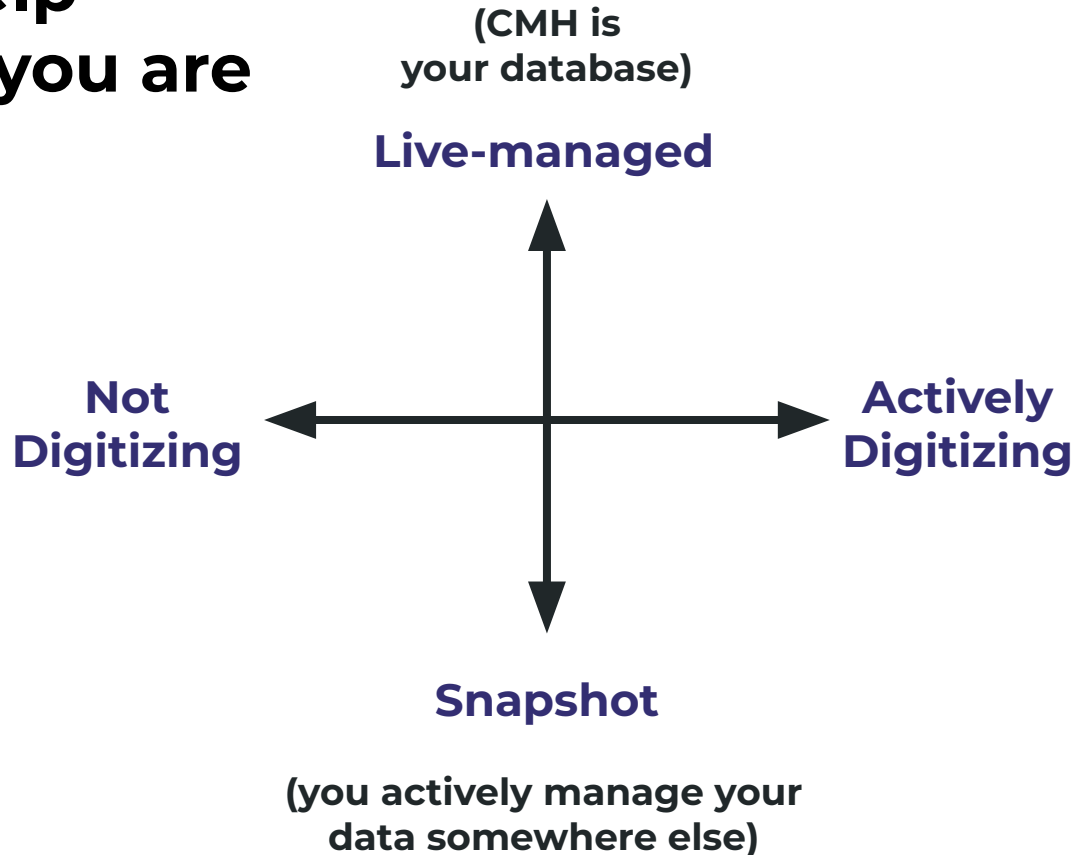


All at
4:00
PM CT

What we need from you:

- Ideas
 - Feedback
 - Interact with us as much as possible
 - Take a look at your collection and give it a little extra attention this month
 - Let us know how we can help
 - Respond to our emails with questions
-

We can help wherever you are



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- Part of the SEINet Network (data from 400+ herbaria)

Consortium of Midwest Herbaria



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- Launched as part of a 5-year digitization project by the Indiana University Bloomington Herbarium (IND), completed in 2019

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- Led the development of the **identification key** tools in 2021



[Home](#) >> [Checklist: Ecoregion: NW Morainal](#) >> [Previous version of Key](#) >> **Identification Key (new version): Ecoregion: NW Morainal**

[Ecoregion: NW Morainal](#)

Paul E Rothrock

Species Count: 1882

Acoraceae

[Acorus americanus](#)

[Acorus calamus](#)

Alismataceae

[Alisma subcordatum](#)

[Alisma triviale](#)

[Sagittaria brevirostra](#)

[Sagittaria cuneata](#)

[Sagittaria graminea](#)

[Sagittaria latifolia](#)

[Sagittaria rigida](#)

Amaranthaceae

[Amaranthus albus](#)

[Amaranthus blitoides](#)

Filter/Display Options

Family/Genus Filter:

Reset

All Species

Sort by: Family/Scientific Name

- Display Common Names
- Display images:

Plant

habit

- trees
- shrubs
- vines / lianas
- herbaceous
- ferns & allies
- grass-like
- cactus-like / succulents
- aquatic & OBL wetland species

special groups

- arums
- composites



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- Launched as part of a 5-year digitization project by the Indiana University Bloomington Herbarium (IND), completed in 2019
- Led the development of the **identification key** tools in 2021
- Involved Indiana public in a “Photographic Scavenger Hunt” during COVID lockdowns

plant names

Liriodendron tulipifera L.

Go To Encyclopedia of Life...

Family: Magnoliaceae

Tuliptree, more...

Indiana Flora

Gleason & Cronquist

Web Links



Paul Rothrock

primary photo

From Flora of Indiana (1940) by Charles C. Deam

This is an infrequent to frequent or common tree throughout the state although it may be absent or very local in a few of the northwestern counties. It grows in almost all kinds of soil but prefers a dry, rather sandy one where it is often a common tree in some of the southern counties. In the hilly counties it is usually found toward the bases of slopes and is almost invariably associated with beech and sugar maple, although there are exceptions where it grows with white oak, black gum, and others.

.....

Indiana Coefficient of Conservatism: C = 4

Wetland Indicator Status: FACU

species info

link to map



Leslie Landrum



David Deak

leaf ... bark ... fruit



Open Interactive Map



- 49 collections
 - 35 live-managed
 - 14 snapshots
- 2,979,135 occurrences
 - 2,129,318 (71%) total images
 - 957,743 (32%) georeferenced
 - 36,728 type specimens

(Stats as of April 2023)

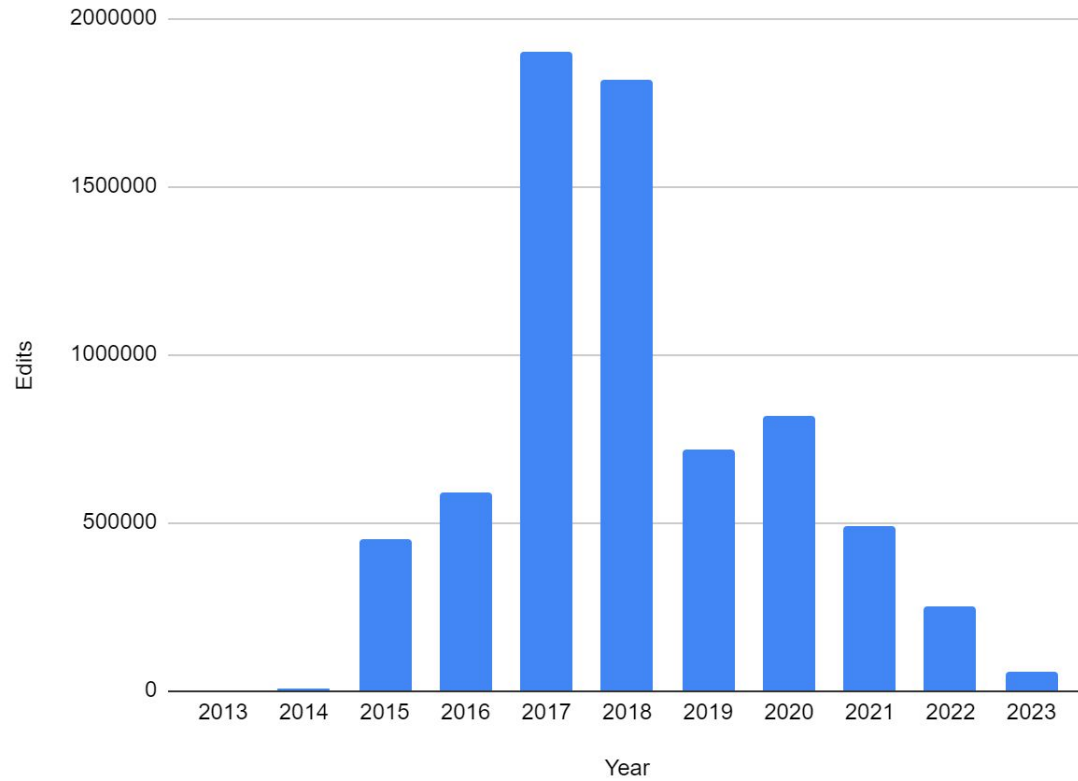
59%
(29 coll.)
**publishing
to iDigBio**

22%
(11 coll.)
**publishing
to GBIF**

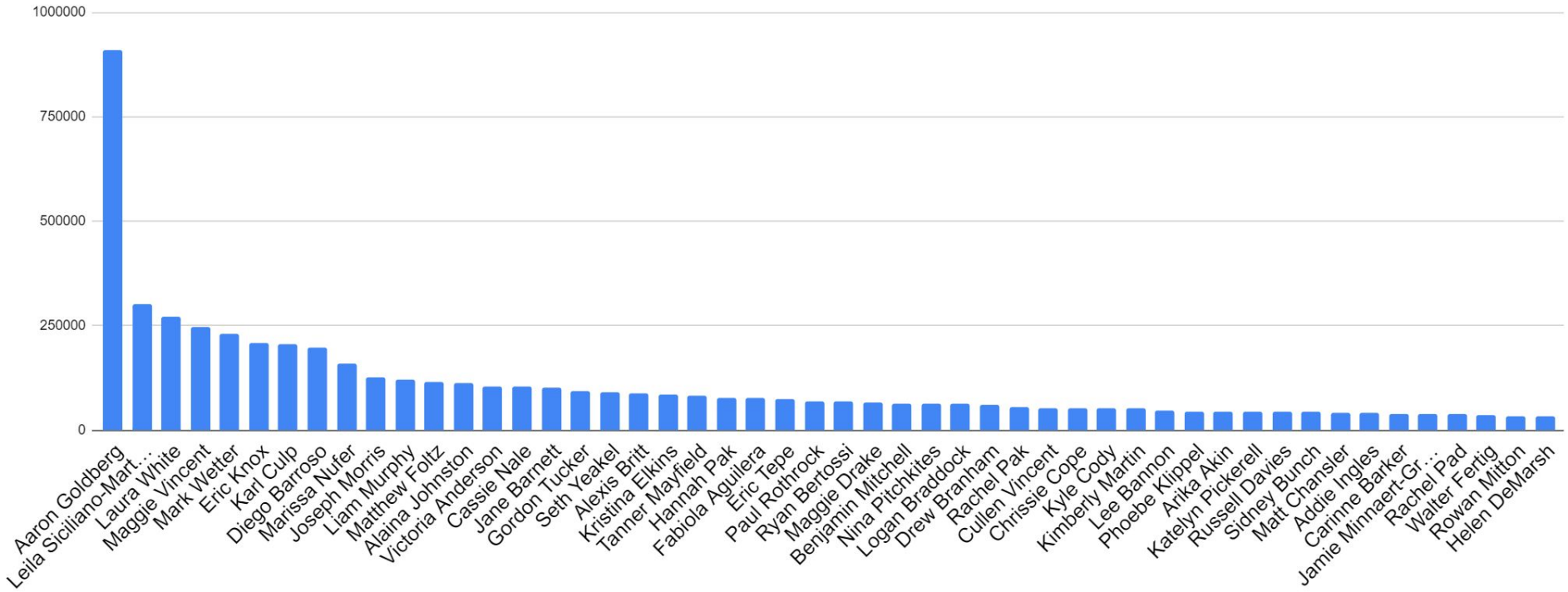
Current Contributors

- Western Illinois University, R. M. Myers Herbarium
- Eastern Illinois University, Stover-Ebinger Herbarium
- University of Minnesota Herbarium
- Butler University, Friesner Herbarium
- Northern Illinois University Herbarium
- Morton Arboretum
- Chicago Botanic Garden
- Field Museum of Natural History
- Central Michigan University Herbarium
- University of Wisconsin-Madison, Wisconsin State Herbarium
- Grand Valley State University
- Hope College
- Albion College
- Calvin College
- Seney National Wildlife Refuge
- University of Michigan Herbarium
- Hillsdale College Herbarium
- University of Wisconsin-Stevens Point, Robert W. Freckmann Herbarium
- University of Wisconsin-Milwaukee
- Illinois Natural History Survey
- University of Notre Dame, Greene/Nieuwland Herbarium
- Michigan State University
- Miami University, Willard Sherman Turrell Herbarium
- Ohio State University Herbarium
- Ohio University, Bartley Herbarium
- University of Wisconsin-LaCrosse
- Eastern Michigan University Herbarium
- University of Illinois Herbarium
- Western Michigan University
- Indiana University Herbarium, Deam Herbarium
- University of Cincinnati, Margaret H. Fulford Herbarium - Vascular Plants
- Huntington University Herbarium
- Kent State University Herbarium
- Indiana University Southeast Herbarium
- Augustana College
- University of Wisconsin - Green Bay
- Northland College
- Amway Herbarium
- University of Wisconsin Oshkosh
- Loyola University Chicago Herbarium
- University of Wisconsin - Eau Claire Herbarium
- Muskegon Community College Herbarium, Michigan
- Chicago Academy of Sciences, Botany Collection
- Cincinnati Museum Center, Cincinnati Museum of Natural History
- Valparaiso University Herbarium
- University of Wisconsin - Whitewater Herbarium

Edits Over Time



Top 50 Editors



Potential contributors?

- Adrian College
- Alma College
- Aquinas College
- Cranbrook Institute of Science
- Ball State University
- Concordia College
- Cleveland Museum of Natural History
- Lake Forest College
- University of Wisconsin FDL
- Grinnell College
- Grand Rapids Junior College
- Houghton Lake Wildlife Research Station
- Kellogg Biological Station, Michigan State University
- Minnesota State University, Mankato
- Missouri Southern State College
- Division of State Parks, Missouri Department of Natural Resources
- Muskingum College

Suggestions welcome:
bit.ly/new-portal-contributors

- Missouri Western State University
- Truman State University
- Northern Michigan University
- Northwest Missouri State University
- Olivet College
- University of Wisconsin, River Falls
- St. Cloud State University
- Southeast Missouri State University
- Simpson College
- Southern Illinois University
- Missouri State University
- Saint Norbert College
- College of the Ozarks
- University of Wisconsin-Superior
- Indiana State University
- University of Central Missouri
- Wayne State University

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symbiota.org/docs

Symbiota Documentation

Growing archive of help files for one of the most popular Natural History content management systems

Quick search for terms here. Press enter to go to results page.



Browse articles by subject



User Guide

Learn to access, view, and download data and checklists.



Editor Guide

Learn to edit, manage, import, and export data in Symbiota portals



Collection Manager Guide

Learn to clean data, edit permissions, upload data, and perform other administrator functions.

YouTube Channel

bit.ly/
symbiota-recordings

The screenshot shows the YouTube channel page for Symbiota. At the top left is the Symbiota logo and name, with 46 subscribers. Navigation tabs include HOME, VIDEOS, PLAYLISTS, CHANNELS, and ABOUT. Two buttons, 'CUSTOMIZE CHANNEL' and 'MANAGE VIDEOS', are on the right. The 'Uploads' section is active, showing a 'PLAY ALL' button and a list of five videos. Each video entry includes a thumbnail, title, view count, and upload date.

Symbiota
46 subscribers

CUSTOMIZE CHANNEL MANAGE VIDEOS

HOME VIDEOS PLAYLISTS CHANNELS ABOUT

Uploads ▶ PLAY ALL

| Video Title | Duration | Views | Upload Date | License |
|---|----------|----------|-------------|---------|
| CCH2 Lunch Break: Linked Resources Tab | 22:37 | 1 view | 1 day ago | |
| Importing/ Copying Records into a Symbiota Collection | 2:58 | 14 views | 3 weeks ago | |
| Taxonomic Cleaning Tool in a Symbiota Portal | 6:52 | 13 views | 3 weeks ago | CC |
| Data Editor and Administration Control Panels in Symbiota | 6:42 | 17 views | 3 weeks ago | CC |
| Uploading Text Files to a Symbiota Portal | 16:23 | 6 views | 4 weeks ago | CC |

Any materials
you'd like to
add?

Let us know!

Campaign Docs

[symbiota.org/
portal-advancement-campaigns/
midwest-portal-campaign](https://symbiota.org/portal-advancement-campaigns/midwest-portal-campaign)

Midwest Herbaria Portal Campaign

Consortium of
Midwest
Herbaria



In April 2023, the [Consortium of Midwest Herbaria](#) will collaborate with the Symbiota Support Hub to grow and advance their portal community.

[REGISTER HERE](#)

Campaign Documents

Symbiota Discussions

github.com/BioKIC/
symbiota-docs/discussions

BioKIC / symbiota-docs Public

Unwatch 6 Star 0 Fork 0

<> Code Issues 12 Pull requests Discussions Actions Projects 2 Wiki Security Insights Settings

General
Welcome to symbiota-docs Discussions!
arbolitoloco

Announcements
We are the Symbiota Support Hub
themerekat

Search all discussions

New Top: All Answered Unanswered Label

New discussion

Categories

- View all
- Announcements
- Funding
- General
- Q&A

↑ 0 Add catalog number to label printing tools
themerekat started 5 days ago in Wish List

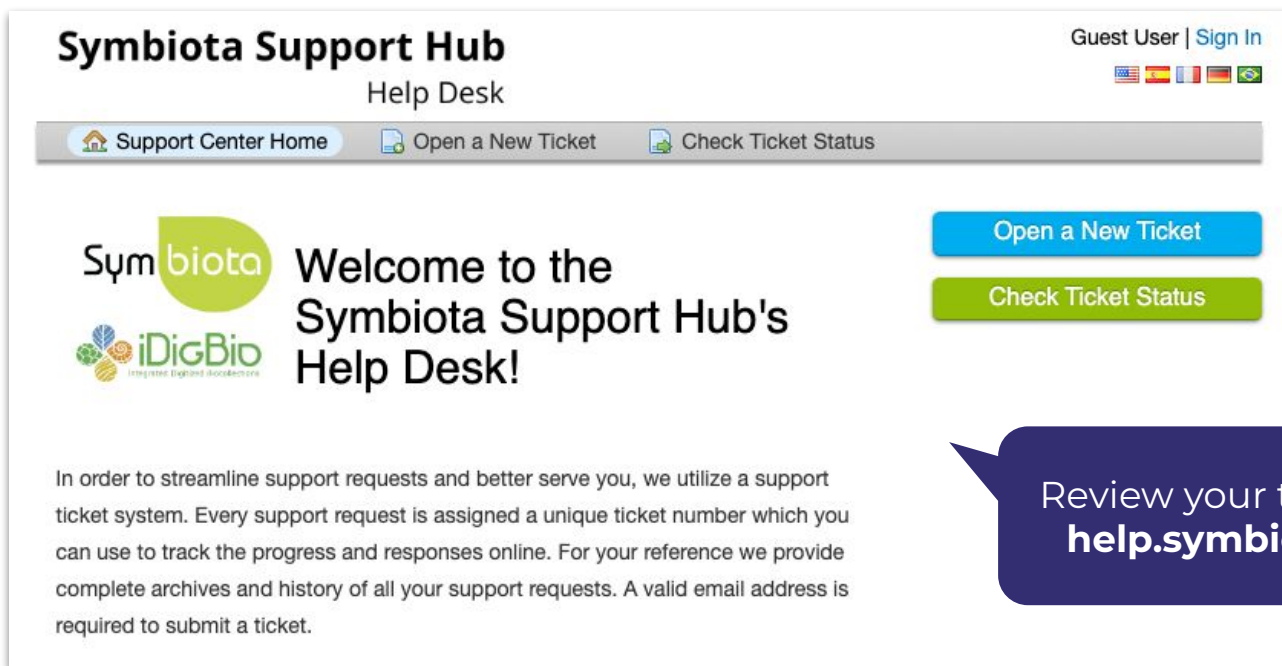
↑ 1 We are the Symbiota Support Hub
themerekat announced 5 days ago in Announcements

↑ 1 Welcome to symbiota-docs Discussions!
arbolitoloco started on Mar 15 in General

Discussions tutorial:
symbiota.org/symbiota-discussions

Help Desk Support

- Contact the Symbiota Support Hub at help@symbiota.org



The screenshot shows the Symbiota Support Hub Help Desk interface. At the top left, it says "Symbiota Support Hub" and "Help Desk". On the top right, it says "Guest User | Sign In" with flags for USA, Spain, France, Germany, and Brazil. Below this is a navigation bar with three buttons: "Support Center Home", "Open a New Ticket", and "Check Ticket Status". The main content area features the Symbiota logo (a green circle with "Symbiota" text) and the iDigBio logo (a colorful circular logo with "iDigBio" text and "Integrated Digital Biodiversity" tagline). To the right of the logos is the text "Welcome to the Symbiota Support Hub's Help Desk!". Below the logos and text are two buttons: "Open a New Ticket" (blue) and "Check Ticket Status" (green). At the bottom left, there is a paragraph of text explaining the support ticket system. At the bottom right, there is a dark blue speech bubble containing the text "Review your tickets at help.symbiota.org".

Symbiota Support Hub
Help Desk

Guest User | [Sign In](#)

[Support Center Home](#) [Open a New Ticket](#) [Check Ticket Status](#)

Symbiota
Welcome to the Symbiota Support Hub's Help Desk!

iDigBio
Integrated Digital Biodiversity

[Open a New Ticket](#)

[Check Ticket Status](#)

In order to streamline support requests and better serve you, we utilize a support ticket system. Every support request is assigned a unique ticket number which you can use to track the progress and responses online. For your reference we provide complete archives and history of all your support requests. A valid email address is required to submit a ticket.

Review your tickets at help.symbiota.org

Help Desk Support

- Contact the Symbiota Support Hub at help@symbiota.org
- The Symbiota Support Hub can help with backend tasks.

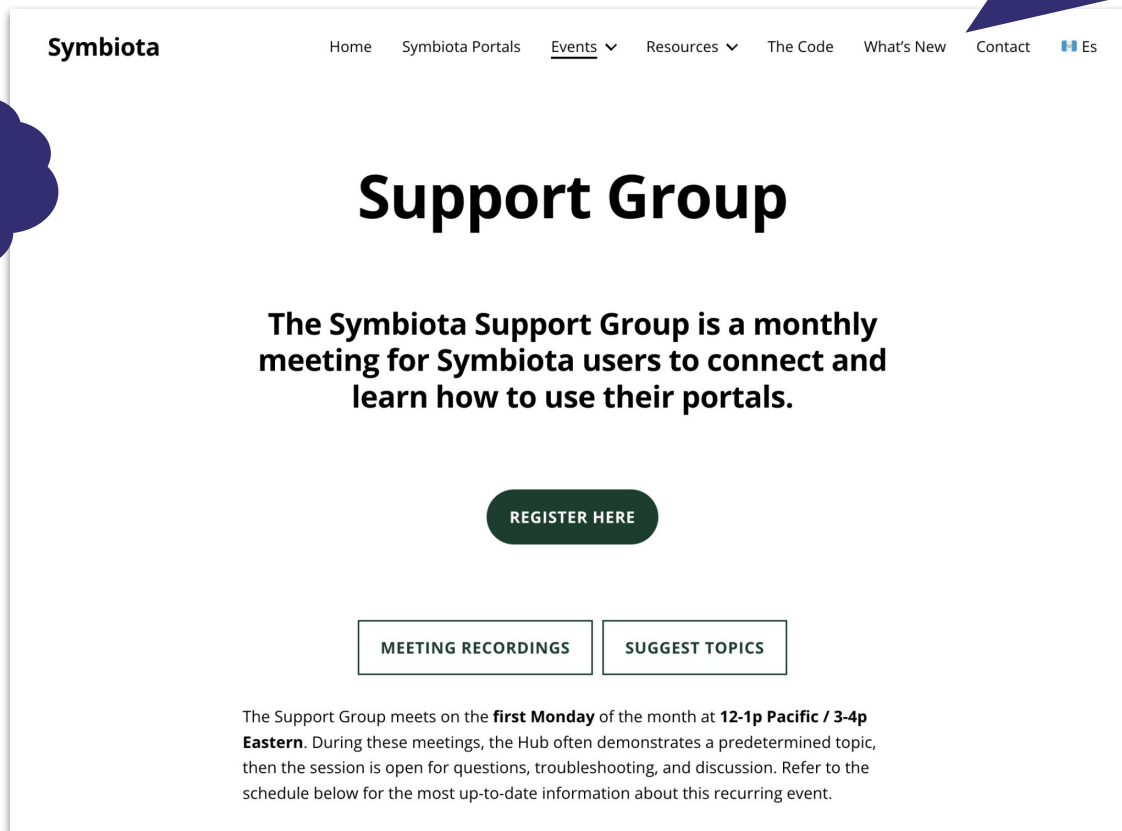


Quick links to all resources are on our website:
symbiota.org/help-resources

Monthly Support Meetings

[symbiota.org/
symbiota-support-group](https://symbiota.org/symbiota-support-group)

1st
Mondays



The screenshot shows the Symbiota website's "Support Group" page. At the top, there is a navigation bar with links for Home, Symbiota Portals, Events (with a dropdown arrow), Resources (with a dropdown arrow), The Code, What's New, Contact, and a language selector (Es). The main heading is "Support Group". Below it, a paragraph states: "The Symbiota Support Group is a monthly meeting for Symbiota users to connect and learn how to use their portals." A prominent dark green button labeled "REGISTER HERE" is centered below the text. Underneath, there are two white buttons with black borders: "MEETING RECORDINGS" and "SUGGEST TOPICS". At the bottom, a paragraph provides details: "The Support Group meets on the **first Monday** of the month at **12-1p Pacific / 3-4p Eastern**. During these meetings, the Hub often demonstrates a predetermined topic, then the session is open for questions, troubleshooting, and discussion. Refer to the schedule below for the most up-to-date information about this recurring event."

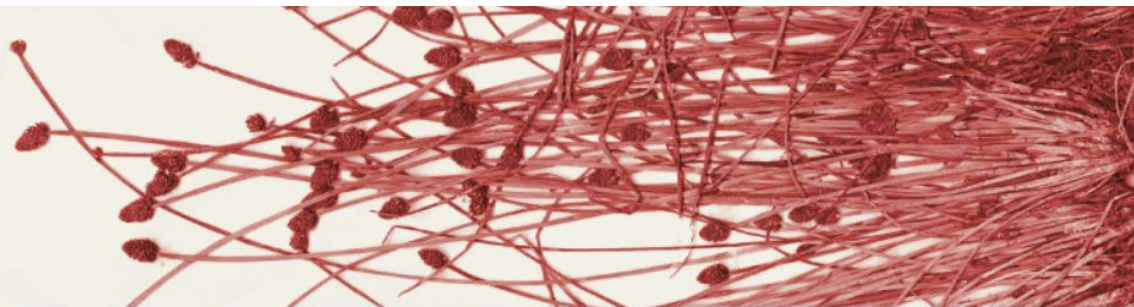
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Portal Housekeeping

- Are you able to **log in** to your account?

Consortium of
Midwest
Herbaria



[Home](#) [Specimen Search](#) [Images](#) [Flora Projects](#) [Interactive Tools](#) [Crowdsource](#)

[Log In](#) [New Account](#) [Sitemap](#)

Welcome to the Consortium of Midwest Herbaria

Search Taxon



Portal Housekeeping

- Are you able to log in to your account?
- Is the **contact information** for your account up to date?

Arizona State University Vascular Plant Herbarium (ASU-Plants)

The Arizona State University Vascular Plant Herbarium is the second largest in the Arid Southwest with over 310,000 specimens. Our collection of Cactaceae is one of the best in the world, being particularly rich in cytological vouchers. ASU Type Specimens: <http://swbiodiversity.org/seinet/checklists/checklist.php?cl=2638>

Contacts: Elizabeth Makings, Elizabeth.Makings@asu.edu

Homepage: <https://biokic.asu.edu/vascular-plant-herbarium>

Collection Type: Preserved Specimens

Management: Data snapshot of local collection database

Last Update: 5 May 2020

DwC-Archive Access Point: http://pteridportal.org/portal/content/dwca/ASU-Plants_DwC-A.zip

IPT / DwC-A Source: [Transfer from SWBiodiversity ASU portal](#)

Digital Metadata: [EML File](#)

Usage Rights: [CC BY-NC \(Attribution-Non-Commercial\)](#)



Portal Housekeeping

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- Are you managing your data **“live”** or as a **“snapshot”**?

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Portal Housekeeping

- Are you able to log in to your account?
- Is the contact information for your account up to date?
- Are you managing your data “live” or as a “snapshot”?
- Have you **updated your statistics** lately?

Collection Statistics

- 4,900 specimen records
- 4,710 (96%) georeferenced
- 4,342 (89%) with images (5,056 total images)
- 4,696 (96%) identified to species
- 36 families
- 115 genera
- 630 species
- 676 total taxa (including subsp. and var.)

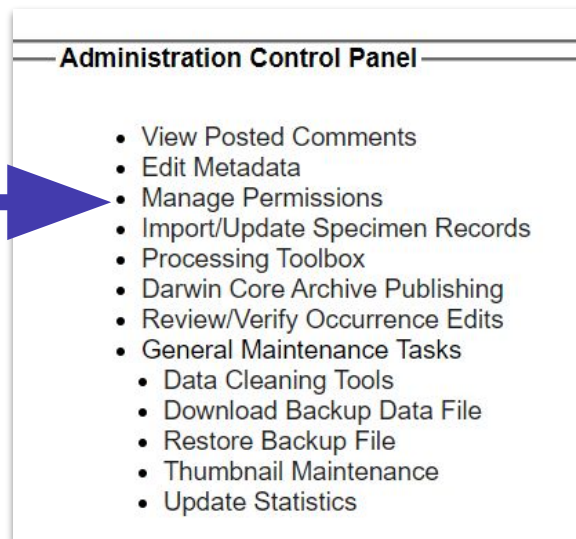
Administration Control Panel

- View Posted Comments
- Edit Metadata
- Manage Permissions
- Import/Update Specimen Records
- Processing Toolbox
- Darwin Core Archive Publishing
- Review/Verify Occurrence Edits
- General Maintenance Tasks
 - Data Cleaning Tools
 - Download Backup Data File
 - Restore Backup File
 - Thumbnail Maintenance
 - Update Statistics



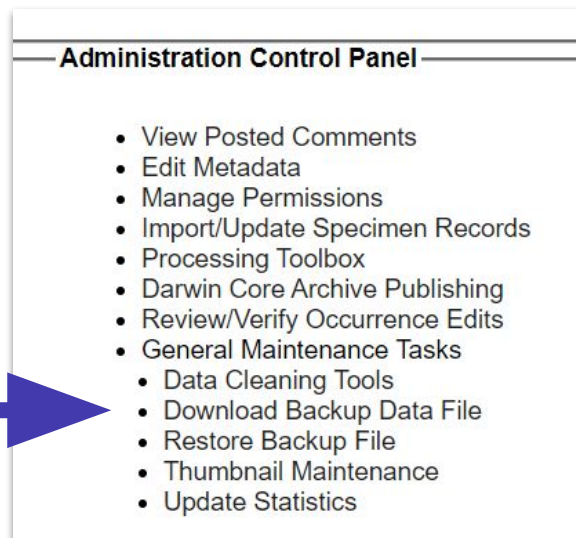
Portal Housekeeping

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- Have you updated your statistics lately?
- Are your **user permissions** up to date?



Portal Housekeeping

- Are you able to log in to your account?
- Is the contact information for your account up to date?
- Are you managing your data “live” or as a “snapshot”?
- Have you updated your statistics lately?
- Are your user permissions up to date?
- Do you know how to **backup your data**?
 - ***Set a calendar reminder!***



Portal Housekeeping

- Are you able to log in to your account?
- Is the contact information for your account up to date?
- Are you managing your data “live” or as a “snapshot” in SoRo?
- Have you updated your statistics lately?
- Are your user permissions up to date?
- Do you know how to backup your data?
- Do you have any **unreviewed comments**?



Administration Control Panel

- [View Posted Comments](#) - 119 unreviewed comments
- [Edit Metadata](#)
- [Manage Permissions](#)
- [Import/Update Specimen Records](#)
- [Processing Toolbox](#)
- [Darwin Core Archive Publishing](#)
- [Review/Verify Occurrence Edits](#)
- [Duplicate Clustering](#)
- General Maintenance Tasks
 - [Data Cleaning Tools](#)
 - [Download Backup Data File](#)
 - [Restore Backup File](#)
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Your needs and wants

- What **improvements** would you like to see in the Midwest portal?

Your needs and wants

- What improvements would you like to see in the Midwest portal?
- What **training** would you like **for you, your staff, or the public** affiliated with your portal? (e.g., crowdsourcing, georeferencing, label printing)

Your needs and wants

- What improvements would you like to see in the Midwest portal?
- What training would you like for you, your staff, or the public affiliated with your portal? (e.g., crowdsourcing, georeferencing, label printing)
- What materials or events would help **promote and advance your portal?**

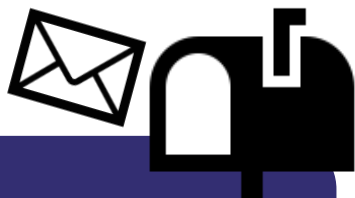
Your needs and wants

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- What materials or events would help promote and advance your portal?
- What **documentation or tutorial needs** do you have?

Your needs and wants

- What improvements would you like to see in the Midwest portal?
- What training would you like for you, your staff, or the public affiliated with your portal? (e.g., crowdsourcing, georeferencing, label printing)
- What materials or events would help promote and advance your portal?
- What documentation or tutorial needs do you have?
- What are your **current challenges and/or frustrations** with the portal and/or your data?
 - Georeferencing?
 - Publishing to GBIF?

Upcoming



Add
hub@symbiota.org
to your contacts



Dear Consortium of Midwest Herbaria,

As a reminder, the Midwest Herbaria Portal Campaign begins **this Thursday at 4 PM Central time!** We encourage you to join us to participate in important discussions about your data, your collection, and the portal. Please register to participate:

[Office Hours: Register Here](#)

At our first meeting, we will introduce the Symbiota Support Hub, show you new resources for making data management easier, discuss the current state of your portal from what we can see on the database's backend, and ask YOU about your needs and desires for the portal. We would also like to hear about what other relevant collections exist in your area, even if their collections are not fully digitized. Office Hours are also a great time to ask questions about any problems you might need help with. We invite your ideas and

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Next meeting: April 20, 4:00 PM CT

We have identified data quality issues in some collections, some of which ***we can help batch fix!***

We will email you with data quality information about your collection, along with a **form that we ask you to fill out** to give us permission (or not) to conduct specific batch cleaning steps.

Next week we will provide more information about these data cleaning steps, if desired, and demo the data cleaning tools that you can use to fix other issues.



Consortium of Midwest Herbaria Portal Campaign

April 20, 2023



iDigBio
Integrated Digitized Biocollections



Agenda

1. Data cleaning email follow-up
2. Data cleaning tools
 - a. Taxonomic Cleaning Tool
 - b. Geography Cleaning Tool
 - c. Batch editing
3. Open Q&A
4. Next week

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- 1. Data cleaning email follow-up**
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 - a. Taxonomic Cleaning Tool
 - b. Geography Cleaning Tool
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What we did

- Unmatched taxonomic names
- Unmatched geographic names
- Negated lat/longs / swapped lat/longs
- Inverted minimum and maximum elevation values
- Invalid Basis Of Record



What we did

Taxonomic names:

- Used statistics from taxonomic name cleaner

Geographic names:

- Used statistics from the geography cleaner
- You can also determine whether there are states and counties with unmatched names!

Negated lat/longs:

- Looked for negative lat/long values in a list of countries that should only have positive lat/long values (and vice versa)
- Tested out what changing the sign of these coordinates would do (ran them through a GBIF tool that checked whether they landed in the correct country).

Inverted minimum and maximum elevation values:

- Flagged any occurrences where minimum elevation > maximum elevation

Invalid Basis Of Record:

- Looked for any non-standard values in the Basis of Record field
 - explained here: <https://dwc.tdwg.org/terms/#dwc:basisOfRecord>



Agenda

1. Data cleaning email follow-up
- 2. Data cleaning tools**
 - a. Taxonomic Cleaning Tool
 - b. Geography Cleaning Tool
 - c. Batch editing
3. Open Q&A
4. Next week

Data cleaning in a Symbiota portal

https://biokic.github.io/symbiota-docs/coll_manager/data_cleaning/

Data cleaning in a Symbiota portal

- Most useful for **live-managed** collections, but the tools can help any collection identify where there are misspellings or other systemic issues.

OBI - Robert F. Hoover Herbarium, Cal Poly State University (OBI)

388 citations

The Hoover Herbarium houses 85,000+ specimens of vascular plants, algae, lichens, and bryophytes. The geographic focus is San Luis Obispo areas of California, other states of the US, particularly Arizona, and some from other regions of the world, especially Mexico. Emphasis areas collections include Robert F. Hoover (1946–1969), David J. Keil (1966–present), Rhonda Riggins (1970s–2000), Tracy Call (mostly Apiaceae—extensively in undergraduate teaching and training).

Important Collections: Robert F. Hoover (1946–1969), David J. Keil (1966–present), Rhonda Riggins (1970s–2000), Tracy Call (mostly Apiaceae)

Director and Associate Professor: Jenn Yost, jyost@calpoly.edu

Curator: Katie Pearson, kdpearso@calpoly.edu

Homepage: <http://bio.calpoly.edu>

Collection Type: Preserved Specimens

Management: Live Data managed directly within data portal

Global Unique Identifier: 3818d95b-b6a4-11e8-b408-001a64db2964

DwC-Archive Access Point: https://cch2.org/portal/content/dwca/OBI_DwC-A.zip



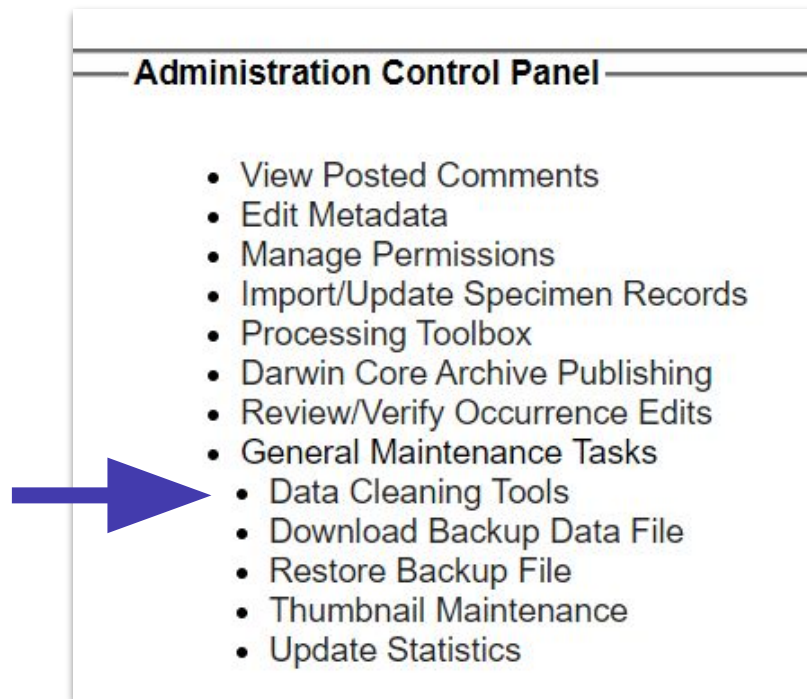
Data cleaning in a Symbiota portal

- Most useful for live-managed collections, but the tools can help any collection identify where there are misspellings or other systemic issues.
- Anything you can't batch fix using these tools, we may be able to help with on the back end. Just ask!

Help Desk
help@symbiota.org

Data cleaning in a Symbiota portal

- Taxonomic Cleaning Tool
- Geography Cleaning Tool
- Batch editing



Administration Control Panel

- View Posted Comments
- Edit Metadata
- Manage Permissions
- Import/Update Specimen Records
- Processing Toolbox
- Darwin Core Archive Publishing
- Review/Verify Occurrence Edits
- General Maintenance Tasks
 - Data Cleaning Tools
 - Download Backup Data File
 - Restore Backup File
 - Thumbnail Maintenance
 - Update Statistics

Taxonomic Cleaning Tool


- Can be used to clean misspellings or orthographic variants and add taxa to the taxonomic thesaurus

The Taxonomic Thesaurus

- Not necessarily a taxonomic authority/resource
- Is not exhaustive
- Does not deal with hybrids or cultivars very well (yet!)
- Does not change the taxonomic names of your specimens

Taxonomic Cleaning Tool



- Can be used to **clean** misspellings or orthographic variants and **add taxa** to the taxonomic thesaurus

- Resolving #2: **Zingiber odoriferum** (Zingiberaceae) [[1 specimens](#) 
- Checking **Catalog of Life**...
 - *Zingiber odoriferum* found within Catalog of Life
 - Taxon **Zingiber odoriferum** added to thesaurus as accepted



Taxonomic Cleaning Tool

- Can be used to clean misspellings or orthographic variants and add taxa to the taxonomic thesaurus
- Will **change** the taxonomic name of your specimen, if you click “**remap to this taxon**”




- Resolving #2: **Zingiber odoriferum** (Zingiberaceae) [[1 specimens](#) 
 - Checking **Catalog of Life**...
 - *Zingiber odoriferum* found within Catalog of Life
 - Taxon **Zingiber odoriferum** added to thesaurus as accepted
- Resolving #3: **Zizyphus jujuba** (Rhamnaceae) [[3 specimens](#) 
 - Checking **Catalog of Life**...
 - Zizyphus jujuba not found in CoL
 - Checking close matches in thesaurus...
 - *Zizyphus jujuba* => [remap to this taxon](#)
 - *Zizyphus jujuba* var. *jujuba* => [remap to this taxon](#)
 - Manual search:

Taxonomic Cleaning Tool

- Can be used to clean misspellings or orthographic variants and add taxa to the taxonomic thesaurus
- Will change the taxonomic name of your specimen, if you click “Remap to taxon”
- **May not fix everything** since:
 - the taxonomic thesaurus doesn't deal with hybrids or cultivars very well
 - some taxonomic names might not be in the thesaurus

Geography Cleaning Tool

- Like the taxonomic thesaurus, it is intended to be a resource for data discoverability, not an authority

| | | |
|---|--|--|
| U.S.S.R (1)  | <input type="text" value="Replace with..."/> | <input type="button" value="Replace Country"/> |
| U.S.S.R. (8)  | <input type="text" value="Replace with..."/> | <input type="button" value="Replace Country"/> |
| USSR (1)  | <input type="text" value="Replace with..."/> | <input type="button" value="Replace Country"/> |

Batch Editing

- Use caution when using!
- Edits will be tracked in the Review/Verify Edits table

Data Editor Control Panel

- [Add New Occurrence Record](#)
- [Create New Records Using Image](#)
- [Add Skeletal Records](#)
- [Edit Existing Occurrence Records](#)
- [Add Batch Determinations/Nomenclatural Adjustments](#)
- [Print Specimen Labels](#)
- [Print Annotations Labels](#)
- [Occurrence Trait Coding Tools](#)
- [Batch Georeference Specimens](#)
- [Loan Management](#)

Administration Control Panel

- [View Posted Comments](#)
- [Edit Metadata](#)
- [Manage Permissions](#)
- [Import/Update Specimen Records](#)
- [Processing Toolbox](#)
- [Darwin Core Archive Publishing](#)
- [Review/Verify Occurrence Edits](#)
- [Duplicate Clustering](#)
- **General Maintenance Tasks**
 - [Data Cleaning Tools](#)
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 - [Restore Backup File](#)
 - [Thumbnail Maintenance](#)
 - [Update Statistics](#)

Safety!



Batch Editing



California Polytechnic State University, Robert F. Hoover Herbarium (OBI)



Record Search Form

Collector: Number: Date:

Catalog Number: Other Catalog Numbers:

Entered by: Date Entered: Date Modified:

Processing Status: with images without images

Custom Field 1:

Sort By: Record output:

Display as dynamic table

[Home](#) >> [Collection Management](#) >> **Occurrence Table View**

| 1-1000 of 94700 records | [>>](#) [>|](#)

| Symbiota ID | Catalog Number | Other Catalog # | Family | Scientific Name | Author | Collector |
|--------------------------|----------------|-----------------|------------------|-------------------------------|-----------|----------------|
| 24202980 | OBI100071 | | Scrophulariaceae | <i>Pedicularis rigginsiae</i> | D.J. Keil | Rhonda Riggins |
| 24202981 | OBI100072 | | Scrophulariaceae | <i>Pedicularis rigginsiae</i> | D.J. Keil | David Keil |

Agenda

1. Data cleaning email follow-up
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Questions?

Agenda

1. Data cleaning email follow-up
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- 4. Next week**

Next week

- Publishing data to GBIF: why and how?

Still have
questions? Need
individual help?

Ask or schedule a meeting! **help@symbiota.org**

Consortium of Midwest Herbaria Portal Campaign

Office Hours - April 27, 2023



iDigBio
Integrated Digitized Biocollections



Agenda

1. Publishing data to GBIF
 - a. What is GBIF?
 - b. Why publish to GBIF?
 - c. How to publish to GBIF
 - d. What about iDigBio?
2. Q&A

Agenda

1. Publishing data to GBIF

- a. What is GBIF?
- b. Why publish to GBIF?
- c. How to publish to GBIF
- d. What about iDigBio?

2. Q&A

What is GBIF?

“an **international network** of country and organizational Participants that exists to enable **free and open access to biodiversity data** from all sources and to support biodiversity science, environmental research, and evidence based decision-making.”



GBIF data portal

GBIF | Global Biodiversity Information Facility

Free and open access to biodiversity data

[OCCURRENCES](#) [SPECIES](#) [DATASETS](#) [PUBLISHERS](#) [RESOURCES](#)

Search 🔍

[What is GBIF?](#) [About GBIF United States of America](#)

Delonix regia (Bojer ex Hook.) Raf. observed in Guinea by Anne-Helene Paradis (CC BY-NC 4.0)



1,927,619,110

Occurrence records



65,549

Datasets



1,789

Publishing institutions



6,806

Peer-reviewed papers using data

Why Publish to GBIF?

- **Greater access** to your data → **greater visibility** for your collection



PUBLISHER | SINCE MAY 3, 2010

Duke University Herbarium

ABOUT METRICS ↻ HOME PAGE

313,960 OCCURRENCES

4 DATASETS

308 CITATIONS

Description: <http://www.biology.duke.edu/herbarium>

Endorsed by: [U.S. Geological Survey](#)

Administrative contact: [Blanka Aguero](#)

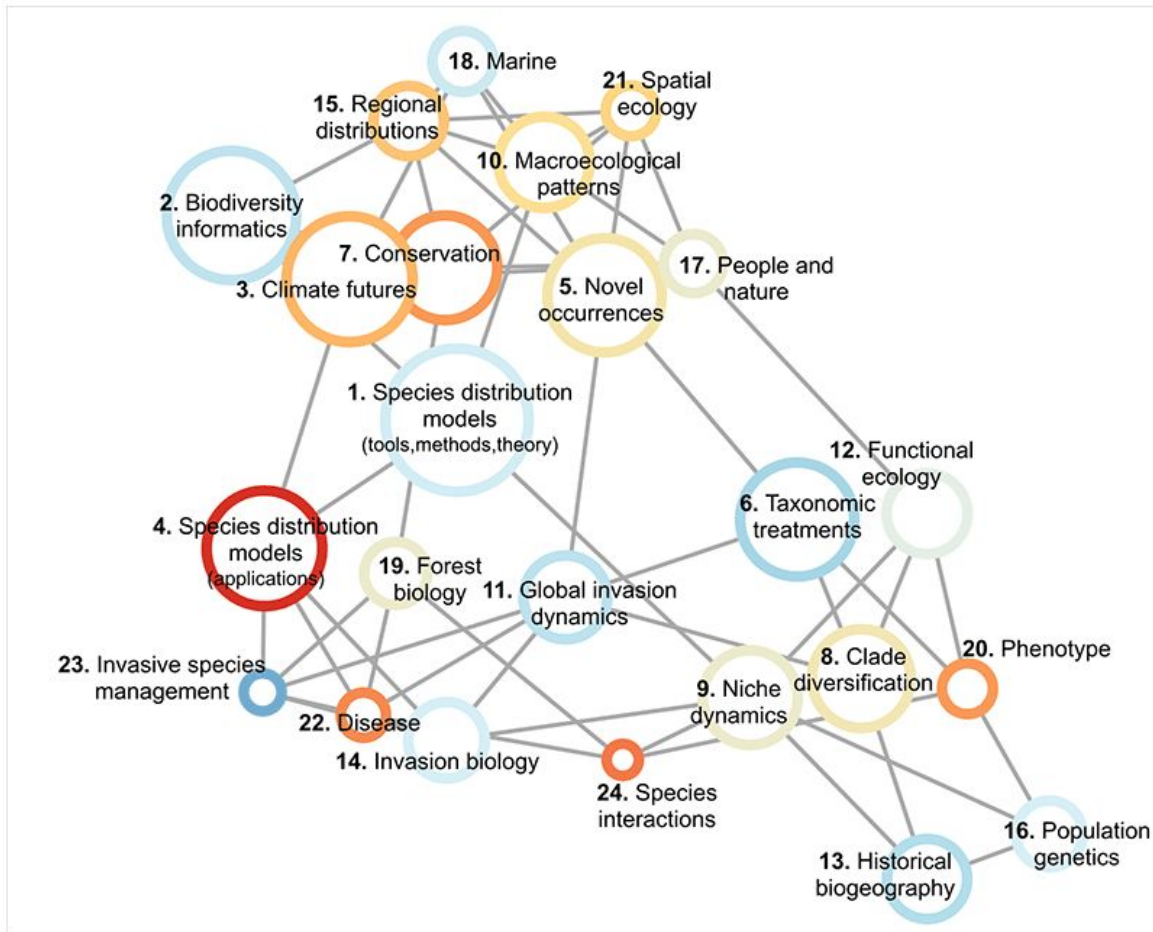
Country or area: [United States of America](#)

Download activity report



Why Publish to GBIF?

- Greater access to your data → greater visibility for your collection
- Allows **researchers** from a broader **range of disciplines** to compile **more comprehensive datasets**



Structural topic model results from 4,035 studies that used GBIF-mediated data published between 2003 and 2019.

<https://docs.gbif.org/course-introduction-to-gbif/en/how-is-gbif-mediated-data-used.html>

Why Publish to GBIF?

- Greater access to your data → greater visibility for your collection
- Allows researchers from a broader range of disciplines to compile more comprehensive datasets
- **Citation tracking**



PUBLISHER | SINCE MAY 3, 2010

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Country or area: [United States of America](#)

Download activity report



Why Publish to GBIF?

- Greater access to your data → greater visibility for your collection
- Allows researchers from a broader range of disciplines to compile more comprehensive datasets
- Citation tracking
- **Data quality flags**



OCCURRENCE DATASET | REGISTERED MARCH 26, 2019

Duke University Herbarium Bryophyte Collection

Published by [Duke University Herbarium](#)

DATASET **METRICS** ACTIVITY [DOWNLOAD](#)

173,869 OCCURRENCES 73 CITATIONS

OCCURRENCE METRICS



173,869 Occurrences



99.9% With taxon match



49% With coordinates

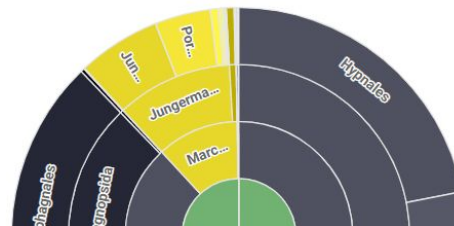


93% With year

TAXONOMIC DISTRIBUTION OF OCCURRENCES

| Explore | Major groups |
|----------------|--------------|
| Plantae | 173,759 |
| incertae sedis | 110 |

TAXONOMIC DISTRIBUTION OF OCCURRENCES



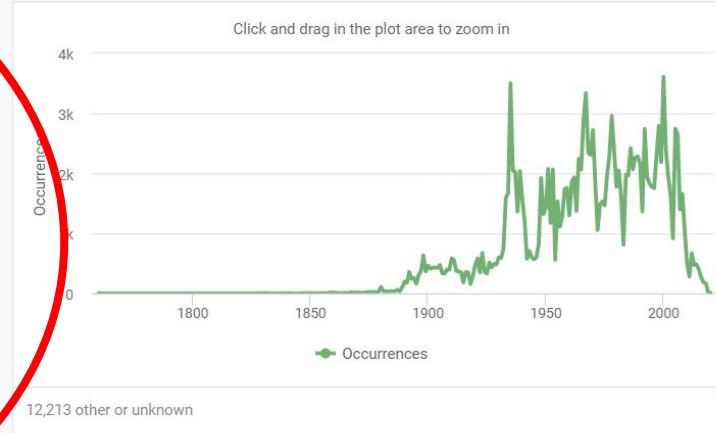


OCCURRENCES PER ISSUES AND FLAGS

| Issues and flags | Count |
|------------------------------|---------|
| Collection match none | 173,869 |
| Institution match fuzzy | 173,869 |
| Geodetic datum assumed WGS84 | 70,631 |
| Coordinate rounded | 42,669 |
| Recorded date invalid | 10,220 |
| Coordinate reprojected | 1,549 |
| Taxon match higherrank | 743 |
| Taxon match fuzzy | 314 |
| Taxon match none | 110 |
| Country coordinate mismatch | 67 |

NEXT

OCCURRENCES PER YEAR



How do I publish to
GBIF?

GBIF Structure

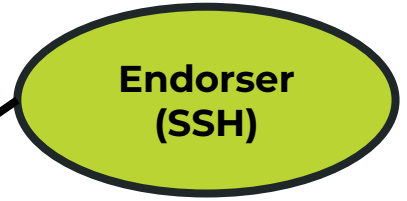


**Publisher
(institution)**

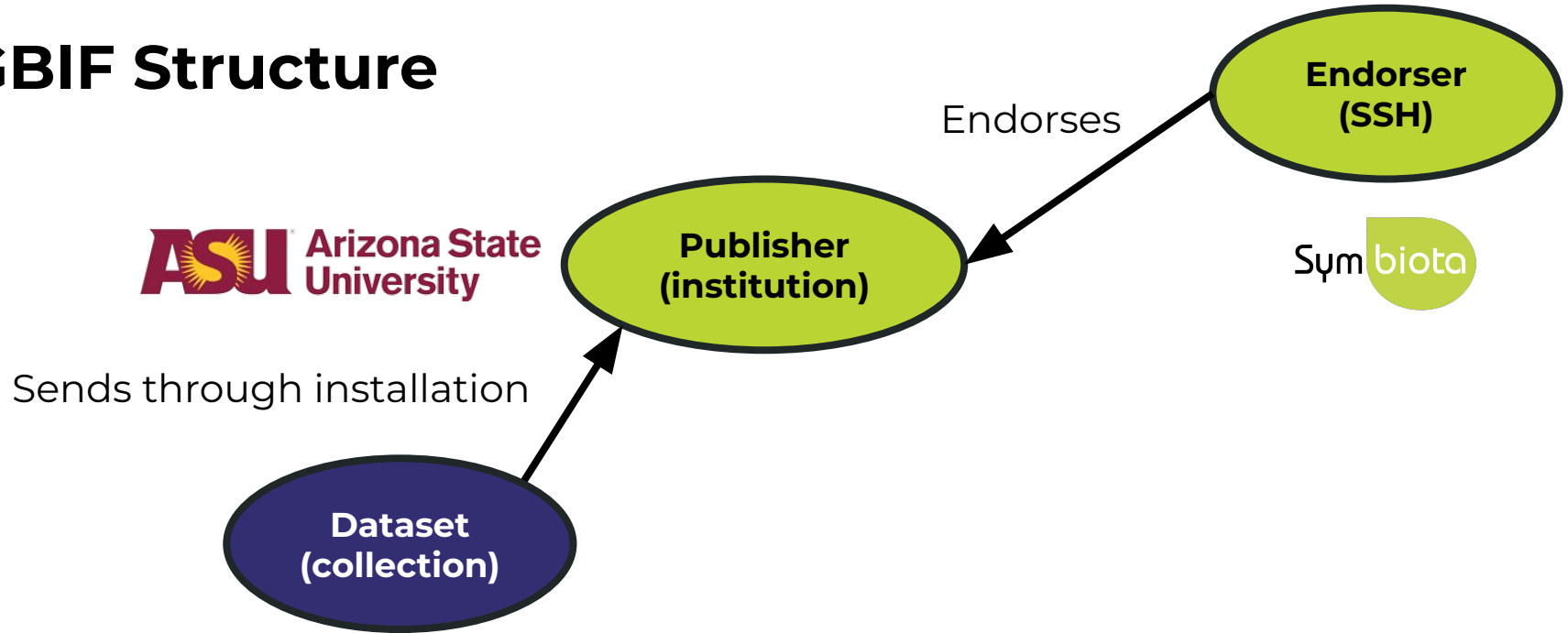
GBIF Structure



Endorses



GBIF Structure



ASU Arizona State University

Sends through installation

**Dataset
(collection)**

**Publisher
(institution)**

Endorses

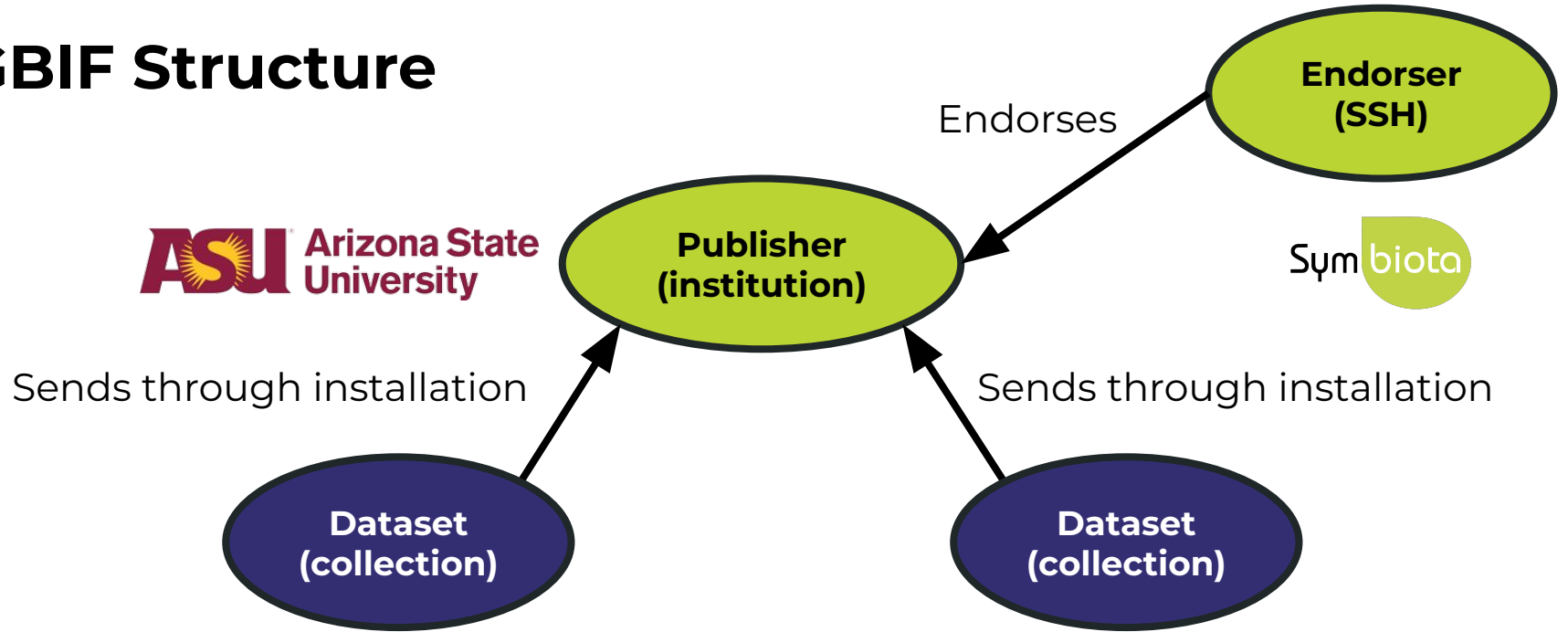
**Endorser
(SSH)**

Symbiota

Arizona State University Mammalogy Collection

Consortium of
Small
Vertebrate
Collections

GBIF Structure



Arizona State University Mammalogy Collection

Arizona State University Vascular Plant Herbarium

Consortium of
Small
Vertebrate
Collections



Arizona State University Biocollections

[ABOUT](#) [METRICS](#) [HOME PAGE](#)

673,214 OCCURRENCES

18 DATASETS

691 CITATIONS

Description: The Arizona State University Biocollections comprise two sets of distinct collections: (1) the Arizona State University Natural History Collections - currently with nine collections focused on documenting Greater Sonoran and New World biodiversity; and (2) the NEON Biorepository at Arizona State University, with a unique constellation of organismal and environmental samples generated in the context of monitoring and forecasting long-term ecological change in the North American subcontinent, including Alaska, Hawaii, and Puerto Rico.

Endorsed by: [Symbiota Support Hub](#)

Administrative contact: [Nico Franz](#)

Technical contact: [Laura Rocha Prado](#)

Country or area: [United States of America](#)



ALL OCCURRENCE CHECKLIST SAMPLING EVENT METADATA

DOWNLOAD AS TSV

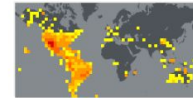
Arizona State University Vascular Plant Herbarium

Occurrence dataset

The Arizona State University Vascular Plant Herbarium (ASU) is among the most important in the greater Sonoran Desert region with over 315,000 specimens. We are particularly proud of our holdings of C...

Published by Arizona State University Biocollections

283,279 occurrences 407 citations



Arizona State University Hasbrouck Insect Collection

Occurrence dataset

The ASU Frank F. Hasbrouck Insect Collection contains approximately 1,000,000 insect specimens, representing at least 25 orders, 390 families, 4,000 genera, 12,000 species and 1,240 subspecies. Most s...

Published by Arizona State University Biocollections

167,107 occurrences 155 citations



Arizona State University Lichen Herbarium

Occurrence dataset

No description available

Published by Arizona State University Biocollections

123,620 occurrences 105 citations



Arizona State University Herpetology Collection

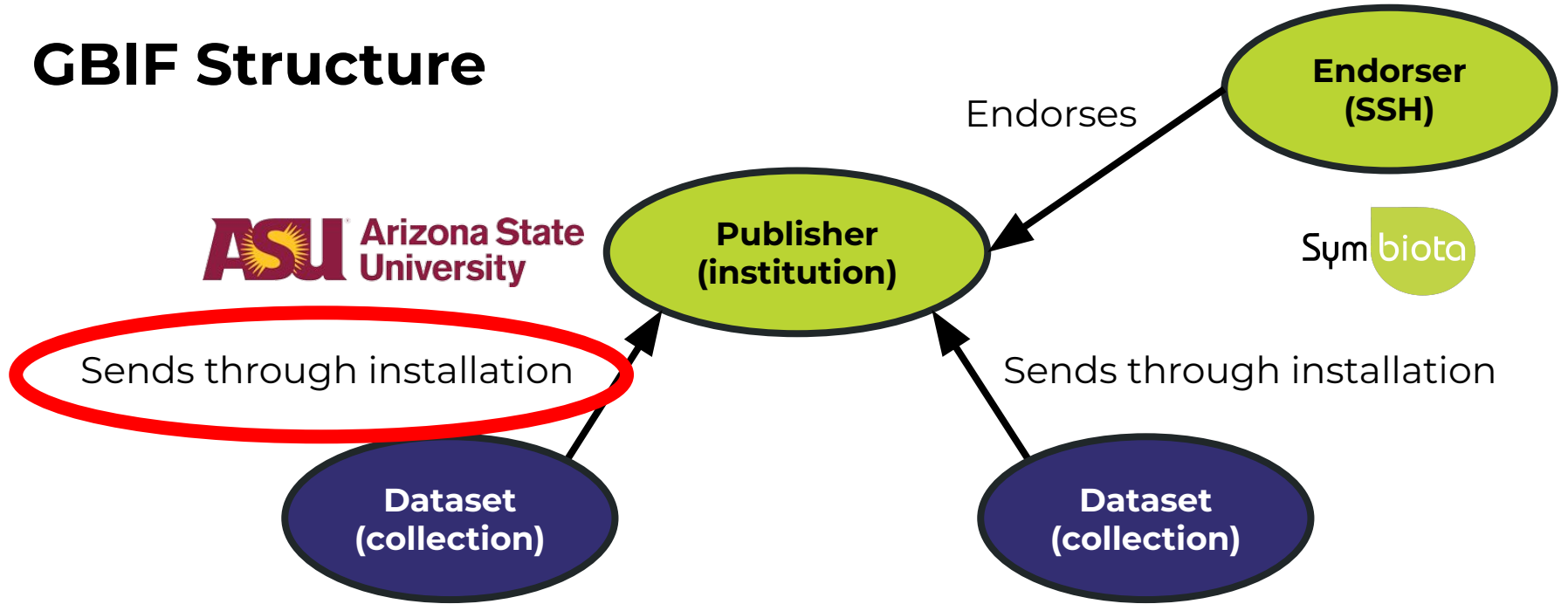
Occurrence dataset

The Herpetology Collection at the ASU Natural History Collections contains approximately 38,000 specimens representing more than 900 species, with a geographic concentration in the western United Stat...

Published by Arizona State University Biocollections



GBIF Structure



Sends through installation

Dataset
(collection)

Publisher
(institution)

Endorses

Endorser
(SSH)

Symbiota

Sends through installation

Dataset
(collection)

Arizona State University Mammalogy Collection

Arizona State University Vascular Plant Herbarium

Consortium of
Small
Vertebrate
Collections



How to publish to GBIF

- You can send your data to GBIF using a Symbiota portal **OR** an Integrated Publishing Toolkit (IPT)
- You can use someone else's IPT (e.g., VertNet, iDigBio), or install and manage your own IPT

How to publish to GBIF

- Fortunately, **if your data are in a Symbiota portal, you don't need an IPT.**
- Publishing is as easy as clicking a button, once you are registered with GBIF!

Publishing to GBIF from a Symbiota portal

1. Make sure your **metadata are accurate**

[Home](#) >> [Collection Search Page](#) >> [Collection Profile](#)

Arizona State University Vascular Plant Herbarium (ASU-Plants)

↩ 548 citations

The Arizona State University Vascular Plant Herbarium (ASU) is among the most important in the greater Sonoran Desert region with over 315,000 specimens. We are particularly proud of our holdings of Cactaceae which include over 1,100 chromosome counts.

An herbarium is a collection of pressed, dried, and archived plants that are systematically arranged - each specimen a physical record of a plant growing at a particular place and at a particular time. Like most herbaria, we seek to document the geographical and ecological distribution of the regional flora, facilitate research, support teaching, and promote conservation. Vouchers from floristic studies have resulted in comprehensive collections of many important geographic regions in Arizona.

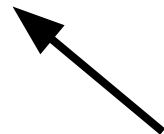
ASU Type Specimens: <http://swbiodiversity.org/seinet/checklists/checklist.php?cl=2638>

Administration Control Panel

- 
- View Posted Comments
 - Edit Metadata
 - Manage Permissions

Publishing to GBIF from a Symbiota portal

1. Make sure your metadata are accurate
2. *(If not already done)* **Request to become a publisher** in GBIF:
<https://www.gbif.org/become-a-publisher>



This page allows you to search for your institution to see if it already exists.

Publishing to GBIF from a Symbiota portal

1. Make sure your metadata are accurate
2. (If not already done) **Request to become a publisher** in GBIF:
<https://www.gbif.org/become-a-publisher>

Endorsing node

To support publishers and review data quality all publishers are associated with a GBIF node. Please check the suggestion below, and correct it if needed:

Help me with endorsement

Marine data publishers: request endorsement for OBIS (Ocean Biogeographic Information System) related data

If endorsement through the country node suggested above is not the right option, please check this list of associated participants for multinational or thematic networks:

- Symbiota Support Hub
- Amazon Cooperation Treaty Organization

SSH can (and wants to) endorse you!



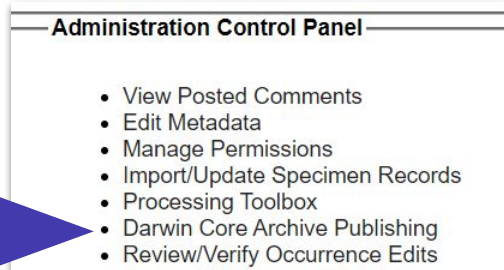
Publishing to GBIF from a Symbiota portal

1. Make sure your metadata are accurate
2. *(If not already done)* Request to become a publisher in GBIF:
<https://www.gbif.org/become-a-publisher>
3. Once approved, enter your **dataset key** in “Darwin Core Archive Publishing” in your portal
4. **Email GBIF** (helpdesk@gbif.org) to notify them that the portal has your permission to push your dataset to GBIF (an example email is provided!)
5. Once approved, **publish** the data!

**We can help with Steps 3-5
(Email us after Step 2)**

Important notes

- **GBIF doesn't automatically harvest your data**
- Push the button to refresh:
“Create/Refresh Darwin Core Archive”
 - Portal managers will do this regularly
 - Data that are redacted in your Symbiota portal will also be redacted in GBIF



Administration Control Panel

- View Posted Comments
- Edit Metadata
- Manage Permissions
- Import/Update Specimen Records
- Processing Toolbox
- Darwin Core Archive Publishing
- Review/Verify Occurrence Edits

A blue arrow points to the 'Darwin Core Archive Publishing' item in the list.

Darwin Core Archive Publishing

OBI - Robert F. Hoover Herbarium, Cal Poly State University

Use the controls below to publish occurrence data from this collection as a Darwin Core document that describes the content. The occurrence data file is required, but id exchange standard. We recommend that you also review instructions for Publish

RSS Feed: <https://cch2.org/portal/webservices/dwc/rss.xml>

Title: OBI DwC-Archive ✗

Description: Darwin Core Archive for OBI - Robert F. Hoover Herbarium, Cal Poly

EML: <https://cch2.org/portal/collections/datasets/emlhandler.php?collid=12>

DwC-Archive File: https://cch2.org/portal/content/dwca/OBI_DwC-A.zip

Pub Date: Tue, 01 Feb 2022 09:53:45

Publishing Information

GUID source: symbiotaUUID

GBIF Dataset page: <http://www.gbif.org/dataset/f56df26e-73f5-4d37-bfed->

Publish/Refresh DwC-A Data

- Include Determination History
- Include Image URLs
- Redact Sensitive Localities

Create/Refresh Darwin Core Archive

OBI - Robert F. Hoover Herbarium, Cal Poly State University (OBI)

393 citations

The Hoover Herbarium houses 85,000+ specimens of vascular plants, algae, lichens, and bryophytes. The geographic focus is San Luis Obispo areas of California, other states of the US, particularly Arizona, and some from other regions of the world, especially Mexico. Emphasis areas in collections include Robert F. Hoover (1946–1969), David J. Keil (1966–present), Rhonda Riggins (1970s–2000), Tracy Call (mostly Apiaceae—extensively in undergraduate teaching and training).

Important Collections: Robert F. Hoover (1946–1969), David J. Keil (1966–present), Rhonda Riggins (1970s–2000), Tracy Call (mostly Apiaceae)

Director and Associate Professor: Jenn Yost, jyost@calpoly.edu

Curator: Katie Pearson, kdpearso@calpoly.edu

Homepage: <http://bio.calpoly.edu>

Collection Type: Preserved Specimens

Management: Live Data managed directly within data portal

Global Unique Identifier: 3818d95b-b6a4-11e8-b408-001a64db2964

DwC-Archive Access Point: https://cch2.org/portal/content/dwca/OBI_DwC-A.zip

Live Data Download: [DwC-Archive File](#)

Digital Metadata: [EML File](#)

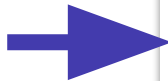
Usage Rights: [CC BY-NC \(Attribution-Non-Commercial\)](#)

GBIF Dataset page: <http://www.gbif.org/dataset/f56df26e-73f5-4d37-bfed-3d46c0834e82>

Address: Robert F. Hoover Herbarium 
Biological Sciences Department, California Polytechnic State University
San Luis Obispo, CA 93407-0401
USA
(805) 756-5869

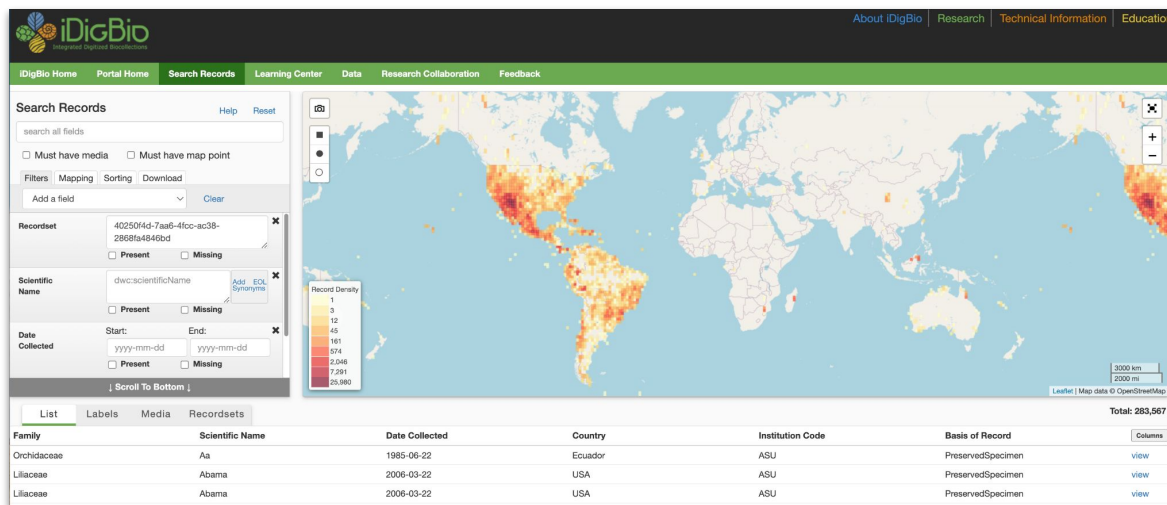
Collection Statistics

- 93,149 specimen records
- 64,830 (70%) georeferenced
- 81,168 (87%) with images (81,417 total images)
- 89,512 (96%) identified to species
- 400 families
- 2,673 genera
- 11,464 species
- 14,186 total taxa (including subsp. and var.)



What about iDigBio?

- Once you've published to GBIF, publishing to iDigBio is **very easy**
- The SSH can facilitate publishing to iDigBio for everyone who publishes to GBIF. **Please let us know if you would like to opt out of publishing to iDigBio.**



The screenshot displays the iDigBio website interface. At the top, there is a navigation bar with links for "About iDigBio", "Research", "Technical Information", and "Education". Below this is a secondary navigation bar with "iDigBio Home", "Portal Home", "Search Records", "Learning Center", "Data", "Research Collaboration", and "Feedback".

The main content area is divided into two sections. On the left, the "Search Records" section includes a search box, filter options (e.g., "Must have media", "Must have map point"), and a "Recordset" table. The "Recordset" table shows a record with ID "40250f4d-7aa6-4fcc-ac38-2869ta4940bd" and options for "Present" and "Missing". Below this, there are fields for "Scientific Name" (with a dropdown for "Add EDL Synonyms") and "Date Collected" (with "Start" and "End" date pickers).

On the right, a world map displays "Record Density" using a color scale from yellow (low density) to red (high density). A legend on the left of the map shows density values: 1, 3, 12, 45, 181, 594, 2,048, 7,291, and 25,980. The map also includes a scale bar (0 to 2000 km) and a "Leaflet | Map data © OpenStreetMap" attribution.

At the bottom, a table lists search results. The table has columns for "Family", "Scientific Name", "Date Collected", "Country", "Institution Code", "Basis of Record", and "Columns". The total number of records is 283,567.

| Family | Scientific Name | Date Collected | Country | Institution Code | Basis of Record | Columns |
|-------------|-----------------|----------------|---------|------------------|-------------------|----------------------|
| Orchidaceae | Aa | 1985-06-22 | Ecuador | ASU | PreservedSpecimen | View |
| Liliaceae | Abama | 2006-03-22 | USA | ASU | PreservedSpecimen | View |
| Liliaceae | Abama | 2006-03-22 | USA | ASU | PreservedSpecimen | View |

Questions?

Next meeting: Thursday, May 4, 2023

- Portal campaign recap
- Opportunities and future work

Agenda

1. Publishing data to GBIF
 - a. What is GBIF?
 - b. Why publish to GBIF?
 - c. How to publish to GBIF
 - d. What about iDigBio?
2. Q&A
- 3. Georeferencing strategies & tools**

Georeferencing

1

Run scripts that find coordinates of exact duplicate specimens, select best coordinates, and import into CMH

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Individual georeferencing in CMH.

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GEOLocate 



Consortium of Midwest Herbaria Portal Campaign

Final Office Hours - May 4, 2023



iDigBio
Integrated Digitized Biocollections



Agenda

- Portal campaign accomplishments: a recap
- Standing issues/opportunities
- The CMH community: what's next?

New Collections



29,241
new
records!

252,363

specimen records added over the course of the campaign

18,647

taxonomic names indexed to the
central thesaurus

47,057

specimens made searchable



A light gray world map is centered in the background of the slide. The continents are clearly visible, including North America, South America, Europe, Africa, Asia, and Australia.

3,381

country values standardized

A stylized, light gray map background with various navigation icons such as a location pin, a compass, and a tree. The map features a grid of streets and a prominent wavy pattern in the center.

85,882

basisOfRecord values standardized

A light gray world map is centered in the background of the slide. The continents are clearly visible, including North America, South America, Europe, Africa, Asia, and Australia. The map is semi-transparent, allowing the text to be overlaid on it.

68%

records with swapped minimum & maximum elevation values fixed

Publishing to GBIF



174,999
specimens
added!

University of Wisconsin
Eau Claire



LOYOLA
UNIVERSITY CHICAGO

Preparing people to lead extraordinary lives

EASTERN
MICHIGAN UNIVERSITY

UW
UW-LA CROSSE



UNIVERSITY OF WISCONSIN
WHITEWATER



UNIVERSITY of WISCONSIN
GREEN BAY

Other Success Stories

- Identified indexing issue with undetermined records from MICH → upgraded import profile
- Fixed 30,185 erroneous elevation values (-9999) for OS
- Added Indian states & territories to the lookup list (thanks EIU!)



Anything else to share?

Agenda

- Portal campaign accomplishments: a recap
- **Standing issues/opportunities**
- The CMH community: what's next?

Curating Comments

The comment function is a way that the public can interact with your specimens. It is often used to:

- Flag dubious identifications
- Point out problematic georeferences

[OBI150564](#) [David Keil #12939](#) [_1978-07-23](#)

Hanofee, Shane posted on 2022-11-08 10:22:19

This looks much like *Aconogonon phytolaccifolium* which is abundant where this collection was made.

Hide Comment from Public

Mark as Reviewed

Delete Comment

Curating Comments

- Accessed through Administration Control Panel
- Can **delete** (goes away forever) or **mark as reviewed** (still visible on your record but no longer a notification)

Harvesting georeferences from duplicates

- SEINet contains over 22 million herbarium specimens
- Some of them might be duplicates of your specimens
- Some of those duplicates might have georeferences!

Harvesting georeferences from duplicates

<https://zenodo.org/record/4637000#.Yjo82ufMJPY>

1. Link your specimens to duplicates
2. Check whether any un-georeferenced specimens have georeferenced duplicates in the SEINet Network
3. Create a list of potential duplicates to import
4. Decide which duplicates to keep
5. Import!

Harvesting georeferences from duplicates

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1. Link your specimens to duplicates
2. Check whether any un-georeferenced specimens have georeferenced duplicates in the SEINet Network
3. Create a list of potential duplicates to import
- 4. Decide which duplicates to keep**
5. Import!

The only step you need to do, if live.

Harvesting georeferences from duplicates

Interested? Fill out this form:

<https://forms.gle/9Cg6jrUmxucST5po6>



Baylor University

48,616 specimens without coordinates



3,318 potential duplicate coordinates



**2,342 specimens that could be georeferenced
using the duplicate coordinates**



Baylor University

48,616 specimens without coordinates



3,318 potential duplicate coordinates



**2,342 specimens that could be georeferenced
using the duplicate coordinates**

At 5 minutes per specimen, that saves **195 hours** of georeferencing!

| occid | catalogNu | otherCata | recordedB | recordNun | decimalLa | decimalLo | geodeticD | coordinate | footprintV | coordinate | georeferer | georeferer | georeference | Remarks |
|----------|-------------|-----------|-------------|-----------|-----------|-----------|------------|------------|------------|------------|----------------|------------|--------------|---|
| 25178965 | BAYLU002859 | | R. Kral | 58074 | 34.07571 | -78.2994 | World Geoc | NA | | NA | Uriel Minjares | | | copied from duplicate CLEMS CLEMS0002222; copie |
| 25178967 | BAYLU002 | 18856 | S. McDanie | 25504 | 30.7911 | -89.5346 | WGS84 | 100 | | NA | heathers (| georef bat | | copied from duplicate MMNS MMNS005570; |
| 25179117 | BAYLU003021 | | W. D. Stev | 1281 | 16.79306 | -93.0911 | | | | NA | | | | copied from duplicate TEX TEX00145641; |
| 25179389 | BAYLU035917 | | L.L. Hanse | 6296 | 31.82097 | -100.595 | | | | NA | | | | copied from duplicate TEX TEX00453126; |
| 25179391 | BAYLU035919 | | L.L. Sanche | 4607 | 30.09657 | -98.8205 | | | | NA | | | | copied from duplicate TEX TEX00433244; |
| 25179392 | BAYLU035920 | | L.L. Hanse | 5214 | 30.4308 | -99.8081 | | | | NA | | | | copied from duplicate TEX TEX00448015; |
| 25179433 | BAYLU035961 | | L.L. Hanse | 6241 | 31.0308 | -97.8328 | | | | NA | | | | copied from duplicate TEX TEX00453418; |
| 25179435 | BAYLU035963 | | L.L. Hanse | 6289 | 31.82929 | -100.579 | | | | NA | | | | copied from duplicate TEX TEX00453130; |
| 25179486 | BAYLU043702 | | I.W. Cloke | 7822 | 36.28722 | -115.672 | | 1807 | | NA | | | | copied from duplicate Utah State University UTC00 |
| 25179486 | BAYLU043702 | | I.W. Cloke | 7822 | 36.27219 | -115.695 | | 4600 | | NA | cdnale (20 | georef bat | | copied from duplicate IND IND-0006286; |
| 25179580 | BAYLU043818 | | Butterwick | 4169 | 34.6677 | -113.101 | | | | NA | | | +0.5 mile: | copied from duplicate ASU ; |
| 25179581 | BAYLU043819 | | Butterwick | 6022 | 34.209 | -112.814 | | | | NA | | | +0.5 mile: | copied from duplicate ASU ; |
| 25179581 | BAYLU043819 | | Butterwick | 6022 | 34.2092 | -112.916 | | | | NA | | | | copied from duplicate ARIZ 228627; |
| 25179641 | BAYLU043883 | | T. Zanoni | 2761 | 23.8856 | -105.087 | | | | NA | cjsdavis | georef bat | | copied from duplicate ASU ASU0007081; |
| 25179656 | BAYLU043898 | | T. Zanoni | 2738 | 23.64649 | -103.643 | | | | NA | Velia | georef bat | | copied from duplicate ASU ASU0007026; |
| 25179656 | BAYLU043898 | | T. Zanoni | 2738 | 22.5 | -102.69 | | | | NA | | | | copied from duplicate TEX TEX00145385; |
| 25179663 | BAYLU043905 | | T. Zanoni | 2726 | 23.64649 | -103.643 | | | | NA | Velia | georef bat | | copied from duplicate ASU ASU0007130; |
| 25179663 | BAYLU043905 | | T. Zanoni | 2726 | 22.5 | -102.69 | | | | NA | | | | copied from duplicate LL LL00145384; |
| 25179718 | BAYLU048412 | | A. Leidolf | 2046 | 41.77016 | -111.077 | WGS84 | 100 | | NA | | | | copied from duplicate SWSL SWSL000257; |
| 25179719 | BAYLU048413 | | A. Leidolf | 1953 | 40.45 | -112.014 | WGS84 | 3762 | | NA | | GeoLocate | | copied from duplicate SWSL SWSL000256; |

Standing issues and opportunities

- Adding or transferring bryophyte, lichen, and fungi specimens to their respective portals

CONSORTIUM OF BRYOPHYTE HERBARIA

- building a Consortium of Bryophytes and Lichens as keystones of cryptobiotic communities -

CONSORTIUM OF LICHEN HERBARIA

- building a Global Consortium of Bryophytes and Lichens as keystones of cryptobiotic communities -

Adding data to other taxonomic-focused portals

Interested? Fill out this form:

<https://forms.gle/9Cg6jrUmxucST5po6>

Citizen Science for Digitization: WeDigBio

- April and October every year
- <https://wedigbio.org/>



Standing Opportunities (summary)

To consider:

- Curate comments & engage with the community
- Use label and barcode printing tools in the portal
- Harvest georeferences from duplicates
- Host data in other taxonomically-focused portals
- Participate in WeDigBio events

Agenda

- Portal campaign accomplishments: a recap
- Standing issues/opportunities
- **The CMH community: what's next?**

What needs does your community still have?

Ideas for further digitization funding

- NSF grants
- [IMLS grants](#)
- Institutional grants

symbiota.org/funding-ideas

Infrastructure Capacity for Biology (Capacity)

- **Synopsis:**

Support the implementation of, scaling of, or major improvements to research tools, products, and services that advance contemporary biological research.

- **Programmatic Areas:**

- **Capacity: Cyberinfrastructure**
- **Capacity: Biological Collections**
- **Capacity: Field Stations & Marine Labs (FSML)**

- Proposals accepted anytime

- NSF 21-501

<https://www.nsf.gov/pubs/2021/nsf21501/nsf21501.htm>

Ideas for further digitization funding

Funding opportunities for scientific collections:

<https://www.youtube.com/watch?v=3PvsZI8spJ0>

Research Resources (RR)

Innovation

Capacity

Sustaining

Major Research
Instrumentation (MRI)

Human Resources (HR)

Postdoctoral Fellowships
(PRFB)

RCN for Undergraduate
Biology Education (RCN-UBE)

Research Experiences for
Undergraduates (REU Sites)

Mid-Career Advancement
(MCA)

Centers, Facilities, and Additional Research Infrastructure Cluster (CFARI)

Biology Integration Institutes
(BII)

Center for Open
Environmental Data (OED)

Management of Operations
and Maintenance of NEON

Mid-scale Research
Infrastructure-1 and 2

Portal Development

The Symbiota Support Hub was funded to support existing digitization and mobilization activities, not to develop new tools...

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...however, new tool development can be initiated with outside support.

Portal Development

The Symbiota Support Hub was funded to support existing digitization and mobilization activities, not to develop new tools...

...however, new tool development can be initiated with outside support.

So, if you want a specific tool, include funds for its development in your next digitization grant!

Including Symbiota development into your grant

1. Determine need(s)/want(s)
2. Meet with Symbiota Support Hub team to discuss possibilities and necessary funding.
3. With SSH help, include development in budget

Including Symbiota development into your grant

1. Determine need(s)/want(s)
2. Meet with Symbiota Support Hub team to discuss possibilities and necessary funding.
3. With SSH help, include development in budget. Three options:
 - a. Collaborating institution
 - b. Subaward
 - c. Contract with BioKIC Services

No grant?

- Contract with BioKIC Services

services.biokic.asu.edu

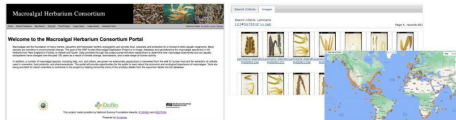
The Algal Collections Data Portal: Seeking Collections & Data Users!

YourNameHere¹, Christopher Neefus²
¹Your Affiliation Here¹, ²University of New Hampshire, Durham, NH



The "Macroalgae" portal community...

- Originated in 2013 from a grant-funded TCN (NSF Award #1304924 and other) led by **University of New Hampshire**
- Includes **collections staff, researchers, students, and educators** who manage, share, and use algal herbarium collections within a dedicated Symbiota data portal
- Includes large to small collections with a **global geographic scope**
- Includes contributions from **colleges, universities, gardens, & marine labs**



2013-2019: The Macroalgal Herbarium Consortium developed macroalgae.org to digitally combine their algal collections (NSF 1304924, 2022-present: The portal migrated to Arizona State University servers and is now supported by the Symbiota Support Hub (NSF 2027654).

What is Symbiota?

Symbiota is an open-source content management solution (CMS) and data aggregator designed to capture, manage, and mobilize occurrence and observation data to facilitate biodiversity research. Each Symbiota portal represents a community of data contributors and users, and most portals have a specific regional or taxonomic theme. The Symbiota code has been used to create 45+ portals.

Why join?

Collections Managers

- Tools to facilitate **data entry, management, and sharing**
- Access to the **Symbiota Support Hub**
- **Flexible** data import/export options
- **Crowdsourcing** georeferences, data entry, annotations, and more
- **Taxonomic data cleaning** tools
- **Easy data publishing** to GBIF and iDigBio directly from the portal

Live-manage your collection in the portal to take full advantage of all of the above, plus:

- A **web-based CMS** that can be accessed **anytime, anywhere**
- **Tiered user permissions and edit tracking**
- **More nimble integration** with ongoing portal development
- **Faster and even easier data publishing** to other aggregators

Learn to use the portals!

- symbiota.org
- biokic.github.io/symbiota-docs
- bit.ly/symbiota-recordings
- bit.ly/symbiota-discussions
- help.symbiota.org

Researchers & Educators

- **Search, view, & download** data
- **Create species maps, checklists, & datasets**
- Use specimen & phenological data for research or teaching

Macroalgae.org

Participating Institutions

Academy of Natural Sciences
Arizona State University
Biology Department
California State University
Colorado State University
Cornell University
CUNY
Duke University
Florida State University
Georgia Institute of Technology
Harvard University
Indiana University
Iowa State University
Johns Hopkins University
Michigan State University
Miami University
Marquette University
North Carolina State University
Northwestern University
Ohio State University
Penn State
Portland State University
Rice University
Rutgers University
Stanford University
The University of Arizona
The University of California
The University of Colorado
The University of Florida
The University of Georgia
The University of Illinois
The University of Michigan
The University of Minnesota
The University of Missouri
The University of Nebraska
The University of New Hampshire
The University of New Mexico
The University of North Carolina
The University of Oklahoma
The University of Oregon
The University of Pennsylvania
The University of Texas
The University of Virginia
The University of Washington
The University of Wisconsin
The University of Wyoming



Community Stats



How to join?

Collections Managers
Contact the **Symbiota Support Hub** to see if your collection is within scope—if yes, joining is very easy, **even if your collection isn't digitized yet.**

Data Users
Create a new account to start browsing and interacting with data.

Create an account
macroalgae.org/portal/profile/newprofile.php

Connect with algal collections:

Algal Collections Consortium Google Group

- 1) Go here: groups.google.com/g/algae-collections-consortium
- 2) Click "Ask to join group"
- 3) To post to this list, email: algae-collections-consortium@googlegroups.com

Questions?

- **Chris Neefus**, Macroalgal Herbarium Consortium PI: neefus@unh.edu
- **Symbiota Support Hub**: help.symbiota.org

This project is made possible by National Science Foundation Awards 1304924 and 2027654. Any omissions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



Promotional Poster

The Consortium of Southern Rocky Mountain Herbaria: Seeking Collections & Data Users!

YourNameHere¹ & J. Ryan Allen²
¹Your Affiliation Here¹, ²University of Colorado Museum of Natural History, Boulder, CO, USA

The "SoRo" community...

- Originated in 2017 from a grant-funded TCN (NSF Award #1702516) led by **CU-Boulder**
- Includes **collections staff, researchers, students, and educators** who manage, share, and use herbarium collections from the Southern Rocky Mountain ("SoRo") states, all within a dedicated Symbiota portal
- Includes collections—large to small—from **Colorado, Idaho, Montana, & Wyoming**
- Contributions from **colleges, universities, gardens, federal units, & municipal collections**
- Your collection need **not** be physically located in the region to contribute, but the data to be shared should be from CO, ID, MT, or WY



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Learn to use the portals!

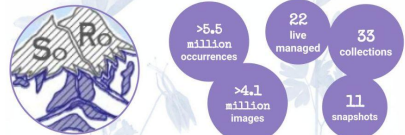
- symbiota.org
- biokic.github.io/symbiota-docs
- bit.ly/symbiota-recordings
- bit.ly/symbiota-discussions
- help.symbiota.org

Researchers & Educators

- **Search, view, & download** data
- **Create species maps, checklists, & datasets**
- Use specimen & phenological data for research or teaching

SoRoHerbaria.org

Community Stats



Get involved!

Are you especially interested in...

- **Collaborative georeferencing?**
- **Data cleaning & quality issues**
- **Portal development:** <https://github.com/BioKIC/Symbiota>

Add activities or other things you'd like people to get involved with!

How to join?

Collections Managers

Contact the **SoRo Portal Administrator** to see if your collection is within scope—if yes, joining is very easy, **even if your collection isn't digitized yet.**

Data Users

Create a new account to start browsing and interacting with data.

Create an account
soroherbaria.org/portal/profile/newprofile.php

Questions?

- **J. Ryan Allen**, Portal Administrator: james.r.allen@colorado.edu
- **Symbiota Support Hub:** [help@symbiota.org](https://help.symbiota.org)

This project is made possible by National Science Foundation Awards 1702516 & 2027654. Any omissions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



What about the Symbiota Support Hub?

We're still here to help!

help@symbiota.org

Feedback survey

<https://bit.ly/post-campaign-survey>