Welcome to iDigBio/ADBC Summit VIII

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NSF’s Advancing Digitization of Biodiversity Collections Program, based on the national digitization effort as outlined in NIBA Strategic Plan, was launched in 2010 with the goal:

To digitize and make available online data associated with specimens in all non-federal natural history collections in the U.S.

Funding:
1. Thematic Collections Networks (TCNs)
2. Central coordinating unit (iDigBio)
1. Thematic Collections Networks

- Two-to-four year awards to collaborating institutions to digitize data on existing specimens based on a research theme
- Institutions digitize and mobilize the specimen-based data (but not necessarily pursue the research)
- Major emphasis has been on databasing, georeferencing, and imaging
23 Thematic Collections Networks (TCNs) = 318 institutions

- **InvertNet**: An Integrative Platform for Research on Environmental Change, Species Discovery and Identification (Illinois Natural History Survey, University of Illinois)
- **Plants, Herbivores, and Parasitoids**: A Model System for the Study of Tri-Trophic Associations (American Museum of Natural History)
- **North American Lichens and Bryophytes**: Sensitive Indicators of Environmental Quality and Change (University of Wisconsin Madison)
- **Digitizing Fossils** to Enable New Syntheses in Biogeography-Creating a PALEONICHES-TCN (University of Kansas)
- **The Macrofungi Collection Consortium**: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs (New York Botanical Garden)
- **Mobilizing New England Vascular Plant Specimen Data** to Track Environmental Change (Yale University)
- **Southwest Collections of Arthropods Network (SCAN)**: A Model for Collections Digitization to Promote Taxonomic and Ecological Research (Northern Arizona University)
- **The Macroalgal Herbarium Consortium**: Accessing 150 Years of Specimen Data to Understand Changes in the Marine/Aquatic Environment (University of New Hampshire)
- **Developing a Centralized Digital Archive of Vouchered Animal Communication Signals** (Cornell University)
- **Fossil Insect Collaborative**: A Deep-Time Approach to Studying Diversification and Response to Environmental Change (University of Colorado at Boulder)
- **Great Lakes Invasives**: Documenting the Occurrence through Space and Time of Aquatic Non-indigenous Fish, Mollusks, Algae, and Plants Threatening North America’s Great Lakes (University of Wisconsin Madison)
- **InvertEBase**: Reaching Back to See the Future: Species-rich Invertebrate Faunas Document Causes and Consequences of Biodiversity Shifts (Field Museum of Natural History)
- **The Key to the Cabinets**: Building and Sustaining a Research Database for a Global Biodiversity Hotspot (Appalachian State University)
- **The Microfungi Collections Consortium**: A Networked Approach to Digitizing Small Fungi with Large Impacts on the Function and Health of Ecosystems (INHS, University of Illinois)
- **Documenting Fossil Marine Invertebrate Communities of the Eastern Pacific**: Faunal Responses to Environmental Change over the last 66 million years (University of California-Berkeley)
- **Cretaceous World**: The Cretaceous World: Digitizing Fossils to Reconstruct Evolving Ecosystems in the Western Interior Seaway (University of Kansas)
- **LepNet**: Lepidoptera of North America Network: Documenting Diversity in the Largest Clade of Herbivores (Northern Arizona University)
- **MAM**: The Mid-Atlantic Megalopolis: Achieving a greater scientific understanding of our urban world (University of Pennsylvania)
- **SoRo**: Using Herbarium Data to Document Plant Niches in the High Peaks and High Plains of the Southern Rockies (University of Colorado)
- **oVert**: Open Exploration of Vertebrate Diversity in 3D (University of Florida)
- **Capturing California’s Flowers**: Using Digital Images to Investigate Phenological Change in a Biodiversity Hotspot (California Polytechnic State University San Luis Obispo)
- **The Pteridological Collections Consortium**: An Integrative Approach to Pteridophyte Diversity Over the Last 420 Million Years (University of California – Berkeley)
- **Digitizing “Endless Forms”**: Facilitating Research on Imperiled Plants with Extreme Morphologies (New York Botanical Garden)
2. iDigBio

• Engage the collections community

• Enable digitization of biodiversity collections data
  Develop efficient & effective standards & workflows
  Workforce education & training via workshops/webinars

• Provide portal access to biodiversity data
  Enable data access & discoverability
  Respond to cyberinfrastructure needs

• Promote use of data to address scientific, environmental & economic challenges
  Researchers, educators, general public, policy-makers, etc.

• Assist in planning long-term sustainability of national digitization effort
iDigBio is working with 411 institutions.

TCNs = 318 institutions, and iDigBio, VertNet, etc. another 93 institutions
Specimen records and data on associated media (2D, 3D images, audio recordings, tissues, etc.) are ingested by iDigBio

iDigBio Portal has 115M records for 345M specimens with 27M associated media records
Flexible search across all data, indexed fields, media, geolocation, map boundary, auto-completion, synonyms, ...

https://www.idigbio.org/portal
### Table: Search Results

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<th>Family</th>
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<th>Country</th>
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**Abbrosoga errata** Caldwell & Martorell 1981  
**Dolphacidae**  
**Abelmoschus moschatus medik. Medik.**  
**Malvaceae**

**Pecten mayaguezensis** Dalí & Simpson  
**Pectiniidae**
Publications Citing Portal Data Use

- Number of Publications
- Year: 2011 to 2017
-演唱会 portals, TCN portals, Total
- idigbio.org
All of this has required iDigBio to engage the collections community through workshops, webinars, and other events to develop workflows, train IT and collections staff, mobilize data, etc.
iDigBio Events Summary

298 Total Events
Participants in iDigBio Events

11,459 Total Participants
iDigBio promotes and facilitates use of digitized data in research, education and outreach

This summit -- and other recent activities -- have increasingly concentrated on data use

eudicots (e.g. Arabidopsis, Populus, Vitis, Carica)

Ceratophyllum

monocots (e.g. Oryza, Zea)

magnoliids

Chloranthaceae

Austrobaileyales

Nymphaeales

Amborella

Gymnosperms
Natural History Collections are fundamental to understanding biodiversity and to address “Big Science” questions:

• How many species are there?
• How are species distributed on the planet, and why?
• How do species vary, and what factors are responsible?

Specimens of extinct species
– only information on those species
– paleoenvironments
Where are iDigBio & ADBC headed?

• Digitized data from **ALL** biodiversity collections
• Improve **data access & discoverability**
• Promote/improve **data quality & standards**
• Promote **broad use of biodiversity data**
• Facilitate **public participation** in digitization
e.g., **WeDigBio**
Status: iDigBio & ADBC

Currently 1,464 [last year 1,386] collections in iDigBio’s Catalog of U.S. Collections

iDigBio is working with 750 [561] of these collections = 51% [41%]

Of the 750 collections, 641 have published data to iDigBio (others digitizing, processing, etc.)

Remaining institutions in U.S. are mostly small
Many remaining collections in U.S. are not!
1,464 KNOWN U.S. COLLECTIONS

Progress in National Digitization Effort

1 yr ago

41% In iDigBio

59% Dark data
1,464 KNOWN U.S. COLLECTIONS

Progress in National Digitization Effort
Substantial progress has been made toward the goal of ADBC: Increasing accessibility of data associated with natural history collections

- Increases the availability for all potential uses of collections data,

which increases the value of natural history collections,

leading to greater support for institutions housing natural history collections
Substantial progress has been made toward the goal of ADBC: Increasing accessibility of data associated with natural history collections.

Increased understanding of biodiversity

leading to greater appreciation of the environmental and economic value of biodiversity, and protection of natural environments.
Planning long-term sustainability of national digitization effort international in scope and involvement
ENJOY THE SUMMIT!

Photos by M. Jeffords & G. Paulay