Overview of iDigBio, the HUB for Advancing Digitization of Biological Collections

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iDigBio External Advisory Board Meeting
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The enormous amount of information in biological collections is inaccessible to most potential users.

The goal of ADBC is to remove this inaccessibility by putting information online so that researchers, educators, students, environmentalists, and policymakers will have access.
Thematic Collection Networks

- InvertNet - An Integrative Platform for Research on Environmental Change, Species Discovery and Identification
  University of Illinois at Urbana-Champaign

- North American Lichens and Bryophytes: Sensitive Indicators of Environmental Change and Quality
  University of Wisconsin - Madison

- Plants, Herbivores and Parasitoids: A Model System for the Study of Tri-Trophic Associations
  American Museum of Natural History

Collaborating Institutions

http://www.idigbio.org
Mission of iDigBio:

To make ADBC a success.
Vision of iDigBio: Two Primary Outcomes

1. iDigBio is a primary source for information from biological collections in the U.S.

   information from biological collections reaches users as seamlessly and as usefully as possible
Vision of iDigBio: Two Primary Outcomes

2. iDigBio a primary source for information on standards and methods for digitization of biological collections and digitization becomes routine in all institutions with biological collections
Grand Challenges in Science and Society

“... grand challenge efforts ... alter the boundaries of existing knowledge, established disciplines and available capabilities.”

Susan J Winter, National Science Foundation
Brian S Butler, University of Pittsburgh
BIODIVERSITY
Biodiversity

Inadequate $\rightarrow$ Biodiversity Crisis

Environmental Policy
Management, Use,
Protection
ADBC

- Address the Biodiversity Crisis in substantial ways
Biodiversity

Collections: Specimens, Observations, DNA

Environmental Policy
Management, Use, Appreciation, Protection

Understanding

Appreciation

1 billion specimens in U.S.
Biodiversity

Collections: Specimens, Observations, DNA

Environmental Policy
Management, Use, Appreciation, Protection

New Discoveries
Understanding
Appreciation

1 billion specimens in U.S.

Research
Education
Outreach
Biodiversity

Collections: Specimens, Observations, DNA

Digitization

Environmental Policy
Management, Use, Appreciation, Protection

New Discoveries
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Biodiversity

Human Benefits

Environmental Policy
Management, Use, Appreciation, Protection

Understanding

Appreciation
Biodiversity

Collections: Specimens, Observations, DNA

Human Benefits

Environmental Policy
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Understanding

Appreciation
“To justify this level of investment and effort, grand challenges must be perceived as having the potential to significantly impact not only multiple academic fields, but also community, national, or international concerns such as competitiveness, security, economic development or well-being.”

Human health and safety
Homeland security
International trade
Conservation planning
Prevention of wildlife trafficking
Sustaining ecosystems
Land use planning
Invasive species predictive models
Discovery and exploration
Climate change
Emerging infection diseases
Management of agricultural pests
Biological control
Identification of disease vectors
Forensic science
Bioprospecting for new medicines, foods, and fibers
Collections: Specimens, Observations, DNA

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Bioprospecting

What are the barriers?

New Discoveries
Understanding
Appreciation

Research
Education
Outreach
Collections: Specimens, Observations, DNA

Digitization

What are the barriers?
Data have been inaccessible

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collections: Specimens, Observations, DNA

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identification of disease vectors
forensic science
bioprospecting

what are the barriers?

Biodiversity scientists lack an effective voice

new discoveries
understanding
appreciation

digitization
research
education
outreach
American Arachnological Society
American Bryological & Lichenological Society
American Fern Society
American Malacological Society
American Ornithologists' Union
American Society for Microbiology
American Society of Ichthyologists and Herpetologists
American Society of Mammalogists
American Society of Parasitologists
American Society of Plant Taxonomists
American Society of Primatologists
Botanical Society of America
California Botanical Society
Cooper Ornithological Society
Crustacean Society
Entomological Society of America
Helminthological Society of Washington
International Society of Protistologists
Lepidopterists' Society
Mycological Society of America
Paleontological Society
Phycological Society of America
Society for Integrative & Comparative Biology
Society for Study of Amphibians & Reptiles
Society of Nematologists
Society of Systematic Biologists
Society of Vertebrate Paleontology
As a result of several meetings associated with CollectionsWeb and NSF’s “Future Directions for Systematics and Biodiversity”, a common theme emerged: biodiversity science lacks a united voice.

The Ad Hoc AIBS Committee was developed to propose a long-term mechanism to develop and promote a shared agenda of biodiversity biologists.
NSCA: The Natural Science Collections Alliance is a Washington, D.C.-based nonprofit association that supports natural science collections, their human resources, the institutions that house them, and their research activities for the benefit of science and society.

headquartered in AIBS
• Long-term Sustainability
  -- a discussion to begin in earnest in Year 2

  New, improved, innovative research on biodiversity
  Education and outreaches programs that reach downstream users

  Also, focus on value of biodiversity collections data for human benefit
  (improves human health, addresses energy needs, drives economic growth, and enables sustainable management of our natural resources)
BIODIVERSITY

Photos: M. Jeffords & G. Paulay