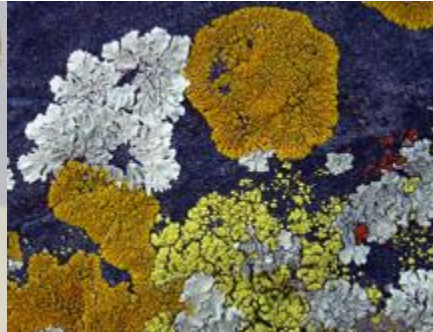
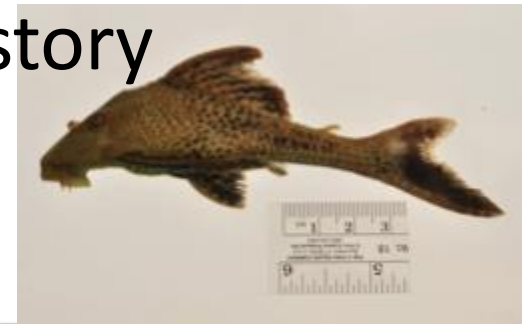


iDigBio: Integrated Digitized Biodiversity Collections

Pamela S. Soltis

Florida Museum of Natural History
University of Florida



What is iDigBio?

- integrated **Digitized Biodiversity** collections
 - ‘HUB’ for NSF’s ADBC-funded projects
- National resource for digitization of museum collections:
 - Specimen-based
 - Label data
 - Images
 - Metadata
 - Associated collections (DNA, calls, etc.)
- 10-year effort; began July, 2011

Who is iDigBio?



- Larry Page, PI
- Jose Fortes, Director for Cyberinfrastructure
 - Andrea Matsunaga, Database Development
 - Renato Figuerado, Appliance Development
- Bruce MacFadden, Director for Education and Outreach
 - Betty Dunckel, Informal Science Education
 - Shari Ellis, Evaluation
- Pam Soltis, Director for Research
- Greg Riccardi, Director for Informatics
- Austin Mast, Senior Personnel
- Gil Nelson & Deb Paul, Digitization Specialists
- David Jennings, Project Manager
- Joanna McCaffrey, Biodiversity Informatics Manager
- Cathy Bester, Project Assistant
- Additional staff, post-docs, students

Seven Thematic Collections Networks (TCNs)

InvertNet – An Integrative Platform for Research on Environmental Change, Species Discovery and Identification (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)

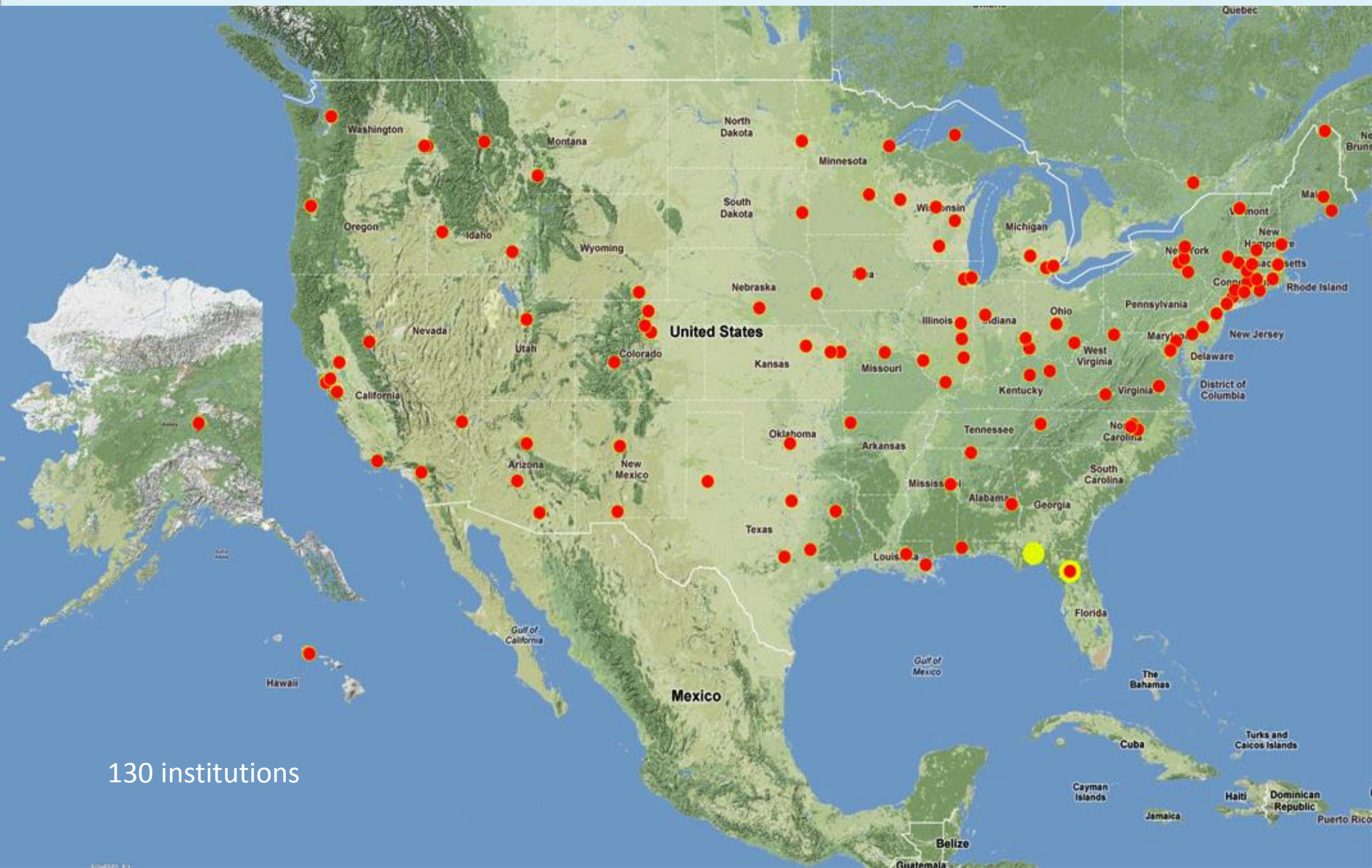
Digitizing Fossils to Enable New Syntheses in Biogeography-Creating a PALEONICHES TCN (University of Kansas)

The Macrofungi Collection Consortium: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs (NYBG)

Mobilizing New England Vascular Plant Specimen Data to Track Environmental Change (Yale)

Southwest Collections of Arthropods Network (SCAN): A Model for Collections Digitization to Promote Taxonomic and Ecological Research (Northern Arizona University)

NATIONAL HUB, THEMATIC COLLECTION NETWORKS, AND COLLABORATORS



130 institutions



Components of iDigBio:

Digitization of Biodiversity Collections
Interactive, Integrative, Innovative

- Cyberinfrastructure
- Digitization
- Research
- Education and Outreach

Each component offers opportunities
for community engagement.

Goals of iDigBio:

Digitization of Biodiversity Collections

Interactive, Integrative, Innovative

- Provide **portal access** to biodiversity data in a cloud-computing environment
- **Enable digitization** of biodiversity collections data
 - Develop efficient and effective digitization standards and workflows
 - Actively seek partners and data sources
 - Respond to cyberinfrastructure needs
- **Engage users** of biodiversity data to address environmental and economic challenges: **research, education, and outreach**
 - Collections community
 - Researchers
 - Educators
 - Citizen scientists, general public
 - Policy-makers
- Plan for long-term **sustainability**

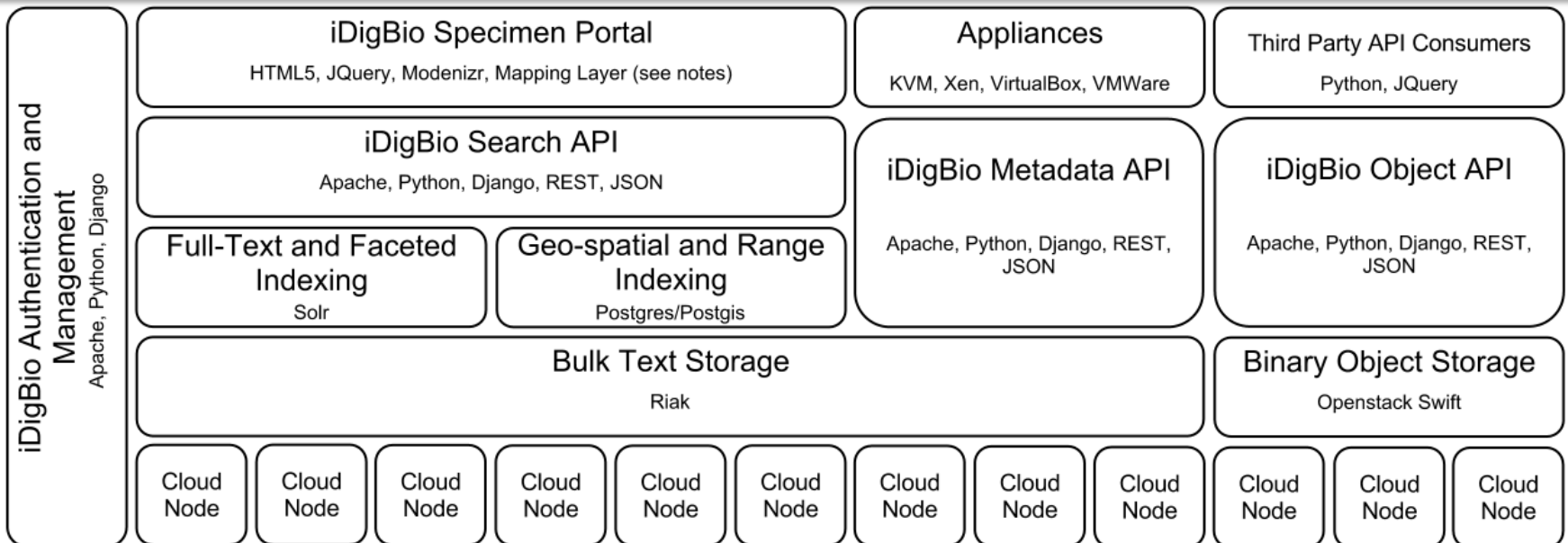
Goals of iDigBio:

Digitization of Biodiversity Collections *Interactive, Integrative, Innovative*

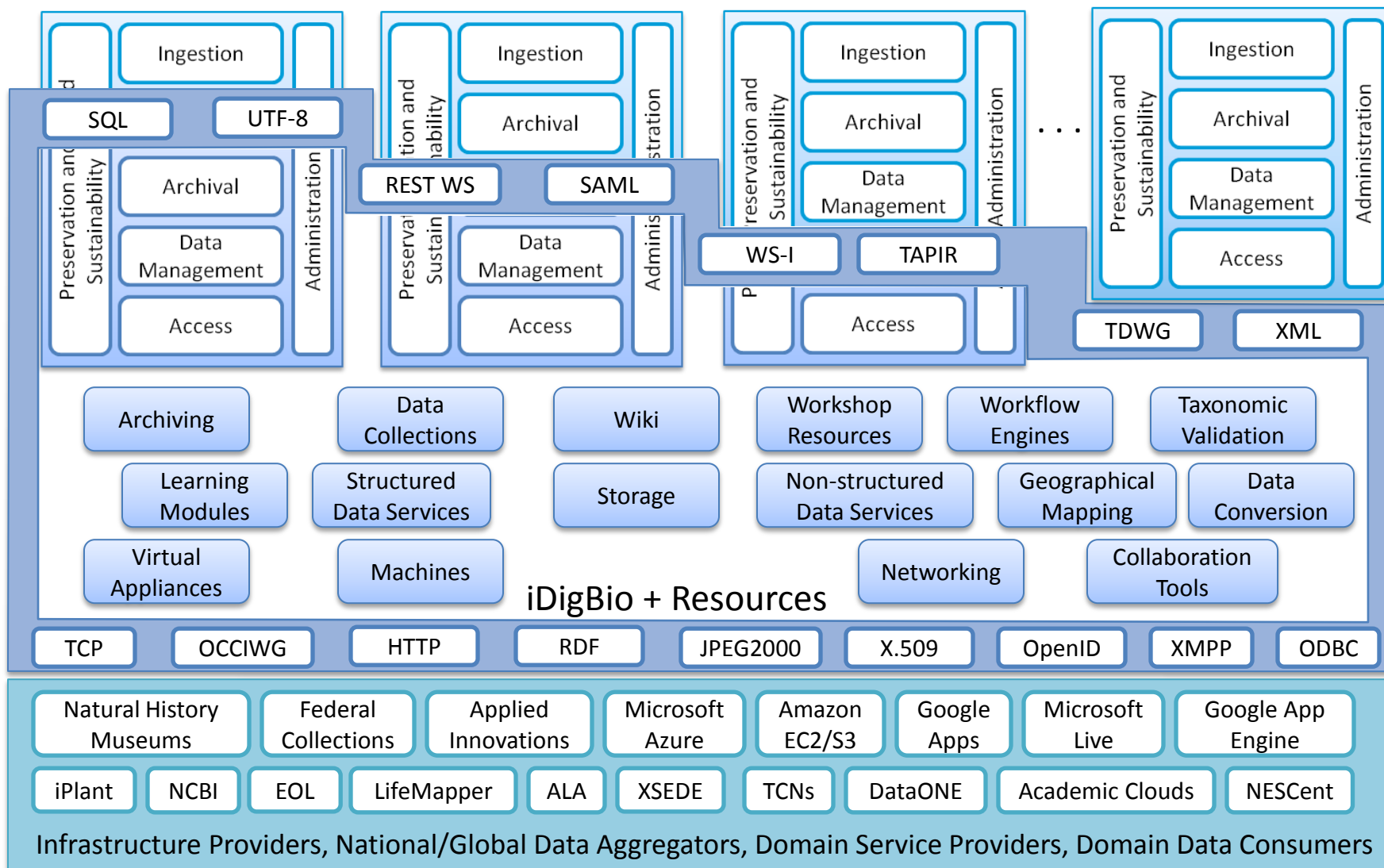
- **Cyberinfrastructure**
 - Provide portal access to collection information
 - Include both metadata and media
- Digitization
- Research
- Education and Outreach

Building the iDigBio Cloud

- Cloud-based strategy
 - Providing useful services/APIs (programmatic and web-based)
 - Federated scalable object storage and information processing
 - Digitization-oriented virtual appliances
 - Reliance on standards, proven solutions, and sustainable software
- Continuous consultation with stakeholders
 - Surveys, workgroups, summit/workshops, person-to-person ...



Interface Model for iDigBio



iDigBio Data Portal



[Home](#)

[Specimen Records](#)

[Media Records](#)

[Tutorial](#)

[Feedback?](#) [Need Help?](#) [Contact Us!](#)

Welcome to the iDigbio Data Portal

If you're already familiar with our portal's interface, go on in and start

If this is your first time here, you might consider browsing through

The iDigBio Portal and APIs are currently serving:

2 Recordsets

391656 Specimen Records

235016 Media Records

Our data is formatted based on the [Darwin Core](#) and [Audubon Core](#)

In this issue:

[Blog](#) | [Workshops](#) | [Protocols](#) | [People](#)

Blog

Specimen Portal Technology Preview



iDigBio's technology preview is the first release of a semi-annual release cycle for a specimen database and portal that will eventually contain over 1 billion vouchered specimen records. [Learn More...](#)

Goals of iDigBio:

Digitization of Biodiversity Collections *Interactive, Integrative, Innovative*

- Cyberinfrastructure
- **Enable digitization**
 - Facilitate digitization workflows
 - Oversee implementation of standards and best practices for digitization
- Research
- Education and Outreach



Components of iDigBio:

Digitization of Biodiversity Collections

Interactive, Integrative, Innovative

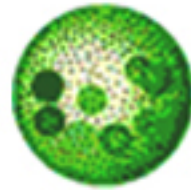
- Cyberinfrastructure
- Digitization
- Research
 - *Access to specimen data: Provide **portal access** to biodiversity data in a cloud-computing environment*
 - *Develop a **computational environment** to facilitate specimen-based integrative biodiversity research*
 - *Develop **research workflows** to anticipate computational needs and linkages*
- Education and Outreach

Linking Collections to...

- Ecology
- Paleontology
- Genomics
- Living Collections
- Other repositories

neon
National Ecological Observatory Network, Inc.
Paleobiology Database

Quick search



UTEX

Welcome to Morphbank
User: Guest [\[click to login\]](#)

TreeBASE
A Database of Phylogenetic Knowledge

About NCBI
National Center for Biotechnology Information

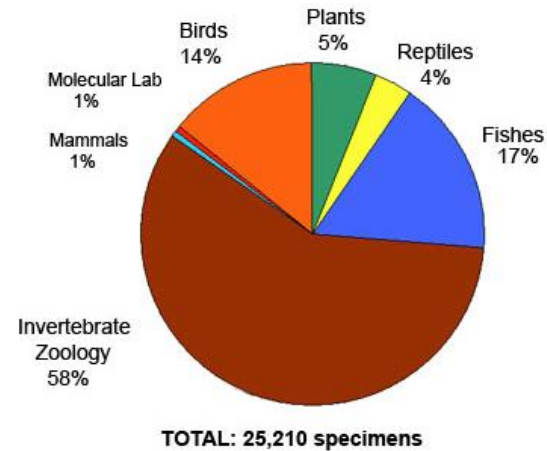
About NCBI	NCBI at a Glance	A Science Primer	Databases and Tools
Human Genome Resources	Model Organisms Guide	Outreach and Education	News

NCBI at a Glance
A Science Primer
Databases and Tools
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Model Organisms Guide
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News



Linking Collections to Genomics

- National network of tissue and genetic resources



FLMNH GRR: the Genetic Resources Repository
Florida Museum of Natural History

Index to DNA Banks in US



2,788,538
Specimen Records

344,373
Media Records

59
Recordsets

Making data and images of millions of biological specimens available in electronic format for the research community, government agencies, students, educators, and the general public

Search the specimen portal: Try it now [Portal Search](#)

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iDigBio Links DNA Banks and Genetic Resource Repositories with New Web Feature, Requests Community Input

Natural history collections have always played a crucial role in organismal biology, serving both as repositories for biological specimens that document biodiversity in space and time and sources of materials for scientific study.

Google™ Custom Search

« April »

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

My Top Resources

- [Contact Us](#)
- [Digitization](#)

Index to DNA Banks in US



Portal Search

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DNA Banks and Genetic Resource Repositories in the United States

iDigBio is actively compiling a list of DNA banking facilities and genetic resource repositories in the United States that maintain collections of nucleic acid extracts (DNA or RNA) or preserved tissues suitable for genetic and genomic studies of biodiversity.

The following resources (listed alphabetically by institution) represent collections currently known by or reported to iDigBio. Each entry includes the name of the institution, the date listed on iDigBio, a brief description, an institutional link, and searchable keywords: e.g., fields of study; repository type; storage type (cryogenic, ultra-cold, etc.); and resources available (nucleic acid extracts, frozen tissues, silica-dried tissues, etc.).

To report the availability of genetic resources at your institution, or to revise or update an existing entry, please contact Grant Godden.

iDigBio thanks the participants of the DNA Banking Workshop hosted by the Missouri Botanical Garden (January 2013) and Breda Zimkus (Museum of Comparative Zoology, Harvard University), in particular, for assistance in compiling these resources.

	Abstract	URL
Academy of Natural Sciences	The Laboratory for Molecular Systematics and	http://www.ansp.org/research/systematics-evolution/resources/molecular-biology/facilities/

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Search

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April

»

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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
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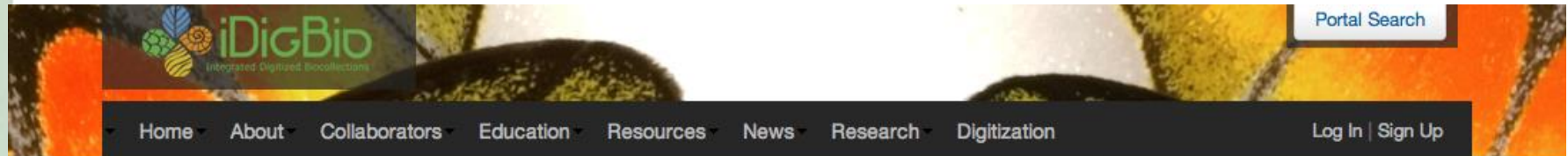
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- [iDigBio Forums](#)
- [iDigBio Resources](#)
- [iDigBio Specimen Portal](#)
- [iDigBio Wiki](#)

Upcoming Events



Index to DNA Banks in US: an example



American Museum of Natural History, Ambrose Monell Collection for Molecular and Microbial Research

Tue, 2013-04-02 15:22 -- kevinlove

Title	American Museum of Natural History, Ambrose Monell Collection for Molecular and Microbial Research
Publication Type	Website
Year of Publication	2013
Authors	History AMuseum of
Keywords	-150C , centralized repository , cryogenic collection , DNA bank , frozen tissue specimens , genetic resources , liquid nitrogen , nucleic acid extracts , online database
Abstract	The Ambrose Monell Cryo Collection (AMCC) supports a broad range of comparative genetic and genomic research initiatives focusing on earth's biodiversity, including animal, fungal, plant, and microbial diversity. Collecting kits and equipment are also available for sampling and shipping of genetic materials.
URL	http://research.amnh.org/genomics/Facilities/AMCC

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- [iDigBio Forums](#)
- [iDigBio Resources](#)
- [iDigBio Specimen Portal](#)
- [iDigBio Wiki](#)

Upcoming Events

Linking Collections to Genomics

- Extend HUB connections to genomics databases

About NCBI
National Center for Biotechnology Information

About NCBI	NCBI at a Glance	A Science Primer	Databases and Tools
Human Genome Resources	Model Organisms Guide	Outreach and Education	News

NCBI at a Glance
A Science Primer
Databases and Tools
Human Genome Resources
Model Organisms Guide
Outreach and Education
News

-
- Literature Databases
 - Entrez Databases
 - Nucleotide Databases
 - Genome-Specific Resources
 - Tools for Data Mining
 - Tools for Sequence Analysis
 - Tools for 3-D Structure Display and Similarity Searching
 - Maps
 - Collaborative Cancer Research
 - FTP Download Sites
 - Resource Statistics

Goals of iDigBio:

Digitization of Biodiversity Collections
Interactive, Integrative, Innovative

- Cyberinfrastructure
- Digitization
- Research
- Education and Outreach

Education & Outreach

- Range of activities:
 - Undergraduates
 - Graduate seminars
 - Post-docs
 - Visiting Scholar Program
 - Fossil Clubs
 - Citizen Science
- Many opportunities to develop programs, engage with iDigBio and TCNs

Public Participation

Public Participation in Digitization of Biodiversity Specimens Workshop

Wed, 2012-06-20 14:14 -- jgrabon



Public Participation in Digitization of Biodiversity Specimens Workshop

iDigBio, the National Science Foundation's national HUB for Advancing Digitization of Biological Collections (ADBC), is offering a workshop to identify ways to engage the public in the ongoing digitization of biodiversity specimens. The workshop will be held at the University of Florida in Gainesville, Florida, on September 28–29, 2012. It is co-organized by iDigBio's **Public Participation in Digitization Working Group** and iDigBio's **Education and Outreach Working Group**.

Project leaders, biodiversity informatics software developers, and informal education community members are especially encouraged to attend.

Enhancing Infrastructure: E&O Subcommittee

- Formed March 2013, members of iDigBio team
- Charges to:
 - Coordinate E&O activities across ADBC (and other partners)
 - Communicate with TCNs
 - Develop activities of interest to the HUB and TCNs
- Short-term goals (next six months)
 - Establish regular communication with one E&O point person from each TCN
 - Plan for, and implement, E&O Workshop
 - Facilitate common goals

Developing the E&O Network

TCN	Award #	PI	Institut.	Cohort	E&O contact	Institution	email
Lichens & Bryo	1115116	Corinna Gries	U WI	1	TBD		
Invert Net	1115112	Chris Dietrich	U IL	1	Brendan Morris	U IL	brenolmorris@gmail.com
Tritrophic	1115144	Toby Schuh	AMNH	1	Katja Seltman	AMNH	enicospilus@gmail.com
PaleoNICHES	1206757	Bruce Lieberman	U KS	2	Jonathan Hendricks	San Jose St U	jonathan.hendricks@sjsu.edu
SCAN	1207371	Neil Cobb	N AZ U	2	Melody Basham	AZ State U	Melody.Basham@asu.edu
Macrofungi	1207526	Barbara Thiers	NYBG	2	Barbara Thiers	NYBG	bthiers@nybg.org
NE Vascular Pla	1209149	Parick Sweeney	Yale	2	TBD		
TBD				3	TBD		
TBD				3	TBD		

TCN BI Activities

- Grad training & mentoring 6
- Undergraduate training & mentoring 6
- Museums, etc. 5
- Underrepresented groups 5
- Amateurs, volunteers, & citizen science 5
- K12 outreach 4
- Evaluation & best practices 2
- Postdoc training & mentoring 2
- Fostering use by the professional community 1
- EPSCoR 1
- Access to & awareness of digitized collections by society 1+

As stated in proposals (n=7); thanks to Joanna McCaffrey

TCNs' BI General Overview

- Lots of overlap and possibility for collaborations
 - independent initiatives
 - possible funding from other NSF programs
- Some activities complement iDigBio initial goals
 - e.g., developing an UG course, webinar, etc.
- Many proposed BI projects have limited accountability for goals, outcomes, etc.
- Coordination and communication—via E&O subcommittee and workshop

Interacting with iDigBio

- As part of a TCN
- As a PEN
- Other collaborations; NSF requires collaboration with iDigBio for collections-based projects
- Appliance development
- Tool development and integration
- Hosting a workshop or convening a working group
- Visiting Scholar program
- Education and outreach

Interacting with iDigBio

- As part of a TCN or PEN
 - Monthly TCN/PEN meetings
 - Annual Summit of iDigBio, TCNs, PENs
 - Training: digitization, workflow development, georeferencing, etc.
 - Opportunities for outreach in collaboration with iDigBio and other TCNs/PENs

Interacting with iDigBio

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- Education and outreach

- Recent Workshops:
 - IT standards workshop
 - Kickoff for InvertNet
 - Paleontology digitization workshop
 - Digitization workflows workshop—image to data (O2I2D)
 - Citizen science/crowdsourcing workshop
 - Georeferencing ‘train the trainers’ workshop
 - Digitization training workshops
 - Specimen digitization tools and practices workshop (Botany 2012)
- Working Groups:
 - Georeferencing WG
 - Paleocollections WG
 - Minimum information for scientific collections WG
 - Digitization workflows WG
 - OCR/natural language processing WG (hackathon)

Workshop/Working Group Proposal Process



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Workshop or Working Group Proposal

Thu, 2012-03-01 09:34 -- kevinlove

Please read the following document on the [Workshop and Working Groups Proposal Process](#).

Once you have prepared your proposal, you may use the form below to submit and manage your Workshop or Working Group Proposals.

Upcoming Events

Botany 2012

Saturday, July 7, 2012 (All day)

Updated: Digitizing Plant Collections Workshop

Monday, September 17, 2012 (All day)

Public Participation in Digitization of Biodiversity Specimens Workshop

Friday, September 28, 2012 (All day)

[more events >>](#)

Interacting with iDigBio

- As part of a TCN
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Broadening Representation: iDigBio Visiting Scholars Program Early Career Professional Development

- 2012 Anna Monfils, Central MI Univ
- 2013 Corey Toler-Franklin, UC-Davis



Interacting with iDigBio

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Digitization Workflow Workshop Report

Members of the collections community gather in Gainesville, FL to produce optimized specimen digitization workflows at the Developing Robust Object-to-Image-to-Data (DROID) Workshop. Tremendous participant insight holds the promise for informative documentation that will benefit all collections conducting or initiating digitization activities.

Upcoming Events

Botany 2012

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Updated: Digitizing Plant Collections Workshop

Monday, September 17, 2012 (All day)

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[more events >>](#)

Blog Archives



Thank you!

