iDigBio
Integrated Digitized Biocollections

Exploring the Who What Where: aka Alphabet Soup

Quick overview of some acronyms, projects, software, etc. affiliated with natural history collections data use and digitization initiatives

Orientation Session, ADBC Summit VI
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FLORIDA MUSEUM OF NATURAL HISTORY
NSF

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iDigBio
Integrated Digitized Biocollections

An acronym rich environment (ARE)

A framework for this walk-through

- ADBC, TCNs and PENs
- Digitization related acronyms
- Aggregators and beyond
- And just a few more…

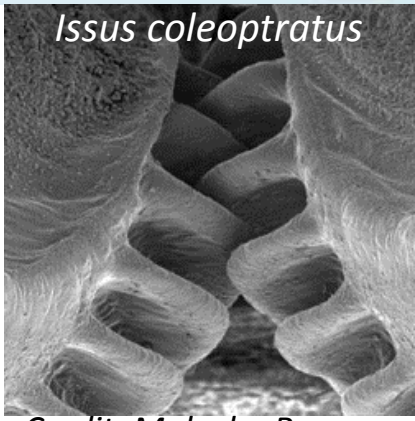
- Glossary in program
- Full glossary on the Wiki

https://www.idigbio.org/wiki/index.php/Glossary_of_Terms

From NIBA to the ADBC & BCoN

- Networked Integrated Biocollections Alliance (NIBA)
- Resulted in Advancing the Digitization of Biological Collections (ADBC)
- Biodiversity Collections Network (BCoN)
  - AIBS (American Institute for Biological Sciences), iDigBio & NSC Alliance (Natural Science Collections Alliance)

http://bcon.aibs.org/



Credit: Malcolm Burrows

Advancing the Digitization of Biological Collections (ADBC)

- iDigBio, that's Integrated Digitized Biocollections
  - Funded by National Science Foundation (NSF) to develop an integrated national infrastructure and resource for digitization of existing biodiversity collections in the U.S. iDigBio
- Thematic Collection Networks (TCNs)
  - A network of collaborative institutions
  - Digitize around a particular research theme.
  - Charged with defining and delineating subprojects for technology development or content generation; identifying deliverable goals, metrics for assessment, and specific needs for community support; providing technical support; and strengthening communications and outreach to other collections
- Partners to Existing Networks (PENs)
  - Must increase the number of specimens digitized in the ongoing project and fill gaps not addressed by the specimens in the existing TCN.

iDigBio – the Home Uniting Biocollections (HUB)

- Sustainability, digitization, facilitating research and educational use of collections data, cyberinfrastructure, …
- Advanced Computing and Information Science (ACIS)
  - Implementing the cyberinfrastructure for iDigBio
- Libraries of Life (a free app)
  - Collections coming to life in 3-D, classroom applications, collaboration with TCNs, ASU (Arizona State University)
- WeDigBio (Worldwide Engagement for Digitized Collections)
  - Planet-wide collaborative 4-day event to engage the public, including students, to transcribe collections data and meet scientists
- The FOSSIL Project
  - Engaging amateur fossil clubs and societies as downstream users of digitized data

Thematic Collections Networks (TCNs) and Partners to Existing Networks (PENs)

Cretaceous World	
Fossil Insect Collaborative	1
Fossil Marine Invertebrates (EPICC)	
Great Lakes Invasives	
InvertEBase	1
InvertNet	1
LepNet	
Lichens & Bryophytes	4
Macroalgal Consortium	
Macrofungi Consortium	2
Microfungi Consortium	
Mid-Atlantic Megalopolis (MAM)	
NEVP	2
PALEONICHES	2
SCAN	4
SERNEC	
Tri-Trophic	
Vouchered Animal Communication Signals	

TCN: network of institutions strategically digitizing information for a particular research theme, such as impacts of climate change or biota of a region.

The Cretaceous World

The Mid-Atlantic Megalopolis

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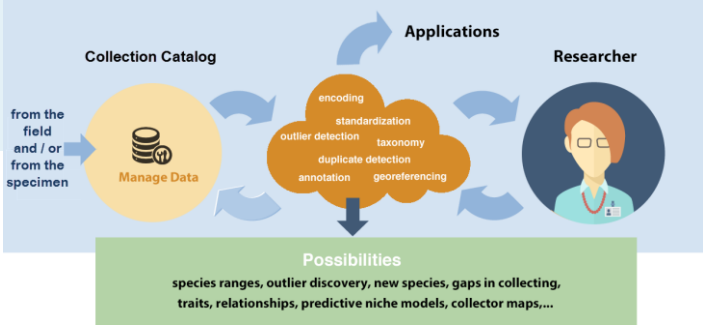


Digitization

Collection Management Software

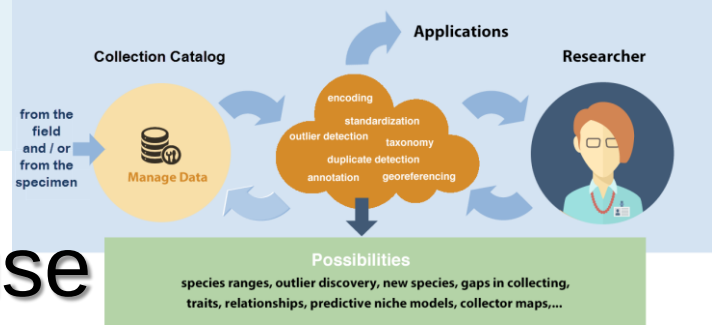
- Arctos
- Symbiota
- Specify
- Axiell EMu
- collectionspace

Community Building

- SPNHC
- GRBio
- SCNet
- ECN
- Working Groups: DROID, GWG etc.

Data Mobilization

- TDWG – Biodiversity Information Standards (tdwg)
- DwC - Darwin Core
- AC - Audubon Core
- IPT – Integrated Publishing Toolkit (from GBIF)
- Kurator and Akka
- GEOLocate
- DAMS – Digital Asset Management
- ABBYY
- Unique identifiers - GUID, UUID, ARK, IGSN



Data aggregation and Data use

Biodiversity Data Mobilization and Use

- **EoL** - Encyclopedia of Life
- **BHL** – Biodiversity Heritage Library
- **NEON** – National Ecological Observatory Network
- **CyVerse** (iPlant) - facilitating scientific research in the cloud

Aggregating Specimen Data

- **GBIF** – Global Biodiversity Information Facility
- **iDigBio**
- **VertNet** – Vertebrate data portal, Data mobilization and cleaning services
- **BISON** – Biodiversity Serving our Nation – GBIF North American Node
- **USVH** – United States Virtual Herbarium
- **ALA**, **DigiVol** – Atlas of Living Australia
- **Canadensys** - unlocking specimen information held by Canadian university-based biological collections
- **SiBBr** – Brazilian Biodiversity Information System or Sistema de Informação sobre a Biodiversidade Brasileira)
- **CONABIO** (Mexico)
- **CRIA** (Brazil) and **SpeciesLink**

Education, Outreach, Inreach

- AIM-UP!
  - Advancing Integration of Museums into Undergraduate Programs; exploring the use of collections data in undergraduate education
- Notes from Nature
  - Crowdsourcing collections transcription, creating communities
- iNaturalist
  - observation app, connecting scientists and the general public
- ePandda
  - Enhancing Paleontological and Neontological Data Discovery API, connecting scientific literature with specimens
- Data Carpentry & Software Carpentry (DC and SwC)
  - **Biodiversity informatics skills** for graduate students and researchers. Focus on tidy data, fit for reproducible research. DC – novices, SwC for self-taught programmers in the sciences.

Publishing

- Pensoft
  - ARPHA Writing Tool (AWT): Authoring, Reviewing, Publishing, Hosting and Archiving
- DataCite, DOI (Digital Object Identifier)
  - Find, share and reuse, cite data, connect and get credit
- Mendeley
  - Free reference manager; organize papers, read & annotate your PDFs, collaborate in private or open groups, and securely access your research from everywhere.
- ORCiD
  - Open Researcher and Contributor ID
- DataONE
  - Data Observation Network for Earth (DataONE) – data repository and data management best practices
- Data Dryad
  - Curated resource making the data underlying scientific publications discoverable, freely reusable, and citable' general-purpose home for a wide diversity of datatypes
- Figshare
  - online digital repository where researchers can preserve and share their research outputs, including figures, datasets, images, and videos. Open data

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Got more?

https://www.idigbio.org/wiki/index.php/Glossary_of_Terms

idigbio.org/wiki

facebook.com/iDigBio

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Working and Interest Groups (wg)

DIGITIZATION

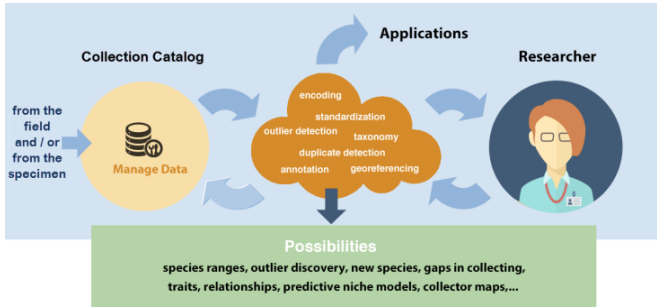
- Developing Robust Object to Image to Data (DROID1,2,3,4)
- International Whole-Drawer Digitization Interest Group (WDD)
- Fluid-preserved Arthropod and Microscopic Slide Imaging Interest Group
- Paleo Digitization Working Group (PaleoDigi)
- North American Network of Small Herbaria Working Group (NANSH)
- Biodiversity Informatics Management (BIM) Working Group
- Georeferencing Working Group (GWG)
- Symbiota Working Group (SWG)
- Augmenting OCR (aOCR)
- Outlier Detection and Documentation by Collectors Working Group (ODD Collectors)

E & O

- Education & Outreach (E&O)
- Augmented Reality Public Education/Outreach Working Group (ARPEO)
- User Engagement for Public Participation in Digitization (CitSciEngage)
- Interoperability for Public Participation in Digitization (CitSciInterop)

VISION

- Cyberinfrastructure (CYWG)
- Data Management Interest Group (DMI)
- Project Management Interest Group (PMIG)
- Sustainability Working Group (SWG)



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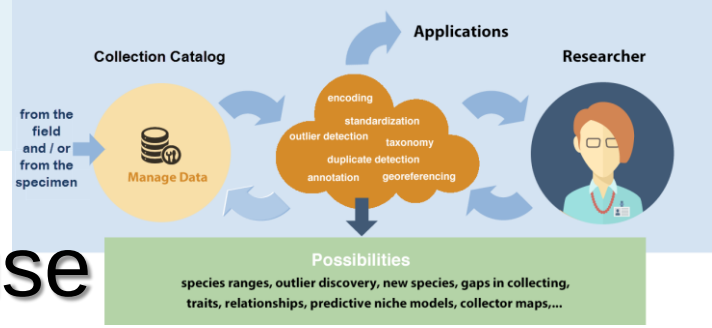

Data aggregation and Data use

Biodiversity Data Mobilization and Use

Aggregating Specimen Data

- EoL
- BHL
- NEON
- CyVerse (iPlant)

- GBIF
- iDigBio
- VertNet
- BISON
- USVH
- ALA, DigiVol
- Canadensys
- SiBBr
- CONABIO (Mexico)
- CRIA (Brazil) and SpeciesLink

Research tools and resources

Implementation

- Lifemapper
- Phylolink (was Phylojive)
- Carto (aka CartoDB)
- QGIS
- API tools
  - riDigBio, rGBIF, rVertNet, ePandda

Architecture

- Python
- R, Rstudio, ROpenSci
- MySQL, SQL, SQLite
- GitHub

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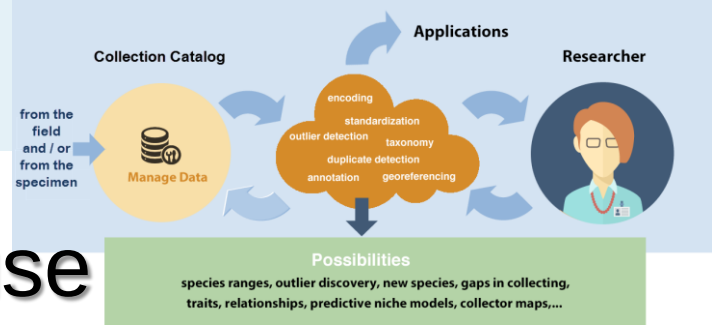

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