iDigBio
Integrated Digitized Biocollections

InvertEBase

Reaching Back to See the Future:

Species-rich Invertebrate Faunas Document Causes and Consequences of Biodiversity Shifts in North America

Petra Sierwald, PI
Rudiger Bieler, Co-PI
Field Museum of Natural History, Chicago

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The Field Museum

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Four –Year Project: Six institutions, 10 collections

The Field Museum — EF 14-02667, Petra Sierwald, Rudiger Bieler

The Frost Entomological Museum — EF 14-00993, Andy Deans

Delaware Museum of Natural History — EF 14-02697, Elizabeth Shea

AUBURN UNIVERSITY — EF 14-01176, Jason Bond

LSA MUSEUM OF ZOOLOGY, UNIVERSITY OF MICHIGAN — EF 14-04964, Diarmaid O'Foighil, Taehwan Lee

Cleveland Museum of NATURAL HISTORY — EF 14-02785, Gavin Svenson

MUSEUM OF COMPARATIVE ZOOLOGY, HARVARD UNIVERSITY — **FilteredPush** EF 14-01450, James Hanken

PEN 2016: Chicago Academy of Sciences

CHICAGO ACADEMY OF SCIENCES / PEGGY NOTEBAERT NATURE MUSEUM — EF 16-01700, **Dawn Roberts**

InvertEBase Portal:
Additional collections posting their data

More Collections on InvertEBase Portal

California Academy of Sciences
Colorado Plateau Biodiversity Center
Denver Museum of Nature & Science
University of Alaska Museum
Florida Museum of Natural History
North Carolina Museum of Natural Sciences
Sam Noble Oklahoma Museum
Yale University Peabody Museum

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North American Invertebrates

- Terrestrial and aquatic mollusks: 2014 first inclusion of mollusks in ADBC
- Terrestrial and aquatic insects, arachnids, myriapods
- Digitize, mobilize, georeference up to 3Mill specimen data
- Three museums will serve data first time online (DMNH, AUMNH, CMNH)
- **Arthropod data served on**

SCAN
Symbiota Collections of Arthropods Network

Invert • E • Base

Digitization Progress :

- Total digitized in 5 of the 6 collaborating Institutions: 600,000 specimen records
- Frost Entomological Museum: completed 40,000 specimen/label images
- 4 year-period expected: 2,3mill
- Mobilization: DMNH completed transfer of all digitized DMNH specimens records to *Specify,*
- Auburn University: Will get their data onto InvertEBase in the near future
- **Year 4 challenge: georeferencing**
- **Cleaning the on-line iDigBio files**

Development of taxonomic authority files:

- MolluscaBase/WoRMs file uploads (5,000+ name combinations) PI Bieler
- Collaboration with SCAN: North American Arthropod names in progress
- MilliBase/WoRMs: global millipedes species database currently transferred to publicly accessible platform, PI Sierwald

Lessons learned

Workflows, sustainability, collaboration, broader impacts, and/or research use of data

Large collections are heterodox:
Constitutes many collections
different labels, various identifications, accuracy, various specimen sizes,

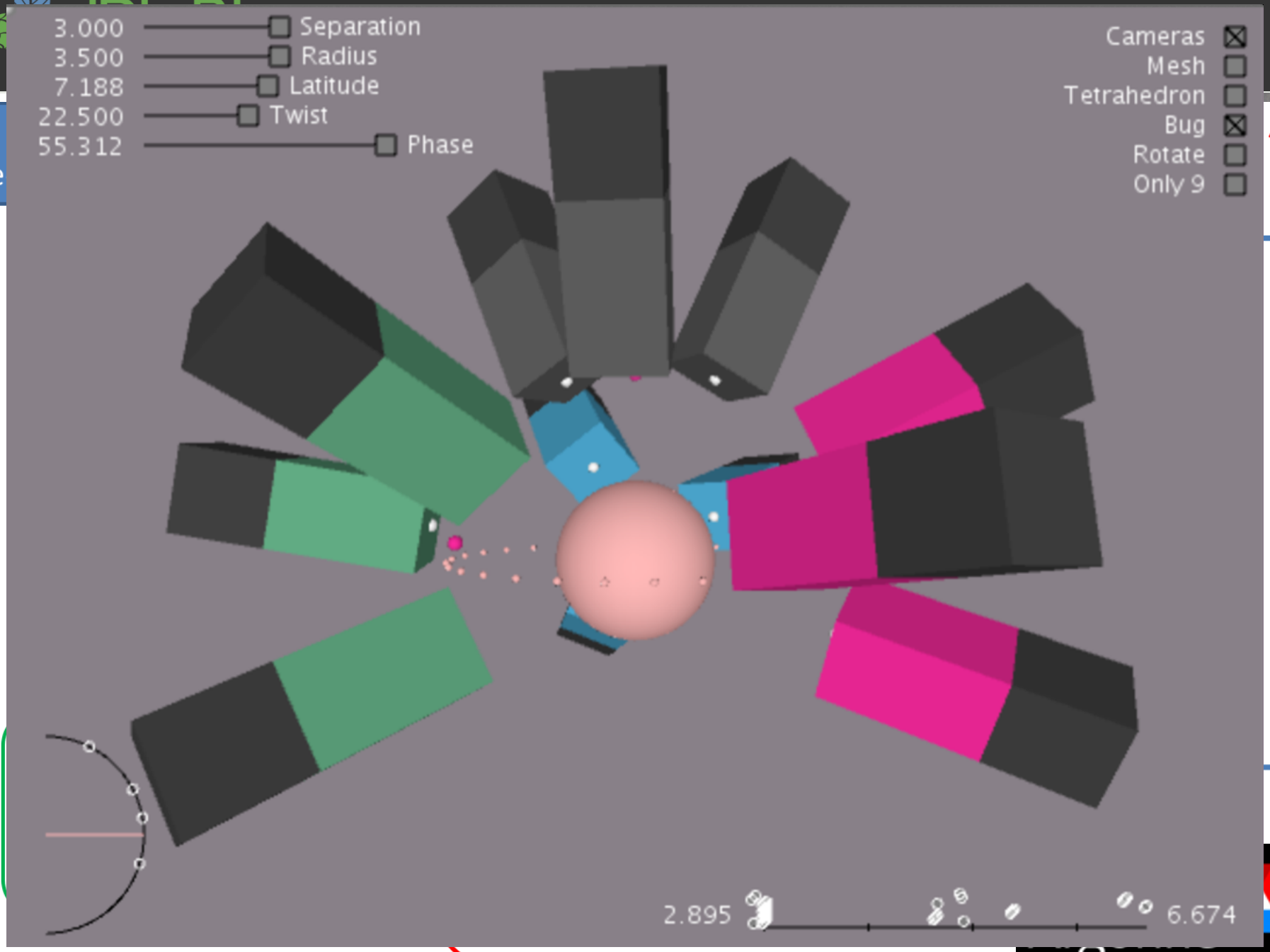
Pre-curation is a must.

Data entry so far has NOT benefitted from crowed sourcing, various collections in different status, when digitization work begins. Nobody wants to try Voice recognition
Double sided barcode labels

Argonne NATIONAL LABORATORY

Developing a high-throughput inexpensive imaging system for pinned insects and vials

1. image pinned specimen with all labels on the pin
2. Software stitches labels together and produces one clear image of the label data.
3. If the original label was printed, OCR may be used.
4. Crowd sourcing for data transcription


3.000
Separation
3.500
Radius
7.188
Latitude
22.500
Twist
55.312
Phase
Cameras
Mesh
Tetrahedron
Bug
Rotate
Only 9
2.895
6.674

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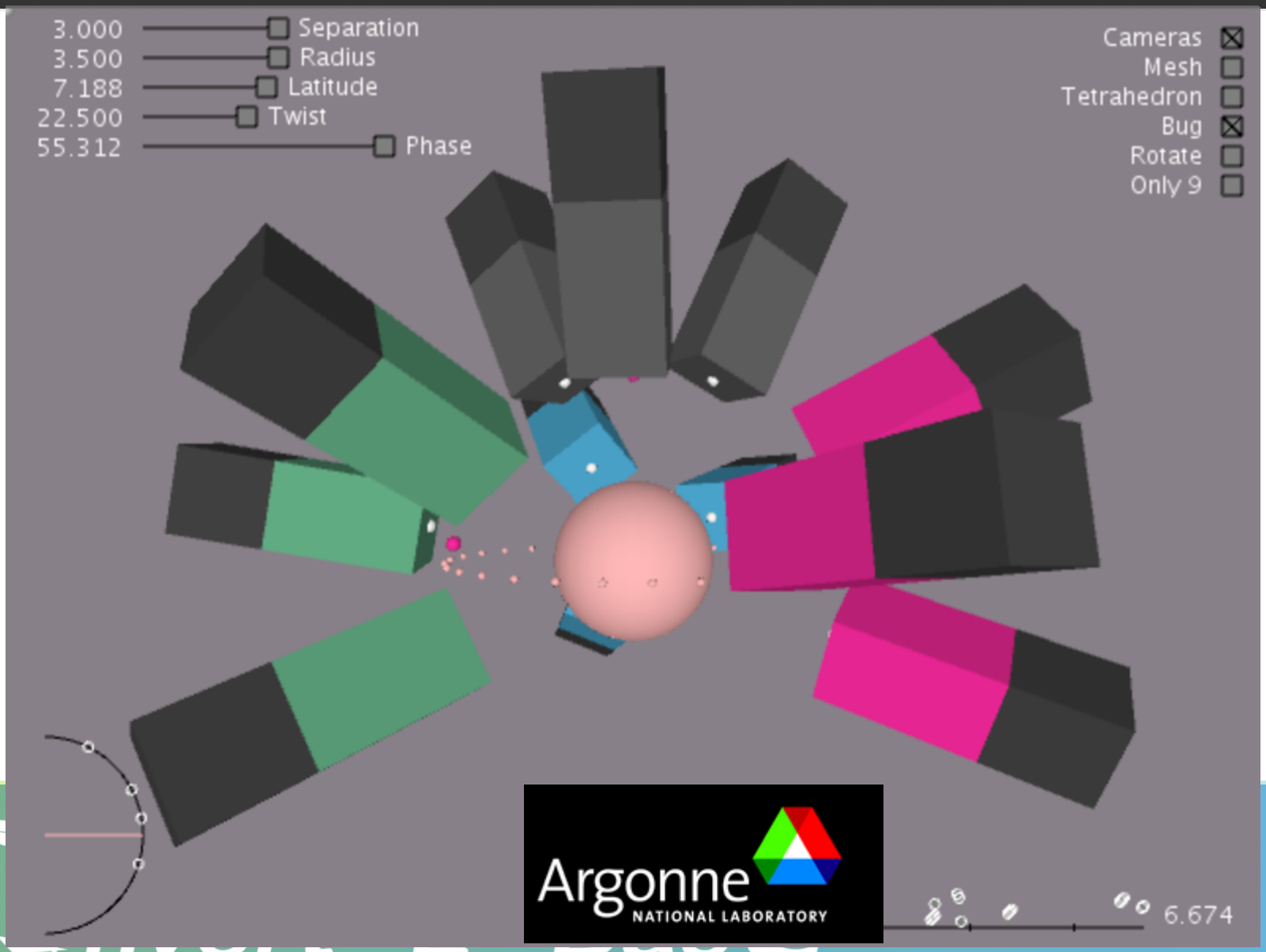

Looking at Year 5:

Two PEN proposals submitted from collections in

- Virginia
- Arizona

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- Denver Museum of Nature & Science
- Florida Museum of Natural History
- North Carolina Museum of Natural Sciences
- Sam Noble Oklahoma Museum
- University of Alaska Museum
- Yale University Peabody Museum

Data enhancement:

- Georeferencing

Sustainability

Additional Digitization projects

- FMNH: inhouse funded
- UMZ Michigan: Insects

Outreach:

- Exhibit development

YEAR 3