



iDigBio

Integrated Digitized Biocollections



iDigBio is funded by a grant from the National Science Foundation's Advancing Digitization of Biodiversity Collections Program (Cooperative Agreement EF-1115210). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. All images used with permission or are free from copyright.

Optimization of Digitization Workflows & Processes

Summit IV
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December 2011-June 2012

28 Collections

10 Museums

**Spanning biological and paleontological collections
Insects and other invertebrates, plants, birds, mammals
Wet, dry**



Five task clusters that enable efficient and effective digitization of biological collections

Gil Nelson, Deborah Paul, Gregory Riccardi, Austin R. Mast

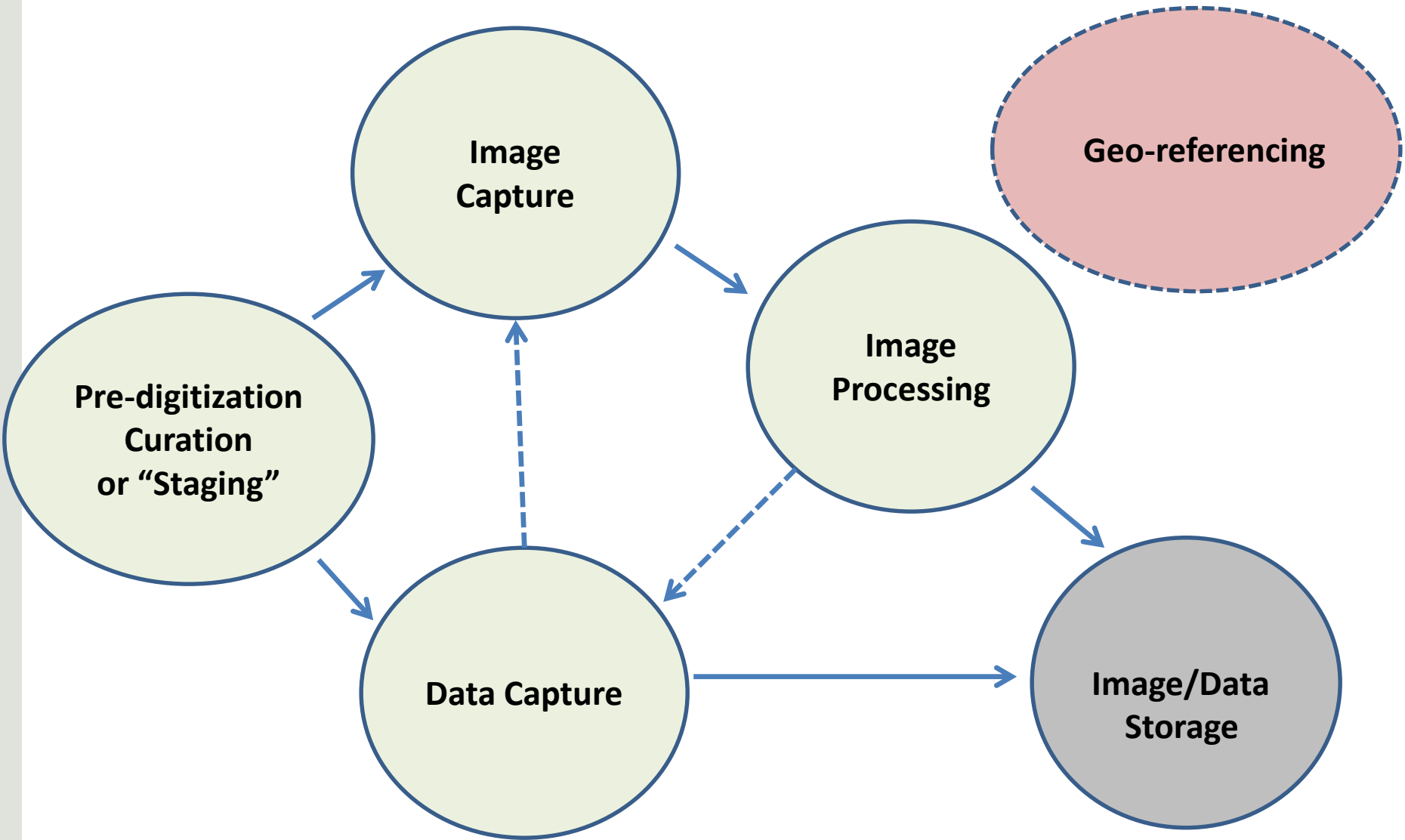


A peer-reviewed open-access journal

ZooKeys
Launched to accelerate biodiversity research

Acknowledgments

**American Museum of Natural History
Botanical Research Institute of Texas
Florida Museum of Natural History
Florida State University
Harvard Herbarium
Museum of Comparative Zoology (Harvard)
New York Botanical Garden
Southeast Regional Network for Expertise and Collections
Specify Software Project (University of Kansas)
Symbiota Software Project (Arizona State University)
Tall Timbers Research Station and Land Conservancy
Tulane University Museum of Natural History
University of Kansas Insect Museum
Valdosta State University
Yale Peabody Museum**



DROID

Developing Robust Object-to-Image-to-Data Workflows (May 2012)





Digitization Workflows

Researchers

Browse our specimen portal



Collections Staff

Learn how your collection can benefit from our work



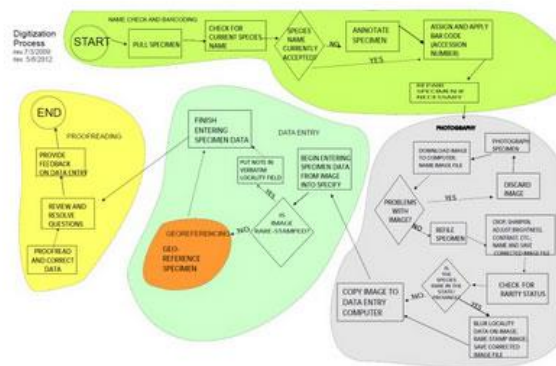
Teachers & Students

Learning resources & opportunities to engage



Presenter: Dorothy Allard

Digitization Workflows




Efficient and effective workflows are at the heart of successful biological and paleontological collections digitization. Much work has been done with developing workflows and protocols at the museum and collections level, but few of these workflows have been documented or made available to the larger collections community. iDigBio, through its

Documentation pages, is establishing an online repository for sharing existing customized workflows from as many collection types and institutions as possible, an idea that stems largely from the [Developing Robust Object-to-Image-to-Data \(DROID\)](#) workshop held May 30-31, 2012. We have assembled an initial set of workflows, including selected examples from the DROID workshop, as well as those developed by iDigBio staff. Here we offer the beginnings of the repository and encourage those in the community to both discuss the workflows via the forum links, and to contribute to this resource by adding new workflows and updating existing workflows. If you would like to submit a workflow for inclusion on this page, please [contact iDigBio](#) for instructions. We are also assembling detailed modules of tasks to be performed at each stage of the workflow, accessible on our [Workflow Modules and Tasks](#) page.

Outcomes

DROID workflow working groups (generic workflows for several disciplines/prep types):

- **Flat sheets and packets**
- **Pinned Things in Trays and Drawers**
- **Things in Spirits in Jars**
- **3D Objects in Drawers and Boxes**



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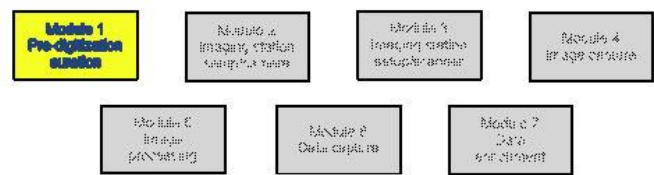
Technical Info
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Workflow Modules and Task Lists

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One outgrowth of the DROID (Developing Robust Object-to-Image-to-Data) workflow workshop held in May 2012 was the establishment of a series of working groups, each focused on workflow modules and tasks for various preparation types. The first of these groups, informally called the **Flat Sheets and Packets Working Group**, was charged with fleshing out task lists for digitizing vascular and non-vascular plant collections. The second working group, **Pinned Specimens in Trays and Drawers**, invested its time developing modules to support effective entomological digitization workflows. **Things in Spirits in Jars** devoted time to workflows for fluid-preserved collections. Other preservation types will follow, including fluid collections and other 3-dimensional objects, concluding with the development of an overall project management module designed to provide guidance for developing and managing digitization projects across disciplines and preservation types.

We have chosen a modular approach for presenting our results in order to accommodate the broad range of workflow implementations within the collections community. We recognize that there is no consensus workflow that fits all situations, even within a single preservation type. In light of this, we have attempted to assemble orderly, comprehensive task lists to serve as foundations from which institutionally specific workflows can be created. Not all institutions will use every task, but we hope that the lists we have developed encompass all relevant digitization tasks. We also hope that those in the collections digitization community will provide feedback on these lists, either through forum posts or e-mails to Gil Nelson, alerting us to deficiencies and oversights.

Links to published modules as they are completed are provided below:

<https://www.idigbio.org/content/workflow-modules-and-task-lists>

Flat Sheets and Packets Working Group - Vascular and Non-vascular Plants

- Module 1 Pre-digitization Curation Tasks
- Module 2 Imaging Station Setup Camera
- Module 3 Imaging Station Setup Scanner
- Module 4 Imaging Tasks
- Module 5 Image Processing Tasks (Rev 2012-11-07)
- Module 6 Data Capture Tasks

Pinned Things in Trays and Drawers Working Group - Dried Insects

- Module 0 Generic Tasks Applicable to Two or More Modules
- Module 1 Pre-digitization Curation Tasks
- Module 2A Specimen Imaging Tasks
- Module 2B Whole-drawer Imaging Tasks
- Module 2C Label Imaging Tasks
- Module 3 Image Processing Tasks
- Module 4A Data Capture From Image Tasks
- Module 4B Data Capture From Specimen Tasks
- Module 4C Event Data Capture Tasks
- Module 5 Quality Assurance Tasks

Things in Spirits in Jars

- Module 0 Pre-digitization Curation Tasks
- Module 1A Imaging Ledgers, Cards, Field Notes
- Module 1B Imaging Specimen Labels
- Module 1C Specimen Imaging
- Module 1D Image Processing
- Module 1E Phototank Immersion Imaging Setup
- Module 1F Phototank Immersion Specimen Prep
- Module 1G Phototank Immersion Image Capture
- Module 1F Phototank Immersion Image Processing

Weekend Digitization Blitz Yields 4,276 Specimen Images for Archbold Biological Station

Researchers

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iDigBio, Archbold Biological Station, Tall Timbers Research Station (TTRS), and the Godfrey Herbarium at Florida State University (FSU) teamed up the weekend of January 18th and part of the following week to image Archbold's entire herbarium collection. Joanna McCaffrey and Gil Nelson hauled a carload of contributed technology, including camera stations and equipment provided by TTRS and FSU and iDigBio's new OR Technologies lightbox, to the south-central Florida field station for the event.

iDig'dBio@ FSU's Herbarium Imaging Blitz a Success!

Researchers

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By the numbers:

- 60 hours of prep work by herbarium staff
- 3 imaging stations
- 22 volunteers
- 2 four-hour imaging shifts with one hour for lunch.
- 125 specimens imaged per hour, on average, per station
- 3,000 local plant specimens imaged in total
- 1 very cool water bottle gift for volunteers
- Endless research possibilities for digitized herbarium specimens

On September 13, 2014, iDigBio and the Southeastern Regional Network of Expertise and

Next steps...

- **Review, revisit, revise in light of what has been learned over the span of ADBC (January workshop).**
- **Incorporate georeferencing, OCR, and public participation.**
- **Imaging blitz workflows for SERNEC TCN.**
- **Publish.**



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