Digitizing Vertebrate Collections – Getting Started
Bernice Pauahi Bishop Museum

Established in 1889

World’s largest biological collections from the Pacific region
# Natural History Collections

<table>
<thead>
<tr>
<th>Collection</th>
<th>Specimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany</td>
<td>750,000 specimens</td>
</tr>
<tr>
<td>Entomology</td>
<td>14,000,000 specimens</td>
</tr>
<tr>
<td>Ichthyology</td>
<td>102,000 specimens</td>
</tr>
<tr>
<td>Invertebrate Zoology</td>
<td>552,000 specimens</td>
</tr>
<tr>
<td>Malacology</td>
<td>6,000,000 specimens</td>
</tr>
<tr>
<td>Vertebrate Zoology</td>
<td>110,000 specimens</td>
</tr>
</tbody>
</table>
VZ Digitization Status

100% basic data & georeferenced
Thousands of sound recordings and in-life photos of vouchered specimens

80% basic data & 30% georeferenced
No media specimens

70% basic data & 30% georeferenced
No media specimens

50% remain uncataloged
No media specimens
Getting Started

Collaborating with others to create a Digitization Mission

Identify the goals for your institution, collection, or smaller subset of specimens

Planning Phase

Develop a realistic strategy for accomplishing the goals of your Digitization Mission

Execute the Plan

5 Common Task Clusters
Digitization Mission

A few things to consider...

To Image or not to Image?

Is your current database management system robust enough for higher level digitization?

Which specimens to image?
- Type Specimens?
- Fragile Specimens?
- Frequently Loaned Specimens?

What do you want the digitization status of your collection to be in 3-5 years?

How much money is available to you for digitization?
Digitization Mission

Create or join an iDigBio Working Group

iDigBio (and the people sitting next to you) are here to help

iDigBio Online resources
Planning Phase

“Plans are worthless, but planning is everything.”
- Dwight D. Eisenhower

- How to bridge potential knowledge gaps between collections staff and IT staff
- How to measure & maintain quality control

Research...
What works at other institutions

Modify existing workflows and techniques to fit your circumstances
Making Your Goals a Reality

5 Common Task Clusters

- Pre-digitization curation and staging
- Specimen image capture
- Specimen image processing
- Electronic data capture
- Georeferencing specimen data
Pre-digitization Curation & Staging

• Inspect for and repair specimen damage and evaluate collection health

• Update nomenclature and taxonomic interpretation

• Attach a unique identifier to a specimen, drawer, or cabinet

• Treat specimens for pests
Specimen Image Capture

- Imaging requires significant specimen handling with attendant opportunities for damage.
- Images for morphological study are usually taken at 17 megapixels and above.
- Image wet specimens while submerged in alcohol.
- Color bar and scale should be visible in all images.
Specimen Image Processing

Altering color balance, saturation, sharpness, or other image features = NOT OK

Native Camera Raw

Slight adjustments of light levels and cropping = OK

dng OR tif (NOT jpeg)
Electronic Data Capture

Manual Keystroke entry

Voice recognition software

Optical Character Recognition

Electronic transfer from spreadsheets or other delimited lists
Georeferencing Specimen Data

Georeferencing = transforming textual descriptions of geographical data into a pair of X, Y coordinates, with an accompanying estimation of precision.

Geolocate (desktop and web-based interfaces, and web services; http://www.museum.tulane.edu/geolocate/) and Biogeomancer (webbased; http://bg.berkeley.edu/latest/)
Three Example Workflows

Data to Occasional or Optional Image to Distribution

Most often used in collections in which few or no specimens have been imaged, Probably what most of us are familiar with
Three Example Workflows

Parallel Data/Image to Distribution

Most labor intensive of the three examples
Increased specimen handling
Three Example Workflows

Image to Data to Distribution

Fits institutions that image all specimens and capture data from those images.