Workflow for imaging vertebrate fossils

Sean Moran  Nov. 9, 2016
Outline

• Specimen selection
• Equipment
• Specimen staging and imaging
• Post-processing
• Image storage
Specimen selection

- Goal-dependent
  - E.g., focus on collections, taxon, skeletal element, locality, etc.

- Good exemplars
  - Driven by overarching goal
  - Mostly complete specimens
  - Representative of the collection as a whole
Clay for positioning fossils

Sand bags for positioning fossils

Scale bars of varying sizes

Sand box for positioning of specimens

Light and dark felt for the background
Equipment

Nikon D5100

Nikkor 105mm f/2.8G IF-ED

Nikkor 60 mm f/2.8G ED
Specimen staging

• All important views
  • Dorsal, ventral, anterior, posterior, occlusal, medial, lateral, etc. (2-6 per specimen)

• Scale bar in line with focal plane

• Relatively clean felt background overlying sandbox
Specimen imaging

- 3 images per view with differential shadowing
- 1 of the 3 converted from .nef to .jpg
- Aperture prioritized
- Shutter speed changed to compensate for well-exposed image
<table>
<thead>
<tr>
<th>Date</th>
<th>ID</th>
<th>Snapdragon</th>
<th>Genus</th>
<th>Species</th>
<th>Class</th>
<th>Nature</th>
<th>View</th>
<th>Right Image(s)</th>
<th>Left Image(s)</th>
<th>Notes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/24/2012</td>
<td>3290</td>
<td>U0801209</td>
<td>Arvicola</td>
<td>arvicola</td>
<td>Rodent</td>
<td>right</td>
<td>a</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>10/30/2012</td>
<td>3300</td>
<td>U0801210</td>
<td>Arvicola</td>
<td>arvicola</td>
<td>Rodent</td>
<td>right</td>
<td>b</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>10/30/2012</td>
<td>3310</td>
<td>U0801211</td>
<td>Arvicola</td>
<td>arvicola</td>
<td>Rodent</td>
<td>right</td>
<td>c</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>

**Database**
Post-processing
Data Storage

- .nef, .jpg
- edited (high and low resolution) and unedited
- files stored on the P:// drive
<table>
<thead>
<tr>
<th>Images</th>
<th>Database Source</th>
<th>Catalog Number</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
<th>Genus</th>
<th>Species</th>
<th>Specimen Type</th>
<th>Site</th>
<th>Epoch</th>
<th>Formation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>11</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Felidae</td>
<td>Smilodon</td>
<td>fatalis</td>
<td>Waccasassa River 6</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>12</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Felidae</td>
<td>Smilodon</td>
<td>fatalis</td>
<td>Waccasassa River 2</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>13</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Felidae</td>
<td>Smilodon</td>
<td>fatalis</td>
<td>Waccasassa River 2</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>14</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Felidae</td>
<td>Panthera</td>
<td>onca</td>
<td>Waccasassa River 6</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>15</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Ursidae</td>
<td>Arctodus</td>
<td>pristinus</td>
<td>Holle 16A</td>
<td>Pleistocene, Early</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>16</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Canidae</td>
<td>Canis</td>
<td>dirus</td>
<td>Devil’s Den</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="flmnh.ufl.edu/vertpaleo-search/search" alt="Images" /></td>
<td>UF/TRO</td>
<td>17</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Canidae</td>
<td>Urocyon</td>
<td>cinereagenteus</td>
<td>Devil’s Den</td>
<td>Pleistocene, Late</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thank you! Questions?