



**Fluid-preserved Invertebrate and Microscopic Slide Imaging Workshop  
September 16-18, 2013  
Museum of Natural History  
University of Michigan  
Ann Arbor, MI**

**This workshop focuses on imaging techniques for fluid-preserved invertebrates and microscopic slides. The primary goal is to prepare participants for imaging these difficult-to-record collection objects. Workshop topics include but are not restricted to: 1) image file types and standards; 2) equipment specifically tailored for recording images of microscopic slides; 3) equipment specifically tailored for recording specimens of small, fluid-preserved invertebrates; 4) imaging software and tools, 5) open source imaging software and image processing software; 6) open source tools for data management; 7) open source operating system; 8) microphotography with and without a microscope; 9) lighting for imaging; 10) methods for specimen rehydration; and 11) workflows and strategies for recording images of fluid-preserved insects, arachnids, myriapods, and crustaceans. Sample workflows, hardware specifications, and comparison software features are available during and following the workshop through a workshop wiki. As much as practicable, workshop sessions will focus on practical application and demonstration.**

**Workshop facilitators include: Rebekah Baquiran (Field Museum), Sandy Brantley (University of New Mexico), Gil Nelson (iDigBio), Mark O'Brien (University of Michigan).**

**The workshop resources Wiki can be found via:**

**[https://www.idigbio.org/wiki/index.php/Digitization\\_Training\\_Workshops](https://www.idigbio.org/wiki/index.php/Digitization_Training_Workshops)**

**The workshop's collaborative workshop notes pages (one for each day), which can be edited by all workshop participants, can be found at a link on the Wiki page.**

## Agenda

### Day 1 – September 16, 2013 (Monday)

Time	Activity/Venue	Responsible
Various		
6:00–7:30 p.m.	<b>Reception</b> <b>UMMZ</b> <b>Ruthven Museum</b> <b>Building</b> <b>Participant mixer</b> <b>Introductions</b>	<b>Diarmaid O'Foighill,</b> <b>Director, UMMZ</b>  <b>Mark O'Brien (UMMZ)</b> <b>Gil Nelson (iDigBio)</b>
7:30–9:00 p.m.	<b>Dinner</b> <b>(on your own)</b>	

### Day 2 – September 17, 2013 (Tuesday)

Time	Activity/Venue	Responsible
7:30–8:00 a.m.	<b>Continental Breakfast</b> <b>(Michigan League-Catered)</b> <b>Kalamazoo Room</b>	
8:15–8:30 a.m.	<b>Workshop Overview and</b> <b>Goals</b>	<b>Gil Nelson</b> <b>Mark O'Brien</b>
8:30–8:45 a.m.	<b>Introduction to iDigBio</b>	<b>Gil Nelson</b>
8:45–9:30 a.m.	<b>Challenges, Issues with</b> <b>imaging fluid-preserved</b> <b>arthropods</b> <b>-what to image?</b> <b>-purpose of image?</b> <b>-small size</b> <b>-manipulability</b> <b>-limitations of optical</b> <b>systems</b> <b>-dealing with fluids</b> <b>-novel approaches</b>	<b>Mark O'Brien</b> <b>Sandy Brantley (U. New</b> <b>Mexico)</b>
9:30–9:45 a.m.	<b>Q&amp;A Moderated</b> <b>discussion</b>	<b>Mark O'Brien</b> <b>Sandy Brantley</b> <b>Gil Nelson</b>



9:45–10:15 a.m.	<b>DIY Techniques: Tools and materials to achieve better results in photographing wet arthropod collections</b>	<b>Mark O'Brien</b>
10:15–10:30 a.m.	<b>Coffee Break Kalamazoo Room</b>	
10:30–10:45 a.m.	<b>Imaging in hand sanitizer</b>	<b>Sam Droege (USGS)</b>
10:45–11:00 a.m.	<b>Imaging spiders for the South Dakota Spider Survey: challenges and frustrations</b>	<b>Brian Patrick (Dakota Wesleyan University)</b>
11:00–11:15 a.m.	<b>Q&amp;A</b>	
11:15–11:30 a.m.	<b>Slide imaging at Naturalis Biodiversity Center</b>	<b>Joost van Leusen (Naturalis Biodiversity Center, Leiden)</b>
11:30–11:45 a.m.	<b>Slide Scanning at the Essig Museum</b>	<b>Pete Oboyski (Essig Museum, U. California, Berkeley)</b>
11:45–12:00 p.m.	<b>Slide Imaging at UMMZ</b>	<b>Pavel Klimov (U. Michigan)</b>
12:00–12:15 p.m.	<b>SPOT Imaging Solutions</b>	<b>Dana Holcomb, SPOT Imaging</b>
12:15–1:15 p.m.	<b>Lunch (catered-Kalamazoo Room)</b>	
1:15–4:00 p.m.	<b>Demonstrations: UMMZ SPOT Imaging Solutions Carl Zeiss Microscopy Hand Sanitizer Imaging Lightroom/Photoshop Visionary Digital</b>	<b>Mark O'Brien Dana Holcomb Vincent Cavaliere Sam Droege Sally Bjork/Rich Rabeler Roy Larimer/Ben Dumont</b>
4:00–5:00 p.m.	<b>Q&amp;A Moderated Discussion</b>	<b>Gil Nelson</b>
	<b>Dinner (on your own)</b>	

**Day 3 – September 18, 2013 (Wednesday)**

<b>Time</b>	<b>Activity/Venue</b>	<b>Responsible</b>
<b>7:30–8:00 a.m.</b>	<b>Continental Breakfast (Michigan League-Catered) Kalamazoo Room</b>	
<b>8:15–8:45 a.m.</b>	<b>Slide imaging at the Field Museum</b>	<b>Stephanie Ware (Field Museum)</b>
<b>8:45–9:15 a.m.</b>	<b>Conceptualizing &amp; Implementing Large- Scale Collection Digitization</b>	<b>Gracen Brilmyer (Field Museum)</b>
<b>9:15–9:30 a.m.</b>	<b>Imaging alcohol- preserved arachnids using a Visionary Digital System</b>	<b>Marshal Hedin (San Diego State University)</b>
<b>9:30–9:45 a.m.</b>	<b>Fluid-preserved imaging at Cal Academy</b>	<b>Vic Smith (California Academy of Sciences)</b>
<b>9:45–10:15 a.m.</b>	<b>Imaging at University of Oslo</b>	<b>Eirik Rindal (U. Oslo, Norway)</b>
<b>10:15–10:30 a.m.</b>	<b>Coffee Break Kalamazoo Room</b>	
<b>10:30–10:45 a.m.</b>	<b>Imaging techniques</b>	<b>Paul Selden (U. Kansas)</b>
<b>10:45–11:00 a.m.</b>	<b>Q&amp;A Moderated Discussion</b>	<b>Gil Nelson</b>
<b>11:00–11:30 a.m.</b>	<b>Imaging workflow and processing tools: Lightroom Photoshop Tools Actions</b>	<b>Rich Rabeler (U. Mich.) Sally Bjork (U. Mich.)</b>
<b>11:30–12:00 p.m.</b>	<b>Visionary Digital</b>	<b>Roy Larimer (Visionary Digital)</b>
<b>12:00–1:00 p.m.</b>	<b>Lunch Kalamazoo Room</b>	



<b>1:30–3:45 p.m.</b>	<b>Demonstrations repeated</b>	<b>See Day 2</b>
<b>3:45–4:00 p.m.</b>	<b>Coffee Break Kalamazoo Room</b>	
<b>4:00–4:30 p.m.</b>	<b>Q&amp;A Discussion &amp; Wrap Up</b>	
	<b>Dinner (on your own)</b>	