Herbarium Digitization Workshop
September 16–18, 2012
Host Institution: Valdosta State University
[DRAFT]

This workshop is the first in a series of preparation-specific workshops focusing on organizing, launching, and maintaining a biological collections digitization program. The primary goal is to prepare participants with the necessary skills and knowledge to launch or maintain a digitization program individually, through collaboration with an existing Thematic Collections Network (TCN), or through collaboration with iDigBio. The target audience includes herbarium collections managers, curators, and directors.

Workshop content includes: 1) an overview of iDigBio, ADBC, and nationwide digitization activities, 2) how to organize and launch a digitization program, 3) a detailed overview of digitization tasks, 4) hands on use and configuration of camera systems and lighting, 5) an introduction to and overview of several database management systems and related tools, 6) hands-on use/demonstration of several imaging software packages, 7) a consideration of barcodes and file-naming strategies, 8) how to develop effective workflows and protocols, 9) strategies for evaluating hardware and software, 10) a detailed overview of procedures for image and data capture, including a detailed overview of image types, image manipulation, and image conversion, 11) strategies and considerations for georeferencing, including use of online collaborative tools, and 12) methods for moving digitized data to the internet via data aggregators, harvesters, and portals.

Workshop facilitators include:
- Richard Carter, professor of Botany, director of the herbarium at Valdosta State University, and co-PI on a collaborative digitization project with the University of Georgia
- Mike Bevans, imaging expert, digital photographer, and Information Manager for Digitization at the New York Botanical Garden
- Herrick Brown, specimen database specialist, Assistant Botanist with the South Carolina Heritage Program, and Assistant Curator at the University of South Carolina's A. C. Moore Herbarium
- Kevin Love, iDigBio's IT Expert
- Joanna McCaffrey, iDigBio's Biodiversity Informatics Manager
- Gil Nelson, iDigBio's digitization specialist, former coordinator of the Deep South Plant Specimen Imaging Project, and co-PI on an NSF-funded digitization project at Tall Timbers Research Station
- Deb Paul, iDigBio's user services specialist, MorphBank expert, and specialist in data migration and harvesting.

The workshop resources Wiki can be found at:
https://www.idigbio.org/wiki/index.php/Digitization_Training_Workshops
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The workshop's collaborative workshop notes page, which can be edited by all workshop participants, can be found at the following link and via Wiki page, above:
http://tinyurl.com/HerbariumWorkshopNotes

Agenda
Day 1 – September 16, 2012

Time	Activity	Responsible
Various	**Holiday Inn van picks up at airport**	
4:45 p.m.	**Vans depart Holiday Inn for VSU**	
5:00–6:00 p.m.	**Reception** **VSU Bailey Atrium** **Participant introductions** **Introduction to iDigBio** **Workshop logistics**	**Connie Richards (Dean)** **Richard Carter** **Gil Nelson**
6:00–8:00 p.m.	**Dinner** **Bailey Science Center Atrium**	
~8:00 p.m.	**Vans depart VSU for Holiday Inn**	

Day 2 – September 17, 2012

Time	Activity/Venue	Responsible
6:00–8:00 a.m.	**Breakfast** **Azalea Restaurant**	**Holiday Inn**
8:00 a.m.	**Vans depart Holiday Inn for VSU**	**Richard Carter** **Gil Nelson**
8:30–9:15 a.m.	**VSU – Rose Room** **Overview of Digitization Tasks and Components** Global decisions Digitization task clusters Object to image to data Image and data identifiers	**Gil Nelson**
9:15 a.m.–10:15 p.m.	**Imaging Strategies and Tools** Software tools (Digital Photo Pro, Camera Control Pro, Nikon Capture NX2, Nikon View NX2, Lightroom, Photoshop, Aperture, Picasa Viewer, etc.) Image storage formats (camera raw, jpg, tif, dng, etc.) Available capture devices Lighting Image naming strategies Image capture standards and common practices Image processing dos and don'ts (color balance, cropping, saturation, contrast adjustment, etc.) Ethics of image enhancement Stacking: Helicon Focus, AutoMontage, free software	**Mike Bevans**

	Camera setup and use Archiving images (best formats) **Hardware** Overview of what's available Cameras & lenses Scanners Copy stands, light boxes, and related equipment Lighting Computer equipment	
10:15–10:30 a.m.	**Coffee break**	
10:30–Noon	**Imaging, cont'd**	**Mike Bevans**
Noon–1:00 p.m.	**(Rose Room)** **Lunch**	
1:15–2:00 p.m.	**VSC Herbarium** **Bailey Science Center** **Getting started with** **digitization:** • Reason for beginning, • Startup costs and funding, • Institutional and administrative support, • IT support, • Brief overview of equipment and software used, • Anticipated and unanticipated benefits, • Anticipated and unanticipated obstacles, • Personnel recruitment, • Extent of additions to professional workload, • Leveraging the library	**Richard Carter**
2:00–3:15 p.m.	**Imaging station hands-on demonstrations**	**Mike Bevans** **Richard Carter** **Joanna McCaffrey** **Gil Nelson**
3:15–3:30 p.m.	**Coffee break**	
3:30–4:30 p.m.	**More hands-on, including a workflow demonstration**	**Mike Bevans** **Richard Carter** **Joanna McCaffrey** **Gil Nelson**
4:30–5:45 p.m.	**Workflows and Protocols** • Importance of written protocols • How to develop, write, and manage protocols and workflows • Strategies for getting feedback on improvements from technicians • Sample and suggested workflows • Image to data vs data from specimens (FSU example) • Workflow and data entry efficiencies	**Gil Nelson**

	• Barcodes: what & where,	
6:00–8:00 p.m.	**Dinner** **Giulio's Restaurant**	
~8:00 p.m.	**Vans depart Giulio's for** **Holiday Inn**	

Day 3 – September 18, 2012

Time	Activity/Venue	Responsible
6:00–8:00 a.m.	**Breakfast, Azalea** **Restaurant**	**Holiday Inn**
8:00 a.m.	**Vans depart Holiday Inn** **for VSU**	**Richard Carter** **Gil Nelson**
8:30–9:00 a.m.	**VSU – Rose Room** **Criteria for evaluating and** **selecting databases and** **Importance of data** **cleansing**	**Joanna McCaffrey**
9:00–10:00 a.m.	**Database Overviews** **Specify & Symbiota**	**Herrick Brown**
10:00–10:15 a.m.	**Coffee**	

10:15–noon	**Other databases/tools**
	• Why spreadsheets do not
	  provide an adequate solution
	• KE EMu
	• BRAHMS
	• "build your own"
	  (OpenHerbarium at FSU)
	• Arctos
	• Access
	• Silver Biology
	Evaluating software and
	tools
	• Spec sheets at iDigBio
	• Cost
	• Features
	• Continuing IT support
	• Maintenance skills/cost
	Database and data
	capture tools
	• Keystroke
	• From labels or label/specimen
	  images
	• Salix/BCR
	• Apiary/Atrium
	• OCR software
	• Voice Recognition
	• Electronic barcode capture
		Joanna McCaffrey
		Gil Nelson
		Michael Giddens (remote)

Noon–1:00 p.m.	**Lunch**	
1:00–2:30 p.m.	**Database tools/capture** **cont'd**	
2:30–3:15 p.m.	**Georeferencing** • Geolocate	**Gil Nelson** **Richard Carter**

	• Biogeomancer • ArcGis • Google Maps	
3:15–3:30 p.m.	**Coffee**	
3:30–4:00	**Moving digitized objects to the web via aggregators and harvesters** • iDigBio • Morphbank • GBIF • TCNs	**Deb Paul**
4:00–4:30	**Pre/Post-digitization curation**	**Deb Paul**
4:30–5:00 p.m.	**Wrap up**	
	Dinner (on your own)	
5:15 p.m./various	**Vans depart for Holiday Inn**	