

TCN Quarterly Progress Report to iDigBio

February 2018 (covering the months of November, December 2017 and January 2018)

TCN Name: SERNEC: The Key to the Cabinet: Building and Sustaining a Research Database for a Global Biodiversity Hotspot.

Progress in Digitization Efforts (including subcontracts, student hirings, along with numbers of specimens processed):

All SERNEC:

There are 106 collections serving data through the SERNEC portal. There are currently 3,831,482 specimens records and 312,285 (8%) of those records are georeferenced.

There are currently 3,142,342 imaged specimen images available. There are currently 37 collections publishing to iDigBio.

Arkansas:

UARK imaging was completed for all specimens collected in Arkansas. This represents a huge accomplishment, since UARK is the largest collection in the state. Mobile imaging station moved to ANHC for imaging to begin there. There have been important updates to STAR database and fixes at HXC, UARK, and APCR with images and data on the SERNEC Portal. Another Notes from Nature Expedition was launched in October 2017.

Florida:

FSU: 7,654 FSU specimens were imaged and corresponding skeletal database records created. FSU also troubleshot issues related to missing images for database records in the SERNEC portal. As of 12/31/17, every FSU record has a corresponding image file on the CyVerse image server.

FLAS: 6,202 Division of Plant Industry Herbarium (PIHG) specimens were imaged.

Reorganization/renaming of the PIHG raw nef files in Adobe Lightroom (LR) was done and IPTC metadata was applied to select sets. A new post-processing image color correction and sharpening procedure was developed in LR to replace the ImageMagick scripts which created images a little too green tinted. This was applied to the FLAS Gholson collection images and some sets of PIHG images. 902 FLAS specimen with skeletal data in the SERNEC portal were

fully cataloged. Imaging of endangered species was completed with the FLAS Sinar Evolution system. Those specimens are being cataloged in-house.

USF: 5439 specimens imaged and fully transcribed for the SERNEC region. Actively working on importing USF vascular plant specimen data to SERNEC Symbiota portal.

Georgia:

GA: 11 GA specimens were imaged during this time period (190,140 to date via this grant). Skeletal data (species name, state, county) for 15,538 non-Georgia specimens entered into Specify (46,015 to date).

VSC: [Nothing to report as COLG and GSW essentially completed.]

GAS: 2,031 specimens were imaged during this time period (20,830 imaged to date). 7,120 images were associated with their existing Specify record (16,092 to date). 5 images were uploaded to the SERNEC portal and linked to records.

AASU: 3,278 specimens were imaged during this time period (5,000 imaged to date).

Kentucky:

BEREA: 696 specimens imaged. Active imaging efforts at ECU are focusing on Berea.

EKY: 1,089 specimens imaged. The main EKY collection (77,374) is completely imaged (besides backlog). No is no more active imaging for this collection.

KNK: Little to report. All Southeastern US specimens are barcoded, skeletally databased, and imaged, and posted to the SERNEC portal, and all grant funds have been spent. Barcoding and skeletal databasing efforts continue on the other KNK specimens when the Director has free time or student volunteers. Further specimen imaging is being done mostly when requests are made for certain taxa.

MUR: 1,000 specimens imaged.

South Carolina:

USCH: added approximately 3,985 specimen images (with a current total of 31,683) and employed three student workers, one additional staff member, and one volunteer. There are currently two students employed through Spring 2018 and two volunteers are contributing.

CLEMS: added approximately 8,050 specimen images (with a current total of 50,043) and employed one student worker and had three volunteers (including two students). A student has been hired for Spring, 2018.

CONV: The Converse curator and two students brought approximately 50 additional specimens to CLEMS for imaging to add them to the CONV total of 6,438.

NBYC: employed two students and added 1,100 specimen images for a total of 8,976. In February, 2018, the mobile imaging unit will return to complete imaging the collection at NBYC (approximately 12,500 specimens remaining).

WINU: In November the Winthrop Herbarium was completely databased and imaged (1,717 specimens) with the work of three student workers.

SALK: Imaging began in January 2018 for the University of South Carolina Salkehatchie Herbarium. Two student workers and two volunteers there have completed 182 specimen images.

So far in the life of the project we have imaged 57% of the holdings held by the nine participating herbaria in SC (137,817 images of the approximately 239,903 specimen records noted in the SERNEC portal). We expect to finish SALK in February and to finish NBYC in June, while imaging work continues at USCH and CLEMS.

West Virginia:

WVA imaged 7,237 specimens during the quarter (total 67,262 barcoded to date). Both student workers are returning from 2017 (one grant salary, one work-study).

MUHW: Employed 1 student worker for Spring 2018. All 42,700 (100%) specimens are photographed and have skeletal geographic fields transcribed. 13,000 (30.7%) records have all fields transcribed. 1,100 (3%) records are georeferenced.

Share and Identify Best Practices and Standards (including Lessons Learned) that could be shared with others (e.g., documents written, edited and where posted):

All SERNEC:

The SERNEC – TCN protocols continue to be updated as needed and are posted on the SERNEC resources site (<http://sernec.appstate.edu/resources>).

Arkansas:

An update to the imaging protocol was created by a graduate student and undergraduate student at STAR.

Florida:

FLAS: Post-processing of images with ImageMagick works well for our Sinar Evolution camera system, but Adobe Lightroom (LR) appears to produce a better finished product for Nikon nef

files. It is important to have graphics-oriented computer system to work with a large volume of files in LR. We are thankful that we invested in such a computer in 2016. We will add information on our post-processing practices to our Web site (<https://www.floridamuseum.ufl.edu/museum-voices/seusbiohotspot/>) during the next period.

West Virginia:

Imaging previously databased collections at WVA has led to discovery of specimens and folders that were missed on prior passes through the holdings. This is an unanticipated benefit to going through the cases multiple times.

Identify Gaps in Digitization Areas and Technology (please also include any impediments or challenges):

All SERNEC:

Nothing to report

Arkansas:

Light box light bulbs are starting to burn out with no clear mechanism to purchase and install replacement bulbs.

Florida:

FLAS: It would be really nice if technology would advance to the point that cameras produced accurate photographs without extensive post-processing.

Kentucky:

Berea: We are worried about our final light bulbs on the eBox going bad soon, with no replacement bulbs able to be ordered.

KNK: I share Berea's concerns-- we've lost two bulbs on the eBox and can't find replacements. If anymore go out after this, we won't have spares to replace with.

South Carolina:

We faced challenges updating software licenses for Adibe LightRoom on the remote mobile imaging unit.

West Virginia:

MUHW: We learned that once you transcribe some fields using Symbiota crowdsourcing, you cannot later make those same specimens available through the crowdsourcing module in order to complete more detailed descriptions. There was a fix, but this should be avoided.

Share and Identify Opportunities to Enhance Training Efforts:

All SERNEC:

Nothing to report

Arkansas:

Undergraduate and graduate students at STAR have been trained on georeferencing specimens for a project to find appropriate habitat for rare plants in the Mississippi Alluvial Plain of Arkansas.

Florida:

FSU: FSU trained 5 new interns for the Spring semester to work on SERNEC-related goals.

South Carolina:

A student at **FMUH** prepared a PowerPoint presentation that detailed the imaging process. The PowerPoint is posted on the SERNEC page.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:

All SERNEC:

See Education and Outreach section below.

Florida:

FLAS: We are planning a intra-Museum Digitization workshop in the Florida Museum to share our practices and experiences.

West Virginia:

WVA: Ford-Werntz attended Museums at the Mall program at Morgantown Mall on 20 Jan. 2018. The sponsor Mountaineer Country Museums is preparing a membership brochure to distribute around the region.

Share and Identify Opportunities and Strategies for Sustainability:

All SERNEC:

Nothing to report

Share and Identify Education and Outreach (E&O) Activities:

All SERNEC:

SERNEC organized a special kiosk based Notes from Nature expedition for the 100th Anniversary of the Florida Museum of Natural History. This expedition completed over 39,000 transcriptions. More information can be found here:

<https://blog.notesfromnature.org/2017/10/03/phenomuse-100-years-floridamuseum/>

<https://blog.notesfromnature.org/2017/10/12/phenomuse-update/>

Arkansas:

STAR was used as a primary facility in a new class taught at Arkansas State University in Fall 2017: Curation of Collections. Eleven graduate students and 11 undergraduate students took the course and learned how to effectively manage and grow natural history collections.

Specimen imaging and data capture and storage were core components of the coursework and activities.

Florida:

FLAS: We gave a tour and demonstration to an undergraduate Museum Studies course and have offered to accept two interns to gain 14 hours of work experience with this project. We have three volunteers working with us in various cataloging tasks.

West Virginia:

WVA: Ford-Werntz will introduce Junior Girl Scouts to herbarium specimens at a flower badge program in their middle school on 16 Feb. 2018.

MUHW: Gillespie is including data transcription in her 2018 plant taxonomy course as a Service Learning component (this is the second course offering that has included that outreach activity).

Other Progress (that doesn't fit into the above categories):

All SERNEC:

Members of the SERNEC – TCN were involved in the publication of a manuscript about WeDigBio.

Elizabeth R Ellwood, Paul Kimberly, Robert Guralnick, Paul Flemons, Kevin Love, Shari Ellis, Julie M Allen, Jason H Best, Richard Carter, Simon Chagnoux, Robert Costello, Michael W Denslow, Betty A Dunckel, Meghan M Ferriter, Edward E Gilbert, Christine Goforth, Quentin Groom, Erica R Krimmel, Raphael LaFrance, Joann Lacey Martinec, Andrew N Miller, Jamie Minnaert-Grote, Thomas Nash, Peter Oboyski, Deborah L Paul, Katelin D Pearson, N Dean Pentcheff, Mari A Roberts, Carrie E Seltzer, Pamela S Soltis, Rhiannon Stephens, Patrick W Sweeney, Matt von Konrat, Adam Wall, Regina Wetzler, Charles Zimmerman, Austin R Mast; Worldwide Engagement for Digitizing Biocollections (WeDigBio): The Biocollections Community's Citizen-Science Space on the Calendar, *BioScience*, Volume 68, Issue 2, 1 February 2018, Pages 112–124, <https://doi.org/10.1093/biosci/bix143>

Kentucky:

Berea: Entire collection transferred from Berea College to ECU. This collection will now permanently be housed at ECU.

South Carolina:

CLEMS made a concerted effort to reconcile new specimen records and images in the SERNEC database with our older existing SPECIFY database.

West Virginia:

WVA has requested a 1 year no-cost extension for the subcontract.