Award 1055682 – Final Project Report (July 2014)

From entries in forms in Research.gov:

<div align="center">

Cover

</div>

Federal Agency and Organization Element to Which Report is Submitted:
  4900
Federal Grant or Other Identifying Number Assigned by Agency:
  1055682
Project Title:
  Digitization Workshop and Best Practices Development Session for the Texas Oklahoma
  Regional Consortium of Herbaria (TORCH) Texas Tech University, 8-10 April 2011
PD/PI Name:

- Amanda K Neill, Principal Investigator
- Wayne J Elisens, Co-Principal Investigator

Recipient Organization:
  Botanical Research Institute of Texas
Project/Grant Period:
  04/01/2011 - 05/31/2014
Reporting Period:
  04/01/2014 - 05/31/2014
Submitting Official (if other than PD/PI):
    N/A
Submission Date:
  7/23/2014

<div align="center">

Accomplishments

</div>

What are the major goals of the project?

An Improvements to Biological Research Collections grant from NSF (#1055682) to Amanda Neill (BRIT) and Wayne Elisens (OKL) had the overall goal of preparing herbarium curators in Texas and Oklahoma to collaborate and function as a regional node for national biological collections digitization initiatives. After supporting a TORCH (Texas Oklahoma Regional Consortium of Herbaria) digitization workshop in 2011, the remaining grant funds were extended a first time in order to support a 2012 workshop for TORCH curators and graduate students, where they were trained in the use of Specify 6 collections management software. The grant was extended a second time in 2013 to allow remaining funds to provide travel support for TORCH curators and students to attend an iDigBio digitization workshop to be held in 2014. The major goals of the final grant extension for the iDigBio workshop were to introduce TORCH curators and students to iDigBio services, activities, community listserves, digitization standards, and the iDigBio National Collections Portal, and to enable TORCH institutions to become providers to the portal.

What was accomplished under these goals?

Major Activities:

The TORCH 2014 iDigBio Workshop was successfully planned and promoted in collaboration with iDigBio staff including Deb Paul, Joanna McCaffrey, Gil Nelson, and Kevin Love, with assistance from the local organizer at Sul Ross State University in Alpine, Texas, SRSC Collections Manager Martin Terry. The workshop was promoted through the TORCH website (www.TORCHerbaria.org) and mailing lists, and through the iDigBio site and wiki (https://www.idigbio.org/wiki/index.php/TORCH_VIII_%2B_iDigBio_Workshop).

Sixteen participants from nine institutions attended the workshop, including four students (three undergraduates and one doctoral student). All presentations and discussions were broadcast via Adobeconnect for remote participants, and were recorded for posterity and are viewable via the iDigBio TORCH workshop wiki referenced above. Remaining funds from this grant were used solely to reimburse travel costs for presenters and participants in the workshop.

Specific Objectives:

The grant extension for the TORCH iDigBio Digitization Workshop supported the goals of the original proposal in that this workshop further enhanced TORCH functionality by facilitating digitization efforts of regional herbarium collections, it provided experiential education in biodiversity informatics tools to participants, and it provided participants further familiarity with best practices and standards.

Significant Results:

Beyond fulfilment of the original grant objectives, this extension connected representatives of previously somewhat isolated herbaria with the concept of a Network Integrated Biocollections Alliance, and allowed direct engagement with staff from that initiative's premier promoter, iDigBio, the NSF-supported national biocollections digitization hub. The workshop focused on summarizing current best practices for various stages of digitization workflows in herbaria, standards in data cleaning and management, and instruction on how individual herbaria become data providers to the iDigBio Portal. Additional resources were promoted in terms of new national alliances (such as the small herbaria and small collections groups), ADBC-funded TCNs and PENs, and various iDigBio working groups and listserves.

Key Outcomes or Other Achievements:

The one-day workshop was held at Sul Ross State University on May 24, 2014, and was led by Deb Paul and Joanna McCaffrey (iDigBio), with additional presentations by Tiana Rehman and Jason Best (BRIT), and a short session of lightning-round presentations from participants. Technical assistance and Adobeconnect recording were performed by Kevin Love (iDigBio).

Sixteen participants from nine TORCH institutions attended the workshop, including four students. All presentations and discussions were broadcast live via Adobeconnect for remote participants, and were recorded for posterity and are viewable via the iDigBio TORCH workshop wiki (https://www.idigbio.org/wiki/index.php/TORCH_VIII_%2B_iDigBio_Workshop). iDigBio's report on the meeting is also available at https://www.idigbio.org/content/idigbio-digitization-workshop-torch-2014.

The order of presentations follows:

1. Intro to iDigBio (D. Paul)
2. Overview - iDigBio Resources (D. Paul)
3. Lightning Talk: Augmenting Optical Character Recognition (aOCR) WG (J. Best)
4. Lightning Talk: Herbarium Digitization Activities in Oklahoma (W. Elisens, OKL)
5. Lightning Talk: The East Texas Natural History Collections (W. Godwin, ETNH)
6. Lightning Talk: The Macrofungi Collections Consortium (W. Elisens, OKL, presenting for D. Shannon Ascensio (NY) & Clark Ovrebo (CSU))
7. Lightning Talk: Modernization and Digitization of the Angelo State Natural History Collections (M. Revelez, SAT)
8. Lightning Talk: ScioQualis (J. Fenstermacher, SRSC)
9. Lightning Talk: Pineywoods Plants Digital Gallery (J. Van Kley, ASTC)
10. Herbarium Digitization & Workflows (D. Paul)
11. Imaging equipment and guidelines for herbaria (J. McCaffrey)
12. Specimen Digitization @ the Botanical Research Institute of Texas: Imaging Equipment & Protocols (T. Rehman & J. Best)
13. Data standards for iDigBio's portal (J. McCaffrey)
14. How to submit data to iDigBio (J. McCaffrey)
15. Data extraction and identifiers (D. Paul)

What opportunities for training and professional development has the project provided?

As the nature of training and development performed at the workshop was covered in previous sections of this report, below is a listing of all 16 TORCH participants and their institutional affiliations. Students are marked with an asterisk.

The students were asked to summarize their impressions after the workshop. The following quotes are from their written submissions:

- "Attending the iDigBio workshop showed me new perspectives on collaboration and how workflow sharing can benefit the whole scientific community."
- "Funded digitization projects are a great tool for convincing administrators of the importance of collections and the value they bring to an institution or organization."
- "It gave me an opportunity to meet people that helped expand many previous ideas of mine as well as develop my thesis ideas."
- "Because of this workshop, I think I have obtained the knowledge of how to start a digitization project, how to locate useful resources to support a project, and where to seek help for troubleshooting."

Best, Jason	Botanical Research Institute of Texas, Fort Worth TX
Elisens, Wayne	University of Oklahoma, Norman OK
Fenstermacher, Joselyn	Sul Ross State University, Alpine TX
Godwin, Will	Jarvis Christian College, Hawkins TX
Karklins, Ingrid*	Texas A&M University, College Station TX
Kruse, Dale	Texas A&M University, College Station TX
Neill, Amanda	Botanical Research Institute of Texas, Fort Worth TX
Nelson, Allan	Tarleton State University, Stephenville TX
Rehman, Tiana	Botanical Research Institute of Texas, Fort Worth TX

Revelez, Marcy	San Angelo University, San Angelo TX
Richard, Nelson*	Jarvis Christian College, Hawkins TX
Taylor, Nathan*	Sul Ross State University, Alpine TX
Terry, Martin	Sul Ross State University, Alpine TX
Wendt, Tom	University of Texas, Austin TX
Van Kley, James	Stephen F Austin State University, Nacogdoches, TX
Xiao, Wei*	University of Texas, Austin TX

How have the results been disseminated to communities of interest?

The live broadcast of the workshop via Adobeconnect for remote participants was advertised beforehand on TORCH and iDigBio listerves. All presentations and discussions were recorded for posterity and are viewable via the iDigBio TORCH workshop wiki (https://www.idigbio.org/wiki/index.php/TORCH_VIII_%2B_iDigBio_Workshop). A copy of this final report will be posted on the TORCH website (www.TORCHerbaria.org) and TORCH mailing list members will be notified of its availability.

Products

Websites

TORCH VIII and iDigBio Workshop wiki.
https://www.idigbio.org/wiki/index.php/TORCH_VIII_%2B_iDigBio_Workshop
All materials pertaining to the workshop are archived on this site, including powerpoints and recorded presentations.

Participants

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked & Activities
Amanda K Neill	PD/PI	2 Planned and organized collaborative workshop with iDigBio staff, arranged logistics of meeting, handled registration and reimbursement
Wayne J Elisens	Co PD/PI	1 Planned and organized collaborative workshop with iDigBio staff and gave presentation on Oklahoma herbarium digitization efforts.

What other organizations have been involved as partners?

Sul Ross State University
Organization Type: Academic Institution
Location: Alpine TX
Partner's Contribution to the Project:

- In-kind Support
- Facilities
- Collaborative Research
  More Detail on Partner and Contribution: SRSU provided classroom space for the workshop and low-cost dormitory rooms for the participants. Dr. Martin Terry, the herbarium curator at SRSC, assisted the PIs in planning the TORCH meeting in which this workshop was a part.

iDigBio
Organization Type: Other Nonprofits
Location: Florida
Partner's Contribution to the Project:

- In-kind Support
- Collaborative Research
  More Detail on Partner and Contribution: iDigBio provided three staff members in support of this workshop. Deb Paul and Joanna McCaffrey planned the agenda and presented most of the workshop materials throughout the day, and Kevin Love provided technical assistance and recording. These and probably other iDigBio staff also created and contributed most content on the workshop wiki page.

Have other collaborators or contacts been involved? N

Impact

What is the impact on the development of the principal discipline(s) of the project?

NSF funding supported the travel costs of the three iDigBio staff presenters/facilitators for the workshop, as well as the travel costs for 12 curators and four students from TORCH institutions. This event strengthened operational infrastructure within the TORCH (Texas Oklahoma Regional Consortium of Herbaria) collections network and familiarized participants with the concept of a Network Integrated Biocollections Alliance and that initiative's premier promoter, iDigBio, the NSF-supported national biocollections digitization hub. The workshop focused on summarizing current best practices for various stages of digitization workflows in herbaria, standards in data cleaning and management, and instruction on how individual herbaria become data providers to the iDigBio Portal. Additional resources were promoted in terms of new national alliances (such as the small herbaria and small collections groups), ADBC-funded TCNs and PENs, and various iDigBio working groups and listserves.

This workshop also encouraged four student participants to seriously consider careers in biology, biocollections management, and biodiversity informatics. TORCH is now better prepared to collaborate and function as a regional node and contribute to the effort to digitize and mobilize the scientific information associated with biological specimens held in U.S. research collections.

What is the impact on other disciplines?

Although this workshop may have no immediate effects outside of the herbarium community, the eventual benefits of better preparing curators to digitization their collections and become data providers to the national portal will include generation of herbarium data and images that will be broadly used by ecologists, natural resource managers, climatologists, agriculturalists, and many other science professionals beyond botanists and herbarium collection managers.

What is the impact on the development of human resources?

The encouragement of student participation in TORCH meetings/ workshops has provided a great opportunity to broaden the impact of this consortium's activities. This workshop included three undergraduates and one doctoral student. Two of the four students are women, and one of the male students is African-American.

What is the impact on physical resources that form infrastructure?

Nothing to report.

What is the impact on institutional resources that form infrastructure?

The workshop was itself an educational resource to all participants, as discussed under "Accomplishments," and an educated workforce can be a valuable institutional resource. Staff and students who have received instruction in digitization best practices can create an improved resource (herbarium) at their institutions.

What is the impact on information resources that form infrastructure?

Information resources for research and education (specimen data and images) will be a result of future digitization activities performed by participants in the workshop and others who benefit from knowledge recorded in the workshop being shared via the iDigBio TORCH wiki, e-mail lists, curators' meetings at professional conferences, and other relevant venues. The eventual digitization and sharing of data contained in the 3.5 million herbarium specimens in Texas and Oklahoma will increase substantially the synthetic value of these data for biologists, ecologists, resource managers, and policy makers at the national and international level.

What is the impact on technology transfer?

Nothing to report.

What is the impact on society beyond science and technology?

The impact on those who will benefit from eventual herbarium digitization activities informed by this workshop is broad yet difficult to quantify. Other fields and a wide spectrum of humanity may benefit from synthesis of data mined from TORCH herbarium specimens. Educational tools and citizen science activities developed from TORCH digitization outputs will positively impact students, teachers, and the general public and will increase their appreciation of natural history and conservation of biodiversity.

Changes

Changes in approach and reason for change

Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them

Nothing to report.

Changes that have a significant impact on expenditures

Nothing to report.

Significant changes in use or care of human subjects

Nothing to report.

Significant changes in use or care of vertebrate animals

Nothing to report.

Significant changes in use or care of biohazards

Nothing to report.

Final Report: Digitization Workshop and Best Practices Development Session for the Texas Oklahoma Regional Consortium of Herbaria (TORCH)

Principal Investigator: Neill, Amanda K.
Co-Principal Investigator: Elisens, Wayne
Award ID: 1055682

TORCH VIII iDigBio Workshop Participants. Standing: Amanda Neill (BRIT-SMU-VDB), Wayne Elisens (OKL), Tiana Franklin Rehman (BRIT-SMU-VDB), Allan Nelson (TAC), Joanna McCaffrey (iDigBio), Nathan Taylor (SRSC student), Ingrid Karklins (TAES student), James Van Kley (ASTC), Kevin Love (iDigBio), Will Godwin (ETNH), Wei Xiao (TEX-LL student), Dale Kruse (TAES), Marcy Revelez (SAT), Tom Wendt (TEX-LL), Jason Best (BRIT-SMU-VDB), Nelson Richard (ETNH student). Kneeling: Joselyn Fenstermacher (SRSC), Deb Paul (iDigBio). Not pictured: Martin Terry (SRSC)