Bi-Monthly Progress Reports To iDigBio Submitted By Active Thematic Collections Networks (TCNs)

February 2018

Reports included from the following **active** TCNs:

☒ Cretaceous World	☒ LepNet/SCAN	☒ oVert
☒ EPICC	☒ MAM	☒ Paleoniches
☒ FIC	☐ MHC	☒ SERNEC
☒ GLI	☒ MiCC	☒ SoRo
☒ InvertEBase	☒ NEVP	☒ VACS

Reports no longer included from the following **retired** TCNs:

InvertNet	MaCC	
LBCC	TTD	

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Submission #1264

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by psierwald
Monday, January 22, 2018 - 14:39
107.0.125.5

TCN Name:
InvertEBase: Reaching Back to See the Future: Species-rich Invertebrate Faunas Document Causes and Consequences of Biodiversity Shifts

Person completing the report:
psierwald@fieldmuseum.org

Progress in Digitization Efforts:
FMNH Invertebrates: Total records entered into database as of 4 Jan. 2018: 45,077. Since April 2017 ca 3000 dry, 400 wet and 200 cryogenic lots have been labeled, mostly by volun-teers. This includes the entire N. American collection of Frieda Schilling. The nomenclature of 12,000+ records has been checked against the authority list, nomenclature was updated for 2,500+ lots.
FMNH Insects: At present, over 150,000 records have been entered into our KE EMu database (representing over 690,000 total specimens databased and barcoded). Data entry of Hydrophi-lidae and Gyrinidae (pinned collection, Coleoptera) is complete. Graduate and undergraduate interns completed efforts on the taxonomic pre-curation phase of the pinned Histeridae and Gyrinidae collections. Volunteers/interns are currently working on creating and inserting header labels for all unit trays in preparation for data entry of the Histeridae collection. The FMNH Histeridae collection is considered the world's largest.
Commencement of main georeferencing effort under the Invertebrate TCN in the insect collec-tion (restricted to North American taxa): development and testing of workflow options, assem-bling and analyzing digitized Insect collection metadata, e.g., number of unique locali-ties/collecting events, geographic distribution, number of collecting events with coordinates etc. collection. Workflows will be tested for speed and accuracy. Georeferencing effort by addi-tional staff member hired under the TCN grant.
PI Sierwald collaborates with Ed Gilbert and Symbiota to update the InvertEBase TCN collec-tion data on Symbiota and SCAN.

Zoological Museum, Michigan, Invertebrates: 11 undergraduate students (nine work/study and 2 non work/study students) were newly hired and trained for data entry (10 to 15 hours/week). Data entry was mainly focused on the land snail family Polygyridae and 5,866 new records were added to UMMZ Specify database during 8/28/2017 - 12/31/2017 resulting in a total of 56,808 records added since the beginning of this project. During the same period 480 lots of freshwater snails and 178 unionid type lots were imaged (total 10,992 lots imaged).

DMNH: The DMNH on-line collection has increased to 27,699 specimens in Symbiota, but re-mains

at 16,938 records in iDigBio. We have been working to streamline activities and increase the rate of new data being uploaded. As a result, we are in the process of hiring 2 new part-time, temporary positions – one for georeferencing and one collection's assistant. The georeferencing position will focus on the locality data for the 27,699 collections records that have been uploaded into Specify thus far. The remaining data will be batch georeferenced prior to upload via WorkBench. The collections assistant will do entry-level activities such as inventory and putting lots in numerical order. We expect this approach will allow us to move faster through the family-by-family approach we have been taking within the landsnails, and permit more frequent WorkBench uploads to Specify.
CMNH: As of 29 Dec, 2017 a total of 94,078 specimens have been digitized including 5,229 from the July-Sep quarter and 8,386 from Oct-Dec quarter. The work-study students returned in September which contributed to our quarterly progress. All records are harvested every Friday and are publicly available. Significant progress of the digitization of north American moths has been achieved, all specimens have been assigned unique identifiers, with label data imaged. 19, 509 records are publicly available, and approximately 1000-2000 await transcription or data entry.

Auburn: We continue to make good progress in insect specimen databasing efforts. To date we have accessioned ~197,500 insect specimens. Since the last reporting period we have assigned 27,000 aquatic insect specimens (non-pinned) AUMI numbers – of those 10,000 have been entered in the Specify Database. An additional 8,613 arachnid specimens have also been entered into Specify. In total, we have databased ~25,000 specimens since the last reporting period.

Frost: We now have 94,669 occurrence (specimen) records on the SCAN Symbiota portal, representing >5,000 taxa. These are almost exclusively beetles (Coleoptera). We also finished imaging our entire Odonata collection (approximately 39,000 images, representing close to 100,000 specimens). The images are in TaxonWorks, where about 25% have been transcribed and georeferenced, and not yet available in SCAN.

PEN grant: Chicago Academy of Sciences, start date: September 2016
CAS/PNNM Invertebrates/Insects: Specimen data for malacology (15,322 catalogue records representing 116,729 specimens) and a portion of entomology (2,392 catalogue records representing 3,869 specimens) has been migrated into Arctos. Still remaining for entomology are Diptera (2,800 records), Hymenoptera (1,300 records), Coleoptera (17,200 records), and a few smaller orders (640 records). These specimens are inventoried and we are in the process of cleaning data in preparation for migration into Arctos. We have been working with the Field Museum to digitally image our mollusk type specimens and will append this media to the catalogue records in Arctos. We have just set up our new digital photography workstation and will take the lot set images for the type specimens.

Share and Identify Best Practices and Standards (including Lessons Learned):
FMNH Invertebrates: Nothing to report
FMNH Insects: Recently recruited two volunteers to cut and place barcodes in sequential order in staging boxes. They then organize and group specimens by collection event and/or other label data of similarity, and pin them to barcodes. Collection Digitization Specialist, Robin DeLaPena, then focuses solely on data entry. Data entry rates expected to increase dramatically; will report findings in the future.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: We have found that a series of people moving through the collection one after another streamlines the process of data entry and data standardization. We are currently working as follows: the grant supported Collections Assistant does an inventory of the physical holdings compared to a list of specimens generated from the current database; identifies specimens that need de novo data entry; completes the de novo data entry; and puts all specimens in numerical order within a species. The staff Collections Manager then updates the taxonomic organization of the family, moving specimens when necessary, and updates the current records with the new names. Finally, the

grant-supported Database Analysist moves taxonomically updated legacy data into the new data format, adds geography data, and can easily access and troubleshoot geography/locality data from the original labels when needed.

CMNH: Sydney Brannoch presented twice at the Entomological Collections Network Confer-ence in Denver. Her 10 minute presentations included showcasing “EntoTranslate”, a Twitter account specifically designed to crowd source solutions to illegible historical entomology labels providing real-time answers that may be useful in digitization, and best-practices in recording natural history observations associated when collecting and labeling specimens.
Auburn: As previously reported database entry directly into Specify continues; this has slowed progress on the front end but circumvents the need for downstream database checking and con-version from excel.
Frost: Direct transcription of pinned specimens appears to be the fastest approach to acquire the most relevant data (collecting events, taxon). We will use this strategy for all remaining pinned insects except for those taxa that are part of mimicry complexes (some Diptera and Coleoptera species that imperfectly mimic Aculeata), where phenotype data are important for ongoing projects.

PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: CAS/PNNM’s malacology collection was largely collected around the early 1900s. Taxonomic nomenclature has changed for most of these species, sometimes multiple times, which is not reflected on historic specimen labels. Additionally, some specimen labels do not have pertinent information (e.g. locality) or were missing altogether. Our collec-tions technician, Dan Piquard, is verifying data with the physical specimens and we will enlist volunteers to attach updated labels with specimens in the cabinets.
CAS/PNNM Insects: Workflows for insect orders with the project have included re-organization during the verification and relabeling process as they’ve been of a manageable size. Coleoptera specimens are too numerous for us to achieve this curatorial improvement in the grant period, so some aspects of this reorganization will be conducted in the future. We continue to create and update our workflow documents on GitHub.

Identify Gaps in Digitization Areas and Technology:
FMNH Invertebrates/Insects: Nothing to report
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: We have begun georeferencing using two different protocols. First, we are batch georeferencing all newly standardized records prior to a WorkBench upload to Specify. This effort has been stymied by a WorkBench problem: we can map the uncertainty radius during the upload process, but it does not upload properly. We are working with Specify to address this problem. Our second approach is for the data that has already been uploaded into Specify. Those records are being done on a locality by locality basis within Specify.

CMNH: Nothing to report
Auburn: Batch georeferencing and data checking continues to be very tedious and time consuming.

Frost: Nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates/Insects: Verbal transcription of historic archive records with the Dragon software has been ineffective. All of the documents are hand-written in older scripts, requiring considerable effort to distinguish letters and words. Attempting to articulate these words out loud for verbal transcription leads to significant errors. We have elected to transcribe relevant documents through typing into a Word document.

Share and Identify Opportunities to Enhance Training Efforts:
FMNH Invertebrates: Nothing to report
FMNH Insects: draft of the FMNH manual for the digitization workflow of the pinned insect collection

and data entry into KE EMu is complete. Finalization of this document is in process; it will be used in all future training procedures.
FMNH Invertebrates/Insects and DMNH: The iDigBio digitization workshop at the American Malacological Society meeting in July 2017 was successful. Thirty-eight participants discussed best practices, and how best to move forward as a community to improve data standardization and georeferencing. The results of the workshop will be published in the October 2018 edition of the American Malacological Bulletin.

Zoological Museum, Michigan, Invertebrates: Nothing to report
CMNH: Nicole Gunter attended the Entomological Collections Network Collection Manage-ment Workshop in which she presented a hands-on demonstration and group discussion on digitization for the 25 participants
Auburn: The AUMNH project is currently training 2 undergraduate students, 1 graduate stu-dent, and 1 community volunteer in specimen databasing and digitization.

Frost: Last year we developed several small projects that could motivate undergraduates to get involved in digitization (unpaid research experiences; see imperfect mimicry mini-project alluded to above), and in December 2016 we identified resources on campus to advertise these opportunities. We hope to pull more undergraduates into the museum in 2018.
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates/Insects: We have been communicating with other Arctos consorti-um members to inform our specimen data migration process, and regarding the process for making data in Arctos available to Symbiota and iDigBio through the IPT.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
FMNH Insects/Invertebrates: J. Gerber continued verifying/clarifying type designations selecting individual specimens to be high-res imaged. R. DelaPena imaged 83 type specimens for the PEN subaward to the CASPNNM.
Zoological Museum, Michigan, Invertebrates: The University of Michigan participants are collaborating with the Great Lakes Invasives TCN to make sure that data flows to both projects.
DMNH: The Mollusk Digitization workshop at the July AMS meeting had participants from the following collections: American Museum of Natural History, New York, NY; Bailey Matthews National Shell Museum, Sanibel, FL; Bernice Pauahi Bishop Museum, Honolulu, HI; Buffalo Museum, Buffalo NY; Burke Museum of Natural History, Seattle, WA; Canadian Museum of Nature, Ottawa, Canada; Carnegie Museum of Natural History, Pittsburgh, PA; Delaware Museum of Natural History, Wilmington, DE; Florida Museum of Natural History, Gainesville, FL; Field Museum of Natural History, Chicago, IL; Howard University, Washington D.C.; Illinois Natural History Survey, Champaign, IL;Los Angeles County Museum, Los Angeles, CA; Museum of Comparative Zoology, Boston, MA; Muséum National d'Histoire Naturelle, Paris, France; Milwaukee Public Museum, Milwaukee, MN; National Museum of Natural History, Washington, D.C.; North Carolina Museum of Nature and Science, Raleigh, NC;Paleontological Research Institute, Ithaca, NY; Santa Barbara Museum of Natural History, Santa Barbara, CA; Schiele Museum of Natural History, Gastonia, NC; Scripps Institution, San Diego, CA; University of California, Berkeley, CA; University of Michigan Museum of Zoology, Ann Arbor, MI.

CMNH: Protocols are being developed to digitize and serve the praying mantis collection from the National Museum of Natural History, Smithsonian. The collection is located in Cleveland and presents a challenge for data capture using CMNH developed work flows while transferring this data to the Smithsonian's EMu system. We plan to establish a procedure and serve this data in 2018.
Auburn: The Auburn databasing effort is coordinated with the AUMNH Herbarium TCN relat-ed project as well as coordination with VertNet (Vertebrate collections).

Frost: We continue to collaborate with the Speciesfile group (University of Illinois) in the de-velopment and testing of their databasing software, TaxonWorks.

PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates/Insects: We have been communicating with other Arctos consorti-um members to inform our specimen data migration process, and regarding the process for making data in Arctos available to Symbiota and iDigBio through the IPT.

Share and Identify Opportunities and Strategies for Sustainability:
FMNH Insects/Invertebrates: Continued assistance from several volunteers and interns in pre-curation projects as preparation for data entry in conjunction with TCN digitization. Volun-teers/interns inventory, print and insert updated taxonomic header labels for individual unit trays of specimens in each drawer. This is essential for streamlining data entry of specimens.
Additional outside funding secured for 5-month georeferencing internship.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: The opening talk at the AMS President's Symposium presented some findings of the workshop to the AMS membership, and three papers associated with the digitization workshop will be published in the October 2018 edition of the American Malacological Bulletin.
CMNH: Nothing to report
Auburn: The AUMNH recently hired a full-time terrestrial arthropod collections manager, who will be responsible for continuing invertebrate databasing efforts after the project's end.

Frost: Nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates/Insects: Nothing to report

Share and Identify Education and Outreach (E&O) Activities:
FMNH Invertebrates: After receiving an introduction to zoological nomenclature, freshwater mussel biology and collections management practices, an undergraduate intern from Roosevelt University, Chicago, Shaun Zelikson helped complete labeling the previously databased FW mussel collection.
FMNH Insects: Participated in our 3rd annual WeDigBio event. Over 140 citizen scientists from the Chicago region and beyond, attended the 4-day "transcription party". This global event engages participants online and onsite in digitizing natural history collections. Enlisting the public's help in transforming historic data labels into an open, globally-accessible, digital resource is helping unlock valuable information that can help scientists accelerate the process of biodiversity discovery. Insect collection participants transcribed 400 photo slides and georeferenced over 300 records. They also had the opportunity to meet Field Museum scientists and joined in behind-the-scenes tours of the scientific collections. We are currently preparing for our on-going Collections Club with our next scheduled meeting to take place the weekend of January 20 and 21, 2018.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: The final concepts document for the 6-panel exhibit has been delivered and will be discussed among the Co-PIs and the iDigBio Education and Outreach committee in Jan 2018. We expect to be finished by May 2018 and ready to distribute the panels to co-PIs over the summer. In addition, DMNH was approached by Dr. Janice Krumm of Widener University in October 2017 to co-teach a class in Natural History Collections. The lecture portion of the class will be a traditional 3-day/week lecture focused on ecology and the lab portion of the class will be taught in the DMNH Collection with exercises that integrate collections activities (e.g., data entry, georeferencing) with a collections-based ecology research project (e.g., map the historical distribution of unionid bivalves in Tennessee) and an informal scientific communications component (e.g., each group writes a blog for the Museum). We are finalizing the syllabus now, and the class is slated to begin mid-January.
CMNH: Two new work-study students, from Case Western Reserve University were recruited this semester, Louis Nasatasi and Gavin Wu and three new volunteers have also been welcomed to our project. One of these volunteers, Emily Albert, is a participant in the AmeriCorps pro-gram.
A members behind the scenes night was help in September and we highlighted some of our digitization effort as part of the featured display.

In part of Svenson's fall 2017 entomology course taught at Case Western Reserve University (Department of Biology), students prepared a collection and databased their specimens to be accessioned into the Museum's collection and incorporated in the database. Students learned why we are databasing and what historical records can tell us.

Auburn: Nothing to report

Frost: We continue to host groups of non-experts in our museum for programs focused on the relevance of natural history collections and the importance of specimen digitization. In the time since our last report our efforts have reached 12 Penn State students (undergrads and grads, training in entomology), 23 citizens enrolled for an Osher Lifelong Learning Institute (OLLI) course offered at the Frost, and 20 special needs high school students and their mentors.

PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates/Insects: We have an NSF supported intern assisting with prepara-tion of Coleoptera specimen data.

Google Analytics

Other Progress (that doesn't fit into the above categories):
FMNH Insect/Invertebrates: PIs Sierwald and Bieler attended the iDigBio summit in Gaines-ville Florida, Nov 1-4.
We are still waiting to receive official notifications of two pending PEN grants, submitted in October 2016.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: PI Shea attended the iDigBio Summit in Gainesville, FL.
CMNH: Nothing to report
Auburn: Nothing to report
Frost: Nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM: Nothing to report

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1264

Published on *iDigBio* (https://www.idigbio.org)

Submission #1266

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by BruceL
Wednesday, January 31, 2018 - 16:12
24.225.98.220

TCN Name:
Digitizing Fossils to Enable New Syntheses in Biogeography- Creating a PALEONICHES

Person completing the report:
blieber@ku.edu

Progress in Digitization Efforts:
Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman, we now have a total of 294,932 specimens databased associated with this project. Further, we now have a total of 262,996 databased specimens that are also georeferenced associated with this project. In addition, a total of 11,623 localities have been georeferenced associated with this project. Essentially all of our major taxonomic groups have been completely databased and georeferenced, and now we are databasing bryozoans and also a few remaining gastropods.

Regarding the portion of the project at the Paleontological Research Institution (PRI) led by PI Jon Hendricks:

they are nearing completion.

Since the time of the last report, 58 additional species have been added to the Neogene Atlas, which now includes detailed records and photographs for 567 species from the southeastern United States.

Share and Identify Best Practices and Standards (including Lessons Learned):
N/A

Identify Gaps in Digitization Areas and Technology:
N/A

Share and Identify Opportunities to Enhance Training Efforts:
N/A

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
N/A

Share and Identify Opportunities and Strategies for Sustainability:
Regarding the portion of the project at the PRI:

due to some webhosting issues, we have moved the Neogene Atlas, Pennsylvanian Atlas, and Digital Atlas homepage to a new webhosting company, InMotion Hosting. As part of this move, the web address for the Neogene Atlas was changed from .org to .net (though the old .org address now points to the .net address, which should help to minimize confusion). The new hosting service is expected to provide better technical assistance, visitor analytics, and download speeds.

Share and Identify Education and Outreach (E&O) Activities:
Regarding the portion of the project at the PRI:

A PRI staff member in the Education department at PRI, Andrielle Swaby, has been working to add a backlog of images and species records to the Neogene Atlas of Ancient Life (www.neogeneatlas.net) and also to develop novel K16 curricular materials that make use of the Neogene Atlas and real fossil occurrence data. We hope to announce the first exercise around the time of the next iDigBio report.

Google Analytics

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

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1266

Submission #1267

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by amiller
Thursday, February 1, 2018 - 14:43
192.17.34.137

TCN Name:
The Microfungi Collections Consortium: A Networked Approach to Digitizing Small Fungi with Large Impacts on the Function and Health of Ecosystems

Person completing the report:
amiller@inhs.illinois.edu

Progress in Digitization Efforts:
• Washington State University, Charles Gardner Shaw Mycological Herbarium (WSP) collection published to iDigBio (20 December 2017)
• Added University of California, Los Angeles (LA) and Swat University (SWAT) as collections to the MyCoPortal.
• Added Indian Marine Fungi and Myxomycetes collections (IMUD) as Observations to the MyCoPortal.
• Completed georeferencing of California State University, Chico Herbarium fungal specimens
• Completed georeferencing Brazil SpeciesLink data from iDigBio

Share and Identify Best Practices and Standards (including Lessons Learned):
Nothing to report

Identify Gaps in Digitization Areas and Technology:
• Beta version of GenBank Sequence Submission Tool in Symbiota completed and test sequences submitted to GenBank

Share and Identify Opportunities to Enhance Training Efforts:
• Trained participant at GAM to continue digitization and georeferencing (07 December 2017)

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Nothing to report

Share and Identify Opportunities and Strategies for Sustainability:
Nothing to report

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

• Continued activity on Facebook group to engage with members online about new research and project updates

Google Analytics

Other Progress (that doesn't fit into the above categories):
• Article: Miller, A.N. and S.T. Bates. 2017. The Mycology Collections Portal (MyCoPortal). IMA Fungus MycoLens 8(2): 65–66.
• Article: Kiran Ranadive, Neeta Jagtap, and Harshavardhan Khare. 2017. fungifromindia: the first online initiative to document fungi from India. IMA Fungus MycoLens 8(2): 67–69.

Attachment 1

Attachment 2

Submission #1268

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by BruceL
Friday, February 2, 2018 - 13:32
24.225.98.220

TCN Name:
The Cretaceous World: Digitizing Fossils to Reconstruct Evolving Ecosystems in the Western Interior Seaway

Person completing the report:
blieber@ku.edu

Progress in Digitization Efforts:
Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman and with major involvement from collections manager Julien Kimmig, associated with this project we have databased 18,233 Cretaceous specimens total, with 379 databased since the last reporting period in late October. All of these specimen records are also georeferenced. At present we are focusing on databasing our mollusks. In addition, we have now georeferenced a total of 3,218 Cretaceous localities associated with this project, with 10 localities georeferenced since the last reporting period in late October. We are also continuing to image mollusk specimens and have now generated a total of > 600 images comprising 273 distinct fossil species; all images have been shared with Jon Hendricks for use in the Cretaceous Atlas project and are available online via our Specify database.

Regarding the Paleontological Research Institution portion of the project, led by PI Jonathan Hendricks

Since the last report, efforts at the Paleontological Research Institution (PRI) have focused upon the following activities related to the project:

Cretaceous Atlas of Ancient Life (http://www.cretaceousatlas.org/):

The number of species entries on the Cretaceous Atlas of Ancient Life has been increased substantially since the last report. There are now records for 225 species online, 135 of which were added since the last report. Most of these are bivalves and ammonoids.

Regarding the Yale University portion of the project, led by PI Susan Butts, during this period:

They have databased 68,258 Cretaceous specimens total, with 4,379 databased since the last

reporting period. 64,806 of these specimen records are also georeferenced. In addition, they have georeferenced 30 localities since the last reporting period and now georeferenced a total of 2,101Cretaceous localities associated with this project (VP had not been included in previous counts). They also generated 53,891 new composite (multiple view) images.

Regarding the Fort Hays State University portion of the project, led by PI Laura Wilson:

They have databased 4149 Cretaceous specimens total, with 5 databased since the last reporting period. In addition, they have georeferenced 1 locality since the last reporting period and now georeferenced a total of 527 Cretaceous localities associated with this project. They also generated 469 new images.

They have also shared 25 images of 16 invertebrate specimen records with they Cretaceous Atlas, nearly completing the sharing of our exemplar specimens that they requested. They will begin sharing the vertebrate exemplars with the Cretaceous Atlas once all exemplar photos are complete.

Regarding the University of Colorado portion of the project, led by PI Talia Karim:

They have databased 10,629 Cretaceous specimens total, with 911 databased since the last reporting period.

They have not yet imported their georeferenced localities back into the database, but several 100 localities have been georeferenced so far. They have also added 105 new localities to Specify for specimens that previously were databased as NO DATA localities. These specimens actually have excellent locality data and were cataloged incorrectly in the 1980s.

They generated 146 new images.

Regarding the University of New Mexico (UNM) portion of the project, led by PI Cori Myers:

They have databased 601 Cretaceous specimens total, with 115 databased since the last reporting period. All of these specimen records are also georeferenced. In addition, they have georeferenced 11 localities since the last reporting period and now georeferenced a total of 85 Cretaceous localities associated with this project. They also now have a total of 18 specimen imaged.

In addition, they have begun and are nearly complete with the migration process of our data to the ARCTOS database system. They have spent considerable time in the past few months overcoming some logistical issues with geologic time attributes (there was previously not an individual tree for chronostratigraphy separate from lithology). These issues have now been resolved and they are preparing to bulk upload all of our digitized and georeferenced collections in the next few weeks.

Regarding the American Museum of Natural History portion of the project, led by PI Neil Landman and co-PI Ruth O'Leary:

they have databased 41,019 Cretaceous specimens total (563 of these are vertebrates). In addition, they have georeferenced 84 new localities since the last reporting period such that 315 localities have been georeferenced in total. They have also now generated a total of 330 images; all images have been shared with Jon Hendricks for use in the Cretaceous Atlas project.

Regarding the South Dakota School of Mines & Technology portion of the project, led by co-PI Laurie Anderson:

They have databased 15,311 Cretaceous specimens total (1,114 lots), with 3,806 (339 lots) databased since the last reporting period. 3,772 (325 lots) of these new specimen records are also georeferenced. In addition, they have georeferenced 8 localities since the last reporting period and now georeferenced a total of 394 Cretaceous localities associated with this project.

Finally, regarding the portion of the project involving our PEN partner at the University of Oklahoma, led by Stephen Westrop and Roger Burkhalter:

They have databased 7,438 Cretaceous specimens total, with 917 databased since the last reporting period. 2,648 of these specimen records are also georeferenced. In addition, they have georeferenced 211 localities since the last reporting period and now georeferenced a total of 306 Cretaceous localities associated with this project. They also generated 389 new images. Images of exemplar specimens were taken in multiple, standardized views and with focus stacking. Other images were taken in one or more views as single "best" shot images.

Share and Identify Best Practices and Standards (including Lessons Learned):
N/A

Identify Gaps in Digitization Areas and Technology:
N/A

Share and Identify Opportunities to Enhance Training Efforts:
Regarding the University of Kansas portion of the project, a new female graduate student has been accepted for admission in the fall, and she is interested in working on this project. We also have another graduate student who is a member of an underrepresented group, and two undergraduate students, working on the project.

Regarding the University of Colorado portion of the project, they have just hired two undergraduate students to work on the project for the spring semester.

Regarding the University of New Mexico (UNM) portion of the project, during the past reporting period, they trained 2 new students to help with data compilation; 1 is an undergraduate volunteer, the other is a graduate student.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
N/A

Share and Identify Opportunities and Strategies for Sustainability:
N/A

Share and Identify Education and Outreach (E&O) Activities:
Regarding the Paleontological Research Institution portion of the project, important contributions have been made to the Digital Encyclopedia of Ancient Life (DEAL):

1) Elizabeth Hermsen and PI Hendricks finished a new chapter of the Digital Encyclopedia of Ancient Life, which is focused on Systematics. This chapter may be accessed at http://www.digitalatlasofancientlife.org/learn/systematics/.

2) Significant additions and navigational improvements were made to two existing DEAL chapters: The Nature of the Fossil Record (http://www.digitalatlasofancientlife.org/learn/nature-fossil-record/) and Gastropoda (http://www.digitalatlasofancientlife.org/learn/mollusca/gastropoda/).

3) Work is currently underway to finish the next two DEAL chapters: Geological Time, and Cephalopoda.

Regarding the Fort Hays State University portion of the project, the Sternberg's Collections Manager worked with the Public Relations Manager in developing a series of Twitter and Instagram posts that relate to a variety of WIS specimens. These posts were published under the Sternberg Museum's Twitter account but were shared to the FHSU_Paleo account (managed by the Chief Curator and Collections Manager). This series was developed for #dinovember and incorporated the museum's mascot, a pterosaur.
Additionally, many paleontology related posts published via the Sternberg Museum account were retweeted. One post was directly related to a student doing digitization tasks. The others involved WIS specimens.
Other post:
- #nathist (retweets: 4, likes: 17)
-Posted 27 December 2017: The "Reading Rocks" exhibit is almost fully reconstructed! Only the big #fossils are left to be remounted. #paleontology #exhibit #progress #nathist #invertebrates [photo of the exhibit in its new location in the museum; all specimens were digitized prior to being remounted]

Regarding the University of New Mexico (UNM) portion of the project, social media projects are ongoing and have a steady stream of interest.

Google Analytics

Other Progress (that doesn't fit into the above categories):
Regarding the Paleontological Research Institution portion of the project, PI Hendricks presented on the Cretaceous Atlas at the 2017 Annual Meeting of the Geological Society of America in Seattle. The talk was titled, "The Cretaceous Atlas of Ancient Life: a new online resource for identifying ammonoids and other animals from the Western Interior Seaway." The abstract may be accessed at: https://gsa.confex.com/gsa/2017AM/meetingapp.cgi/Paper/300743

Regarding the University of New Mexico (UNM) portion of the project, they are preparing to submit two manuscripts in the next few weeks that have utilized their collections and benefitted from the digitization effort.

Attachment 1

Attachment 2

Published on *iDigBio* (https://www.idigbio.org)

Submission #1269

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by neilscobb
Tuesday, February 6, 2018 - 13:44
134.114.101.50

TCN Name:
Lepidoptera of North America Network: Documenting Diversity in the Largest Clade of Herbivores

Person completing the report:
neilscobb@gmail.com

Progress in Digitization Efforts:
see attachment

Share and Identify Best Practices and Standards (including Lessons Learned):
see attachment

Identify Gaps in Digitization Areas and Technology:
see attachment

Share and Identify Opportunities to Enhance Training Efforts:
see attachment

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

Share and Identify Opportunities and Strategies for Sustainability:
see attachment

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

Google Analytics

Other Progress (that doesn't fit into the above categories):
Google Analytics is embedded in single attachment at the end

Attachment 1
LepNet_SCAN_Feb_2018.docx

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1269

Lepidoptera of North America Network &
Symbiota Collections of Arthropods Network (SCAN)
Bi-Monthly Report

March 9, 2018
Neil Cobb

Progress in Digitization Efforts:

This is a joint report for the two networks SCAN and LepNet. Many museums are involved in both SCAN and LepNet, including collections that have received funding from both TCNs, collections that are unfunded for one TCN and funded by the other, and some collections that are providing data to both and are unfunded by the ADBC program. Both TCNs share the same database http://symbiota4.acis.ufl.edu/scan/portal/index.php , which depending on the context we refer to as the SCAN-LepNet database or the LepNet-SCAN database. Table 1 shows the key statistics of Lepidoptera (LepNet) and non-Lepidoptera (SCAN) records to date. These consist of all records and images, including records and images from data providers who have allowed us to post their data on the SCAN/LepNet portal. Providing data from these additional providers increases our ability to georeference, add to taxonomic tables, and more accurately assess the total digitization effort for any given taxon.

The SCAN network started in 2012 and the TCN funding has ended, but SCAN continues to support PEN projects. The LepNet grant was initiated on July 1, 2016 and there are currently 26 ADBC funded museums and one non-funded museum (Oklahoma State University). Twenty-six museums comprise the NSF-ADBC LepNet and all have established a collection on the LepNet Portal and are serving data directly to iDgiBio via IPT or through DwC archives on the LepNet-SCAN portal. Twenty museums are serving DwC archives to iDigBio and six museums are still establishing connections with the LepNet portal. Catherine A Gehring

Table 1 shows the distribution of records for all data served on the portal, for both SCAN and LepNet.

Table 1. Records in SCAN/LepNet database, "all data" reflects all arthropod taxa, "Non-Lep" includes all non-Lepidoptera arthropod data, and Lepidoptera includes only Lepidoptera taxa.

	All data	Non-Lep SCAN	Lepidoptera
Specimen Records	14,733,705	12,738,525	1,995,180
# Georeferenced	11,659,704	10,173,510	1,486,194
# Imaged	1,537,857	1,114,824	423,033
# Identified to species	8,624,564	6,713,714	1,910,850

LepNet - The LepNet ADBC-funded museums are still on target to meet goals for records and images. An additional 32 collaborators (non-ADBC funded museums that use our data portal to serve their data) have also provided additional records for Lepidoptera. There are 26 collections (referred to as added-value) that have allowed us to harvest their data via IPT to serve lepidopteran records. In total, we are serving 1,995,180 records, representing >115,585

species/subspecies and **79%** of the records are from North America. **Table 2** shows the top 10 families of Lepidoptera in terms of total occurrences digitized.

Table 2. The number of occurrence records for the top 10 families of Lepidoptera that have been digitized.

Taxa	# Specimen Records	# Georeferenced	# Specimen Records	# Georeferenced & Ided to species
Nymphalidae	571,901	469,644	433,235	356,643
Noctuidae	272,592	182,568	249,857	171,022
Pieridae	237,321	191,541	200,773	161,126
Hesperiidae	195,531	150,026	179,897	140,875
Lycaenidae	181,291	134,547	133,750	99,747
Geometridae	140,960	99,267	123,059	87,900
Erebidae	140,685	97,055	131,583	90,756
Papilionidae	124,844	76,012	87,385	48,681
Tortricidae	57,530	39,752	51,046	35,913
Sphingidae	48,405	34,268	44,993	32,481

What is most encouraging about the lepidopteran records is that 96% of the records are identified to species, which is higher than any of the other major orders. Thus, the primary factor limiting the production of "research-ready" data is due to georeferencing. For Lepidoptera 54% of the records are research-ready (i.e., identified to species and georeferenced) and by georeferencing existing records we should increase that percentage to 90% over the next three years. We realize that many records represent misidentified specimens and we also need to seek additional non-ADBC funding to review as many specimen identifications as possible.

Symbiota Collections of Arthropods Network (SCAN) - We have surpassed our overall TCN/PEN goals for the network and have been very successful in supporting data mobilization for unfunded museums and cooperation by larger collections that have allowed there data to be used to help mobilize data from other museums. We sponsored one successful Partners to Existing Networks project through the University of Texas- El Paso that will start digitizing ants from the McKay ant collection. Table 3 shows data for the five major taxa we targeted in SCAN. All five groups have enough data to produce scores of papers.

Share and Identify Opportunities to Enhance Training Efforts: We will develop resources on the WordPress site http://www.lep-net.org/ . We will expand this to incorporate material from the SCAN drupal project website.

Table 3 Number of records for the five focal taxa groups targeted by SCAN.

Taxa	# Specimen Records	# Georeferenced	# Specimen Records	# Georeferenced & Ided to species
Formicidae	957,711	804,164	503,697	413,832
Carabidae	561,222	446,264	390,272	311,869
Araneae	191,976	151,812	162,563	131,615
Acrididae	184,538	141,744	171,976	132,509
Tenebrionidae	165,781	144,751	101,121	88,118

Share and Identify Best Practices and Standards (including Lessons Learned):
We are identifying best practices on a weekly basis and sharing those with respective people within LepNet http://www.lep-net.org/ . Most of these are also relevant to SCAN.

Standardization of Images for Research - We developed a consensus for criteria that would make images the most useful for research. We defined criteria that would make images good for computer vision identification (LepSnap) and for ImageJ, a software program designed to quantify pixel qualities http://www.lep-net.org/?p=383 .

Symbiota Programming - Ben Brandt developed six new API endpoints within Symbiota primarily for the facilitation of interactions with LepSnap, but the developments can also be used in several future apps. Two of these endpoints provide taxonomic and vernacular name resolution from a user-inputted string and allows for the auto-completion of scientific and vernacular names from the taxonomic thesaurus within LepSnap as users are typing the names of specimens. In order to facilitate the user login process and permission retrieval within LepSnap, two other endpoints were developed, one to generate user access tokens that can then be stored in the LepSnap app on the user's mobile device and used to automate future login requests in LepNet. The other feature provides the user's permissions and accessibility options within LepNet to the LepSnap app. Additionally, in the development of the token endpoint. We made significant modifications to the Symbiota login methods. Another endpoint delivers occurrence data from a given record identifier from either database primary key or catalog number. This endpoint allows LepSnap to retrieve pre-existing occurrence record data for processing images within the app and populate data fields within LepSnap with these data points.

The final endpoint developed facilitates the actual delivery of the processed image and associated data, including computer vision identifications, from the LepSnap app to the LepNet data portal. This allows for the quick delivery of images and new computer vision identifications from users' mobile devices directly to the data portal facilitating rapid generation of high-quality specimen images. In the development of these API endpoints several improvements were made to the login and batch taxonomic name upload processes within Symbiota to further support the work being done in LepNet and SCAN.

Identify Gaps in Digitization Areas and Technology: We need to produce exponentially more occurrence data to understand the biogeography of the focal SCAN taxa and Lepidoptera. For most

groups there is not enough data to talk about gaps. We are meeting this need by incorporating additional collections into the SCAN-LepNet database, and harvesting observational records from iNaturalist and LepSoc inventories.

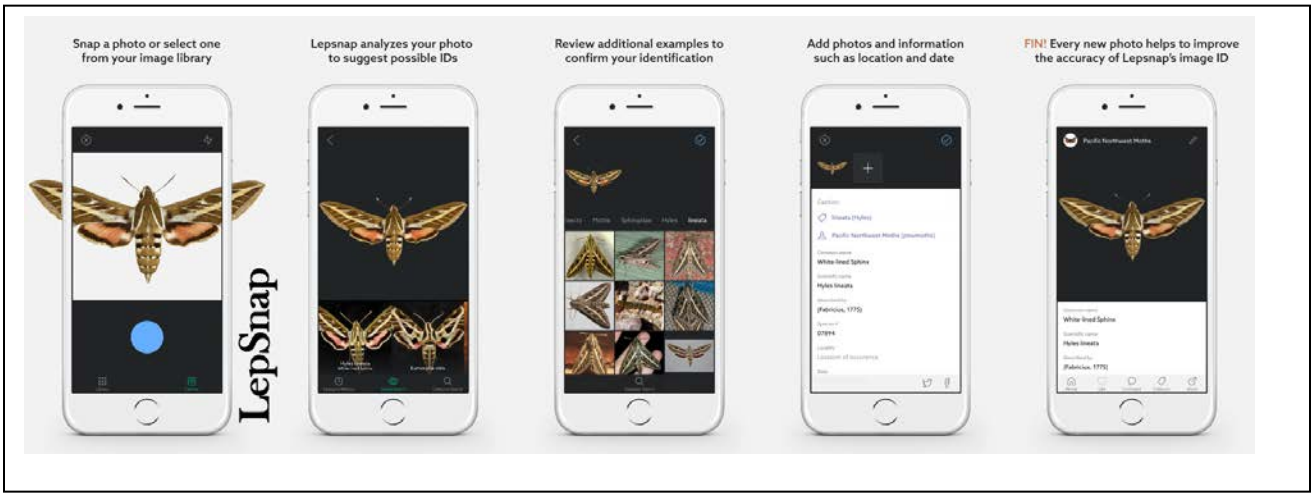
Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We are primarily working with other Symbiota TCNs and other Symbiota portals. We are also generally collaborating with a variety of individuals, projects and organizations to extend the ability to mobilize biodiversity data and promote the use of data in research.

Share and Identify Opportunities and Strategies for Sustainability: Two museums in SCAN have sustainability plans (CSU and UC-Boulder).

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

Focus on North American Arthropods We continue to provide North American data obtained from any credible sources to increase the quantity of data available to SCAN and LepNet users.

Computer Vision - We are making significant progress in developing the LepSnap app. Our collaborator (FieldGuide) has created both an iOS and an android version of LepSnap. This is initially targeting Lepidoptera but we fully expect it to extend to other arthropod groups within the next two years.



We have collaborated with Andre Poremski (Fieldguide [Fg]) to develop the LepSnap smartphone app and computer vision capacity that will be built into LepNet. We initiated collaborations between Visipedia and Fieldguide and also shared information with iNaturalist and the Cornell Lab of Ornithology, both of whom are also working with Visipedia to incorporate their computer vision algorithms. Fieldguide works with Visipedia directly to develop computer vision integration into LepNet projects. Thus, Fieldguide is taking the lead on three fronts, developing both iOS and Android apps (**LepSnap**), **Fg-Batch** (an API service for batch-processing images), and **Fg-Widget** (an embeddable image search tool). LepSnap will allow museum personnel to use their iPhone and Android smartphones to upload images of specimens and apply computer vision to obtain probability identifications. The Fg-Batch workflow will be built into Symbiota (software that runs LepNet database) to process all images with the computer vision workflow, regardless of whether images are from IPT providers or have "live"

collections that are managed directly on the LepNet portal. The Fg-Widget tool will reside on the front page of the LepNet portal and will allow anyone to drag an image file into the dialog box and receive a set of probability identifications. This will be a broader impact feature in that the cv-Widget will be able to be used on any portal (e.g., Pacific Northwest Moths). The most important broader impact of this will be to reduce the load on taxonomists for identification requests. We hope to automate the categorization process enough so that individuals can focus on specific groups of interest and not have to spend time sorting through unclassified galleries of images.

Taxonomy Tables - We added the complete taxon table provided by Pohl, Patterson, and Pelham (2016) into the LepNet taxonomy tables and shared a csv version with LepNet collaborators using other databases (Specify, Emu, Arctos).

We are collaborating with Matt Yoder (TaxonWorks), to obtain an updated taxonomy of worldwide Lepidoptera and APIs that will provide us with a much more efficient means of updating taxonomies. Despite the progress in developing taxonomy tables, we have an estimated 56,000 taxa that need to be resolved (i.e. added, synonymized, or corrected).

LepNet Research Advisory Board - We have created a LepNet research advisory board (RAB), which is a subgroup of the LepNet TCN's CoPIs charged with developing guidelines for research projects and grant proposals that are requesting digitized specimen data ahead of online publication. LepNet is receiving requests for Lepidoptera on a regular basis, including requests for student research projects and conservation projects that include sensitive data. Thus, the goal of the RAB is to establish a process that maximizes efficiency of digitization for LepNet, opportunity for collaboration, and publications for those involved (as appropriate). We are tracking LepNet's collaborative research projects online and engaging in regular discussions with PIs and at RAB monthly meetings. While project tracking will help our TCN become more organized, we also hope this new pipeline will generate even more energy and excitement for research that uses digitized collections data. The initial project that precipitated the creation of a research advisory board was the Poweshiek Skipperling project, which was so successful in terms of soliciting participation by museums, we wanted to expand the projects program. We hope that we can ensure that participants are provided attribution (e.g. authorship in checklist publications) and project leads let participants know exactly what they need.

We have identified nine projects to date, each one is described below.

Project Name	**Name, Affiliation (contacts)**
Puerto Rico Hurricane Project	Catherine Hulshof
Woolly bear tymbal morphology Project	Nick Dowdy
Colias eurytheme Project	Matt Nielsen,
Agriculturally significant Lepidoptera Project	Jen Zaspel, Bledsoe, Neil Cobb, Klem
Pieris biocontrol Project	JJ Weis
Mimallonid biogeography	Ryan St Laurent
Collection patterns of North American Lepidoptera	Erica Fisher & Anthony Cognato
Catocala	Akito Kawahara, Larry Gall
Poweshiek skipperling Project	Anna Monafils

Publications - We have published an overview of the LepNet project (Seltmann et al 2017), and we are planning for a short communication publication on developing standards for images used in research. Seltmann, K.C. N.S. Cobb, L.F. Gall, C.R. Bartlett, A. Basham, I. Betancourt, C. Bills, B. Brandt, R.L. Brown, C. Bundy, M.S. Caterino, C. Chapman, A. Cognato, J. Colby, S. P. Cook, K.M. Daly, L. Dyer, N.M. Franz, J.K. Gelhaus, C.C. Grinter, C.E. Harp, R.L. Hawkins, S.L. Heydon, G.M. Hill, S. Huber, N. Johnson, A.Y. Kawahara, L.S. Kimsey, B.C. Kondratieff, F. Krell, L. Leblanc, S. Lee, C.J. Marshall, L.M. McCabe, J.V. McHugh, K.L. Menard, P.A. Opler, N. Palffy-Muhoray, N. Pardikes, M.A. Peterson, NE. Pierce, A. Poremski, D.S. Sikes, J.D. Weintraub, D. Wikle, J.M. Zaspel and G. Zolnerowich. (**2017**) LepNet: The Lepidoptera of North America Network. *Zootaxa*, *4247*(1), pp.73-77.

Google Analytics

Below are summary stats for the LepNet WordPress site http://www.lep-net.org/ , SCAN Drupal site http://scan1.acis.ufl.edu/ , LepNet data portal http://symbiota4.acis.ufl.edu/scan/lepnet/portal/index.php and the SCAN portal http://scan-bugs.org/portal/index.php . The SCAL drupal site is a legacy site and will be replaced with a WordPress site in May, 2018. The LepNet data portal actually shares the same underlying database with SCAN and so some people that only participate in LepNet still enter, annotate, and review Lepidoptera data from the SCAN portal.

Google Analytics Jan 31, 2017 to Feb 1 2018 (Annual)	**Sessions**	**Users**	**PageViews**	**Bounce Rate**	**% Windows OS**	**% Desktop**	**% United States**
SCAN Data Portal	41,065	19,458	147,075	48.3%	87%	89%	64%
LepNet Data Portal	2,486	1,460	6,016	58.7%	83%	90%	67%
LepNet WordPress	3,228	2,093	7,556	65.4%	82%	75%	63%
SCAN Drupal	1,201	897	2,111	62.0%	86%	92%	80%
TOTAL or Average	**47,980**	**23,908**	**162,758**	**58.6%**	**85%**	**87%**	**69%**
Monthly	3,998	1,992	13,563				

Submission #1270

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by EPICC
Tuesday, February 6, 2018 - 13:48
128.32.154.17

TCN Name:
Documenting Fossil Marine Invertebrate Communities of the Eastern Pacific - Faunal Responses to Environmental Change over the last 66 million years

Person completing the report:
eclites@berkeley.edu

Progress in Digitization Efforts:
As of 1/1/2018, the TCN has fully curated and computer cataloged 1,016,959 specimens (64% of goal) and made 58,891 of these specimens available in the iDigBio portal. The TCN has photographed 34,073 specimens (41% of goal) and georeferenced 23,505 localities (66% of goal).

Original source material digitized: At CAS scanning of their Geology Fossil ledgers is now complete! At UCMP, we continue to transcribe locality descriptions for California localities from the former USGS Menlo Park collection. In addition, PI Holroyd has been refining and updating age information for Paleocene and Eocene localities as well as entering some EPICC-related primary literature in the Paleobiology database.

Pre-digitization curation: LACM has been surveying, sorting and grouping, and doing reconciliation of specimen lots lacking LACMIP location numbers. At NMNH, during quality control of label transcriptions, ledgers are being referenced and additional data added to the records from the ledgers. A note is being added to the record when we find that it is referenced in a ledger. Some of these ledgers have been previously digitized. We are also more thoroughly documenting information about the individual collectors and researchers associated with the records in order to prevent vagueness and improve interpretation of the specimen and locality data.

Share and Identify Best Practices and Standards (including Lessons Learned):
Following the lead of LACM's other digitization project (CSBR - Cretaceous Seas of California) we have started to employ a greater range of pre-digitization tags, used for such things as expert identifications, to indicate specimens that have been transferred from stratigraphic to taxonomic collections, to indicate in-house specimen withdrawal by researchers. These are color coded. Have greatly improved efficiency of collections management and data integrity.

PRI held a Fossil Bioblitz with five staff members, one post-doc and one graduate student. This endeavor gathered all of the EPICC material from the state of Washington and used the concentrated time and energy of the seven participants to confirm or correct specimen

identifications. The gathering was very successful and we are planning another one in January/February. It was critical to have enough copies of the reference works, both digital and non-digital, as well as other supplies such as forceps and hand lenses for everyone to use. It was also key to assign tasks to people. Two people worked on bivalves, three people worked on gastropods, two others kept tallies, performed internet searches and basically kept the other five supplied with whatever they needed. Having the material staged before hand with a clearly thought out plan of attack, responsibilities and plenty of supplies made the job easier. Making a contest out of it helped keep the process fun and engaging for the identifiers.

At UCMP, having students who have worked several years on the EPICC project train their successors has worked well to prevent loss of knowledge when students graduate. Training new students is also a good time to check and update training guides.

Identify Gaps in Digitization Areas and Technology:
LACM is continuing to prepare legacy datasets for migration to Axiell-EMu.

NMNH: Validating and cleaning taxonomy from label transcriptions

UO is currently at only one undergraduate student employee (part-time) photographing specimens. Given it is the end of the term, scholastic priorities have taken precedence and normal productivity has dramatically slowed.

Share and Identify Opportunities to Enhance Training Efforts:
The launch of the NMNH digitization project in early November included training of a large project staff of contractors in understanding of specimens and label information for imaging and metadata entry.

See info about PRI training/Fossil ID blitz above.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Senior Personnel Clites, Little, Estes-Smargiassi and Skibinski attended the ADBC 2017 Summit meeting in Gainesville. Little had discussions on various data issues with other institutions and TCNs. Had group discussion of paleo TCN representatives with GBIF Executive Secretary Donald Hoburn. GBIF is interested in creating tools to make GBIF more useful for searching for paleo data. The group outlined a number of next steps to take. Also discussed best practices with other TCNs include Fossil Insect Collaborative and Cretaceous World.

LACM had discussions with SCAMIT (Southern California Association of Marine Invertebrate Taxonomists) to share data on taxonomy and morphology of Cenozoic and Recent scaphopods.

Share and Identify Opportunities and Strategies for Sustainability:
Volunteers continue to transcribe ledger entries at UCMP, which is especially helpful since many ledger entries are written in cursive or have other editorial notation unknown to students.

LACM: Cross-training students and volunteers between TCN, PEN & CSBR projects.

Share and Identify Education and Outreach (E&O) Activities:
TCN institutions continue to train new undergraduates, graduate students and volunteers on the project.

LACM had two teachers and one undergraduate student attend the Geological Society of America Annual Meeting. They presented on education & outreach initiatives, and EPICC-related research.

We have received final reviews of the Kettleman Hills Virtual Field Experience (VFE) modules and suggested changes are being made. Photographs are being added to the glossary where helpful

and NGSS measurable outcomes for students are being added to the teacher guides. There was a presentation about this VFE at The Geological Society of America (GSA) 2017 meeting in Seattle, Washington.

PI Finnegan on behalf of Lead-PI Marshall presented on the EPICC TCN's efforts at the October 2017 GSA meeting.

LACM is continuing to develop their Citizen Science activity - Project Paleo: Marine Invertebrate Fossils of South California. They have gained evaluation data and developed marketing products to support fossil kits to be used by LAUSD/LA homeschoolers. This work was presented at the GSA Annual Meeting in October 2017.

Google Analytics

Other Progress (that doesn't fit into the above categories):
CAS has resolved their IT issues which were preventing data from being served to iDigBio. A new server went online in January. Data uploads should begin soon.

UCMP successfully loaded hundreds of new images into CalPhotos. Also created a project tag, which will make photos taken for EPICC easier to track. Hired two additional student photographers.

Attachment 1

Attachment 2

Submission #1271

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by cskema
Wednesday, February 7, 2018 - 12:03
165.123.74.113

TCN Name:
The Mid-Atlantic Megalopolis: Achieving a greater scientific understanding of our urban world

Person completing the report:
cskema@upenn.edu

Progress in Digitization Efforts:
Please see attached pdf.

Share and Identify Best Practices and Standards (including Lessons Learned):
Please see attached pdf.

Identify Gaps in Digitization Areas and Technology:
Please see attached pdf.

Share and Identify Opportunities to Enhance Training Efforts:
Please see attached pdf.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Please see attached pdf.

Share and Identify Opportunities and Strategies for Sustainability:
Please see attached pdf.

Share and Identify Education and Outreach (E&O) Activities:
Please see attached pdf.

Google Analytics

Other Progress (that doesn't fit into the above categories):
Please see attached pdf.

Attachment 1
2018_02_MAM_Quarterly_Progress_Summary.pdf

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1271

Mid-Atlantic Megalopolis TCN
Quarterly Progress Report
November – December 2017 + January 2018

Progress in Digitization Efforts: The current numbers for progress of digitization efforts by specimen category are shown in Table 1. CHRB has received a light box. BALT is still waiting to receive one to use with their imaging rig (see details in previous bimonthly reports). Digitization has begun at SIM, but not yet at TAWES (blitz to be scheduled). MARY images and records from the mass upload are still being sorted to category of completion and/or merged, and numbers on those will be reported in future.

Table 1. Digitization of specimens by stage of completion and herbarium for MAM TCN.

	HERBARIUM								Totals
Specimen Stage	CHRB	DOV	HUDC	MCA	MOAR	NY	PH	SIM	
# specimens imaged (no stage, not in Symbiota yet)	2,186	10,572	350	2,153	0	170,800	0	1,004	**187,065**
# specimens imaged, and uploaded to Symbiota along with skeletal data (Unprocessed Stage)	2,116	7,543	6,243	17,700	11,512	0	138,600	2,016	**185,730**
# specimens as above + completely transcribed and transcription reviewed (Stage 1)	1,515	298	394	17,523	7,665	105,399	31,360	0	**164,154**
# specimens as above + georeferenced (Stage 2)	64	27	1	0	684	0	200	0	**976**
# specimens that need special attention, e.g. go back to sheet, etc. (Stage 3)	41	0	44	7	330	0	0	0	**422**
# specimens as above + closed as complete (Closed Stage)	0	0	0	0	2	40,587	0	0	**40,589**
Totals	**5,922**	**18,440**	**7,032**	**37,383**	**20,193**	**316,786**	**170,160**	**3,020**	**578,936**

Share and Identify Best Practices and Standards: Nothing to report.

Identify Gaps in Digitization Areas and Technology: Nothing to report.

Share and Identify Opportunities to Enhance Training Efforts: Nothing to report.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations: NY is continuing to work with other New York Botanical Garden projects, such as the Ecoflora of New York City, and floras of Central Park and adjacent Westchester county, collaborating with local parks departments and other city and state agencies.

Share and Identify Opportunities and Strategies for Sustainability: Nothing to report.

Share and Identify Education and Outreach Activities: HUDC, MOAR, and PH are hosting volunteer transcription events in honor of Darwin Day on 12 February 2018. NY has featured the MAM Project in their herbarium open house exhibits (held four times per year), in courses for local universities (e.g., Barnard College), and in courses offered to the general public.

Other Progress: The new light boxes were built and delivered. NY has updated their IPT to provide monthly data uploads to iDigBio and GBIF. MOAR hired two new, local technicians to do the imaging at SIM.

Published on *iDigBio* (https://www.idigbio.org)

Submission #1272

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by kmcameron
Wednesday, February 7, 2018 - 13:04
128.104.98.216

TCN Name:
Great Lakes Invasives: Documenting the Occurrence through Space and Time of Aquatic Non-indigenous Fish, Mollusks, Algae, and Plants Threatening North America's Great Lakes

Person completing the report:
kmcameron@wisc.edu

Progress in Digitization Efforts:
Targets: 637,000 plants + 102K fish lots + 44K mollusk lots = 783,000 “specimens”

Current Totals for USA Funded Museums: 892,049 records, of which 749,373 (84%) have been imaged (+ Canadensys plant data increases the total to 1,014,192 records).

See attached document for details.

Share and Identify Best Practices and Standards (including Lessons Learned):
Nothing to report

Identify Gaps in Digitization Areas and Technology:
Nothing to report

Share and Identify Opportunities to Enhance Training Efforts:
Nothing to report

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Nothing to report

Share and Identify Opportunities and Strategies for Sustainability:
Nothing to report

Share and Identify Education and Outreach (E&O) Activities:
Nothing to report

Google Analytics

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

Attachment 1
BimonthlyReport_Feb2018.pdf

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1272

GREAT LAKES INVASIVES TCN – report **To Date: February 7, 2018**

TARGETS: 637,000 plants + 102K fish lots + 44K mollusk lots = **783,000 "specimens"**

CURRENT TOTALS FOR USA FUNDED MUSEUMS: 892,049 records,
of which 749,373 (84%) have been imaged

(+ ***Canadensys*** plant data increases the total to **1,014,192 records**)

Collection	Specimens	Georefd	Imaged
Albion College	1224	16	1215
Butler University, Friesner Herbarium	13846	7	10515
Calvin College	731	0	696
Central Michigan University	3741	288	3710
Eastern Michigan University Herbarium	2469	620	2345
Field Museum of Natural History	66104	60916	64835
Grand Valley State University	365	10	359
Hillsdale College Herbarium	343	15	341
Hope College	594	3	583
Illinois Natural History Survey	48823	5494	35691
J. F. Bell Museum of Natural History Herbarium	77730	36363	77318
Miami University, Willard Sherman Turrell Herbarium	18188	4	18152
Michigan State University	35593	1310	35356
Morton Aboretum	21422	2334	20004
New York Botanical Garden	165813	59824	156277
New York State Museum	0	0	
Ohio State University Herbarium - Plants	30395	25663	29772
Ohio University, Bartley Herbarium	4925	0	4904
Seney National Wildlife Refuge	207	0	207
University of Illinois Herbarium	21893	0	21795
University of Michigan Herbarium	100372	17982	92143
University of Notre Dame, Greene/Nieuwland Herbarium	0	0	
University of Wisconsin-LaCrosse	7863	7421	7860
University of Wisconsin-Madison, Wisconsin State Herbarium	95539	21250	94435
University of Wisconsin-Milwaukee	7796	2060	7570
University of Wisconsin-Stevens Point, Robert W. Freckmann Herbarium	12336	10847	1627
Western Michigan University	1023	0	1005
Totals	739335	252427	688715

Collection - Fish	Specimens	Georefd	Imaged
Field Museum of Natural History - Fish	5556	374	4485
Illinois Natural History Survey - Fish	30403	8325	19231
J. F. Bell Museum of Natural History - Fish	15790	14103	7525
Ohio State University Museum of Biological Diversity - Fish Division	9033	0	9005
University of Michigan Museum of Zoology - Fish	42329	38529	1016
University of Wisconsin-Madison Zoological Museum - Fish	4601	455	4298
Totals	107712	61786	45560

Collection - Mollusks	Specimens	Georefd	Imaged
Field Museum of Natural History - Mollusks	6438	159	0
Illinois Natural History Survey - Mollusks	8191	7672	2964
J. F. Bell Museum of Natural History - Mollusks	1731	311	0
Ohio State University Museum of Biological Diversity - Mollusc Division	2376	0	2350
University of Michigan Museum of Zoology - Mollusks	25735	13673	9324
University of Wisconsin-Madison Zoological Museum - Mollusks	531	425	460
Totals	45002	22240	15098

Collection - Canadensys	Specimens	Georefd	Imaged
Green Plant Herbarium	18830	9798	0
Herbarium, Biodiversity Centre of Ontario	10103	0	10026
Herbier Louis-Marie (QFA) - Collection de plantes vasculaires	13321	9895	0
Herbier du Quebec (QUE) Collection de plantes vasculaires	504	504	0
Jardin Botanique de Montreal	1265	37	0
Marie-Victorin Herbarium	35355	13490	394
University of Manitoba Vascular Plant Herbarium	5686	5507	0
University of British Columbia Herbarium	26159	14030	3526
University of Toronto at Mississauga Herbarium	10920	4014	0
Totals	122143	57275	13946

Grand Totals	1014192	393728	763319

Published on *iDigBio* (https://www.idigbio.org)

Submission #1273

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by mwdenslow
Wednesday, February 7, 2018 - 13:54
76.120.67.210

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

Person completing the report:
michael.denslow@gmail.com

Progress in Digitization Efforts:
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 accomplishments, 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 EKU 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):
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:
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).

Google Analytics

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 Wetzer, 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 EKU. This collection will now permanently be housed at EKU.

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.

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1273

Published on *iDigBio* (https://www.idigbio.org)

Submission #1274

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by jrallen99
Thursday, February 8, 2018 - 16:01
128.138.130.206

TCN Name:
SoRo: Using Herbarium Data to Document Plant Niches in the High Peaks and High Plains of the Southern Rockies - Past, Present, and Future

Person completing the report:
james.allen@colorado.edu

Progress in Digitization Efforts:
In aggregate the SoRo TCN entered 20,370 new database records, applied 58,955 new barcodes, imaged 62,517 new specimens and georeferenced 1039 new specimens.

Total for the project 23,603 database entries, 90,111 barcodes, 87,649 images and 2,032 georeferences.
All collections that were not part of a SEINet portal have been added. New images are being associated with the portal through the iDigBio ingestion tool.

Share and Identify Best Practices and Standards (including Lessons Learned):
Setting up subawards should be initiated as early as possible as it can be a timely process to get everyone started. Smaller collections seem to take a bit more time to image using the ImagingApplication (LBCC TCN from WISC). This is likely because there are fewer specimens for each species as compared to large collections so the person imaging needs to interact with the application more frequently. For future projects I would recommend using a slower base images per hour for smaller collections than for larger ones. We are confident we will still finish the imaging scope for the first year on time, but think we may use more hours than anticipated.

From RM "We have found it best to only have technicians spend about 2-hours on one task, and then move them to a different task, thus maintaining a higher, consistent level of task-focus. We think it worthwhile to experiment with a monthly, or every other week, meeting for all of the technicians, paid and volunteered, to discuss cross-training, project goals and progress, and to seek input on protocols. "

Identify Gaps in Digitization Areas and Technology:
Locating a suitable replacement for the NYBG 1419 Ortech Lightbox is a continuing issue.

Lance Gloss at BRU is testing the utility of field notes with historic records to help improve location data of specimens. Digitizing and linking field notes to current collections could serve to augment

historic collections and provide georeferencers with better data to make more accurate georeferences.

Share and Identify Opportunities to Enhance Training Efforts:
Project Manager Allen visited Tina Ayers at ASC (Northern Arizona) and Norah Talkington at NAVA in December. Allen setup image upload procedure for ASC and NAVA and worked to help streamline the imaging process. Including adding half case for storing specimens while imaging and troubleshooting the camera white balance and adding a guide to help line up specimens in the lightbox.
Site visits can really help to launch the project and while it is a time and monetary commitment we feel it is a valuable use of resources. Allen also visited MESA in January to transfer specimens back to COLO for imaging.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Project Manager Allen has been in contact with the MAM TCN, and Tri-Trophic TCN trying to source new lightboxes for the project. Many of the SoRo TCN subawards have been working on projects with eachother.
Nora Talkington (NAVA) is on the San Juan college herbarium advisory team, which meets a few times/year and has been working closely with Tina Ayers, curator of ASC (Deaver herbarium) to figure out the entire digitization process.

Share and Identify Opportunities and Strategies for Sustainability:
The contacts that are being forged and or reinforced between the members of the SoRo TCN will hopefully continue beyond the duration of the TCN.

Share and Identify Education and Outreach (E&O) Activities:
The Brown Herbarium was featured in an article on the Brown University website https://news.brown.edu/articles/2017/11/herbarium

Ross McCauley at Fort Lewis Durango (FLD) is using specimen data in his classes: "During my Fall semester Botany course a student used digitized herbarium data to track spread of invasive species across Colorado. It was interesting and gave me some ideas of how to tweak that into a more comprehensive teaching case study. This semester some students in my Systematic Botany course are using digitized data for a variety of course-based research projects. Some of the ideas range from examining specimen data to reevaluate the distinction between two closely related species, producing a non-technical field guide to a geographic area based on specimen records, and association of species range with environmental factors – sort of niche modeling light."

Google Analytics

Other Progress (that doesn’t fit into the above categories):
Collections that will begin digitization in year two (ASC, BHSC, CSCN, GREE and SJNM) have been working to get all administrative tasks completed prior to their official start. In many cases these collections are procuring digitization equipment and supplies so they will be ready to start digitizing at the start of year two without delay.

Many of the collections are opting to image areas outside of the scope of this project using funds from outside of this grant, so digitization efforts are being magnified.

An additional 18 staff and students were hired to fill roles in the SoRo TCN during this reporting period.

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1274

Published on *iDigBio* (https://www.idigbio.org)

Submission #1275

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by psweney
Monday, February 19, 2018 - 11:36
130.132.173.132

TCN Name:
Mobilizing New England Vascular Plant Specimen Data to Track Environmental Change

Person completing the report:
p_sweeney@att.net

Progress in Digitization Efforts:
During the project, digitization activities were conducted at seven digitizing institutions: Brown (BRU), The New York Botanical Garden (NYBG), University of Maine (MAINE), University of Massachusetts (MASS), University of New Hampshire (NHA), University of Vermont (VT), and Yale (YU). During the overall project period (Years 1 through 5), 934,828 specimen-level records have been generated [59,999 skeletal & 874,829 full specimen-level records], and 997,009 specimen images have been captured. Town-level georeferences have been applied to records of all participating institutions resulting in over 637,846 georeferenced records. Flowering reproductive phenology has been captured into the NEVP vocabulary for 256,000 specimens.

Share and Identify Best Practices and Standards (including Lessons Learned):
nothing to report

Identify Gaps in Digitization Areas and Technology:
nothing to report

Share and Identify Opportunities to Enhance Training Efforts:
Project wide many opportunities have been provided for training and professional development. Across all institutions, more than 140 undergraduate or graduate student herbarium assistants or herbarium staff conducted digitization tasks. These individuals received training in herbarium curation, biodiversity informatics, and specimen digitization. During the course of their activities, digitizers were exposed to hundreds or thousands of herbarium specimens, which provided some botanical education.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We continue to collaborate with, CyVerse, the Symbiota team, and iDigBio. We are also collaborating with Notes from Nature to score reproductive phenology using citizen scientists.

Share and Identify Opportunities and Strategies for Sustainability:

nothing to report

Share and Identify Education and Outreach (E&O) Activities:
nothing to report

Google Analytics

Other Progress (that doesn't fit into the above categories):
nothing to report

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1275

Submission #1276

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by tkarim
Wednesday, February 21, 2018 - 15:20
128.138.167.225

TCN Name:
Fossil Insect Collaborative: A Deep-Time Approach to Studying Diversification and Response to Environmental Change

Person completing the report:
talia.karim@colorado.edu

Progress in Digitization Efforts:
CU-Boulder hired one new graduate student and one new undergraduate in January 2018 to work on the project. Imaging and databasing efforts continue to progress.

LACM started their PEN on the TCN in September of 2017. An estimated 950 specimen records from LACM have been migrated into their newly available Axiell-EMu database by the musuem's database specialist, and they anticipate allowing a transfer of records to iDigBio within the coming months. As of Feb. 20, 2018, nearly all equipment necessary for insect imaging (camera, lens, copystand, and accessories) have been purchased and assembled, and the overall workflow, from curation to imaging, has been beta-tested by the LACM team. In communicating the goals of Fossil Insects of LA with local fossil collectors and universities, they have also on-boarded and trained three volunteers to be dedicated to this project, and anticipate training a further four.

Share and Identify Best Practices and Standards (including Lessons Learned):
CU-Boulder has been sharing workflows and digitization strategies with the LACM-PEN.

Identify Gaps in Digitization Areas and Technology:
Nothing to report.

Share and Identify Opportunities to Enhance Training Efforts:
Nothing to report.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
From LACM: Of high relevance to this project is an ongoing effort (not NSF-funded) to fundraise for the supplies needed to fully rehouse LACMIP's fossil insects (following best practices) in parallel with digitization. At this time sufficient funds have been raised to purchase two new cabinets, drawers, and boxes.

Share and Identify Opportunities and Strategies for Sustainability:
Nothing to report.

Share and Identify Education and Outreach (E&O) Activities:
From LACM: Fossil Insects of LA was also the focus of presentation at a museum members luncheon in December 2017, and has been consistently highlighted on LACMIP's social media outlets (collectively 2,252 followers as of Feb. 20, 2018), as well as twice in the museum's online Research and Collections News. An additional article has been submitted to Bulletin of the Southern California Paleontological Society (Jan-Feb 2018 issue).

Google Analytics

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

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1276

Published on *iDigBio* (https://www.idigbio.org)

Submission #1278

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by dcblackburn
Tuesday, February 27, 2018 - 14:43
10.228.208.133

TCN Name:
oVert: Open Exploration of Vertebrate Diversity in 3D

Person completing the report:
david.c.blackburn@gmail.com

Progress in Digitization Efforts:
Since 1 September 2017 (when our TCN officially began), we have added more than 700 media files to MorphoSource as part of the oVert TCN. We have CT-scanned >1,800 fluid-preserved specimens representing amphibians, reptiles, fishes, mammals, and birds, so far focusing largely on collections at the Florida Museum of Natural History, Texas A&M University, Field Museum of Natural History, California Academy of Sciences, and University of Michigan Museum of Zoology.

While scanning is on-going at institutions across the TCN, we are also working to develop our priority lists of target species using iDigBio specimen data. We are nearly ready to unroll this list for fishes such that different institutions can begin prioritizing and mobilizing specimens in their collections for imaging. We have worked with iDigBio staff Kevin Love on generating this priority list by taking the type species of each genus listed in the Catalog of Fishes and then determining US institutions that have representative specimens of these species, prioritizing specimens from oVert-participating institutions that have associated locality data and tissue samples.

Share and Identify Best Practices and Standards (including Lessons Learned):
We have been working closely with staff at both iDigBio (Joanna McCaffrey, Dan Stoner, Alex Thompson) and MorphoSource (Doug Boyer, Julie Winchester) on several issues related to the oVert TCN. First, we have worked to improve the metadata ingested by MorphoSource from iDigBio for specimens with associated media files in MorphoSource. Second, we have been working on the mechanisms to share information on these media in MorphoSource with both iDigBio and individual scientific collections. We have recently started our first trials in which MorphoSource generates a file with Audobon Core data for media files for specimens from a given collection (e.g., FLMNH Herpetology). This file can then be included in the IPT published by a given museum such that information on these media files can be ingested by iDigBio as part of the normal publishing method used by many US museums. Once we work out remaining issues with that workflow, we will then publish RSS feeds for each collection (using referenceID ingested by MorphoSource from iDigBio) that will contain a CSV file with these Audobon Core data. Last, embedded within that RSS feed, we will also include usage statistics about downloads and views of media files as well as further information characterizing the users and natures of download requests. In this way, collections can

quickly access usage statistics on media files generated by oVert and hosted by MorphoSource.

We are also in the midst of working to standardize CT-scanning workflows across institutions. CoPI Ed Stanley is currently completing visits to both the MCZ and FMNH/Univ. Chicago where he is working with scanning staff to optimize workflows for scanning and uploading media files to MorphoSource. We are also working to create a set of 'reference scans' for several specimens and physical references standards that will reveal how different scanning technologies at participating institutions generate comparable digital datasets. These reference datasets will be shared via MorphoSource as well.

Because the oVert TCN relies on moving specimens among participating institutions, rather than "doing digitization" at the home institution, we needed to develop a workflow for tracking loan transactions among participating institutions. In this way, we can have a snapshot of what loans are in play among institutions as well as keep tracking of shipping for billing purposes. We have opted for a simple Google form in which collections staff can log basic details about each loan and upload a loan invoice that we store in a Google Drive folder. We have also developed a similar form to capture returns of loans from CT-scanning institutions.

Identify Gaps in Digitization Areas and Technology:
One of our biggest recent challenges has been ironing out those fields needed to characterize metadata for media files to facilitate reporting from MorphoSource to iDigBio. It has been time-consuming but fruitful as we work through this challenge. Another issue on which we will work in the coming months is batch-uploading media files for ingestion into MorphoSource. We have worked a number of time-saving measures of uploading media files and population metadata fields over the past year, including using the iDigBio API to populate selected metadata fields for specimen records in MorphoSource as media files are added. We intend to continue fine-tuning this to make uploading and sharing of media files more efficient.

Share and Identify Opportunities to Enhance Training Efforts:
As we are still in Year 1, we are focusing training efforts on staff based on CT-scanning institutions. This training focuses on standardizing scanning to optimize scan times and resolution, as well as uploading data to MorphoSource. In addition, the oVert team is developing digital media (both PDFs and short videos) that provide background information about CT-scanning as well as guides on creating, sharing, and using media generated by the oVert TCN.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Almost as soon as the oVert TCN began in September 2017, there was wide interest from colleagues and institutions in the US and internationally in participating in or collaborating with our project. We have started some work with unfunded US-based institutions, including the North Carolina State Museum and Brigham Young University, in which we will CT-scan selected high-value specimens representing key taxa that are otherwise not available in oVert-participating institutions. Lead PI Blackburn has also been involved in conversations with colleagues in other countries, providing opportunities for sharing lessons learned from oVert for similar initiatives in Australia, Czech Republic, etc. In October 2017, the first PEN proposal was submitted by Leif Tapanila (Idaho State University) to use light-based scanning to image individual skeletal elements of large vertebrates (e.g., whales) that would otherwise not be included within oVert due to size limitations of CT-scanning. We are also in conversations with the CT group at the University of Texas – Austin (UTCT) about another PEN that might help to mobilize via MorphoSource legacy data in UTCT and DigiMorph.

Share and Identify Opportunities and Strategies for Sustainability:
Nothing to report at this time.

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

We have started to plan our activities for the summer of 2018 in which oVert participants based at UF will work closely with staff at the UF Center for Precollegiate Education and Training. During the summer, we will work with CPET staff and a participating educator to develop an exemplar lesson plan using oVert-generated data. This example will then guide a workshop in the summer of 2019 with a group of teachers that develop similar lesson plans.

Google Analytics

Other Progress (that doesn't fit into the above categories):
As of this report, there are five scientific publications citing one of the 16 oVert TCN Awards. Our TCN was also highlighted in Science magazine in August 2017 (http://science.sciencemag.org/content/357/6353/742.summary).

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1278

Submission #1279

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by mikewebster
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128.84.125.255

TCN Name:
Developing a Centralized Digital Archive of Vouchered Animal Communication Signals

Person completing the report:
msw244@cornell.edu

Progress in Digitization Efforts:
No further progress during this reporting period.

Share and Identify Best Practices and Standards (including Lessons Learned):
Please see previous reports.

Identify Gaps in Digitization Areas and Technology:
Please see previous reports.

Share and Identify Opportunities to Enhance Training Efforts:
Please see previous reports.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Please see previous reports.

Share and Identify Opportunities and Strategies for Sustainability:
Please see previous reports.

Share and Identify Education and Outreach (E&O) Activities:
Please see previous reports.

Google Analytics

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

Attachment 1

Attachment 2