

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

September 2017

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

<input type="checkbox"/> InvertNet	<input type="checkbox"/> LBCC	<input checked="" type="checkbox"/> NEVP
<input checked="" type="checkbox"/> Paleoniches	<input checked="" type="checkbox"/> SCAN	<input checked="" type="checkbox"/> FIC
<input type="checkbox"/> VACS	<input type="checkbox"/> MHC	<input checked="" type="checkbox"/> GLI
<input type="checkbox"/> InvertEBase	<input checked="" type="checkbox"/> SERNEC	<input checked="" type="checkbox"/> MiCC
<input checked="" type="checkbox"/> EPICC	<input checked="" type="checkbox"/> Cretaceous World	<input checked="" type="checkbox"/> LepNet
<input checked="" type="checkbox"/> MAM	SoRo (NEW)	oVert (NEW)

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

TTD	MaCC	
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Submission #1214

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [psweney](#)

Thursday, September 7, 2017 - 09:18

130.132.173.188

TCN Name:

Mobilizing New England Vascular Plant Specimen Data to Track Environmental Change

Person completing the report:

patrick.sweeney@yale.edu

Progress in Digitization Efforts:

Primary digitization is complete at five digitizing institutions: Brown (BRU), Harvard (HUH), University of Massachusetts (MASS), University of New Hampshire (NHA), and University of Vermont (VT). Digitization is still occurring at two PENs The New York Botanical Garden (NYBG), University of Maine (MAINE), and at Yale (YU). To date, approximately 924,026 specimen-level records have been generated and 967,339 specimen images have been captured. Town-level georeferences have been applied to records of most participating institutions resulting in over 563,224 georeferenced records. Currently our efforts are focussed on scoring reproductive phenology and using tools within Symbiota approximately 228,256 specimens have been scored across all institutions.

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 45 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. Following is a breakdown for each budgeted institution.

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

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/1214>



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Submission #1203

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [BruceL](#)

Saturday, September 2, 2017 - 15:37

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 288,555 specimens databased associated with this project. Further, we now have a total of 256,619 databased specimens that are also georeferenced associated with this project. In addition, a total of 10,531 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 our trace fossils.

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

Major digitization activities at PRI related to the PaleoNiches project have now concluded. Remaining work includes: 1) adding additional species and species photographs (which we finished processing in early August) to the Neogene Atlas; and 2) creating novel curricular materials using the existing Digital Atlases. Between now and the time of the next report, an action timeline will be developed that addresses how these final two components of the project will be completed by June 2018.

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:

Share and Identify Opportunities and Strategies for Sustainability:**Share and Identify Education and Outreach (E&O) Activities:**

A student who had been supported by this grant successfully completed her Master's degree.

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

The student who successfully completed her Master's degree is working on writing up a paper to be submitted that describes the results of her research on Pennsylvanian fossils and biogeography using Geographic Information Systems.

Attachment 1**Attachment 2**

Source URL: <https://www.idigbio.org/node/564/submission/1203>



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Submission #1202

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [neilscobb](#)

Saturday, September 2, 2017 - 12:06

134.114.107.116

TCN Name:

Southwest Collections of Arthropods Network (SCAN): A Model for Collections Digitization to Promote Taxonomic and Ecological Research

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

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

see attachment

Attachment 1

[LepNet_SCAN_Aug_2017.docx](#)

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1202>

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

September 18, 2017
Neil Cobb

Progress in Digitization Efforts:

Beginning with the April 2017 report, the bi-monthly reporting will be a combined report covering LepNet and SCAN productivity because there is so much cross-over activity between the two networks. 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.

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

	All data	Non-Lep SCAN	Lepidoptera
Specimen Records	14,069,428	12,399,677	1,669,751
# Georeferenced	11,140,653	9,935,691	1,204,962
# Imaged	1,311,385	1,094,853	216,532
# Ided to species	7,424,760	6,203,317	1,221,443

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 1,669,751 records, representing >64,000 species and

93% 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	# Ided to species	# Georeferenced and Ided to Species
Nymphalidae	534,497	76%	97%	75%
Noctuidae	222,978	68%	96%	65%
Pieridae	222,643	73%	99%	73%
Hesperiidae	177,057	75%	98%	74%
Lycaenidae	170,690	74%	98%	73%
Erebidae	123,943	67%	96%	64%
Papilionidae	119,332	53%	99%	52%

What is most encouraging about the lepidopteran records is that 88% 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. We are committed to developing stronger connections with Mexico and have added 15 Mexican recordsets, four of which are new collections using the SCAN portal.

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 their 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 4

Table 4. Number of records for the five focal taxa groups targeted by SCAN.

	# Specimen Records	# Georeferenced	# Ided to species	# Georeferenced and Ided to Species
Formicidae	915,648	84%	52%	43%
Carabidae	542,912	79%	63%	51%
Acrididae	160744	79%	92%	73%
Tenebrionidae	154,918	84%	61%	52%
Spiders	198,838	77%	83%	60%
Total/Average	1,973,060	81%	70%	56%

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.

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:

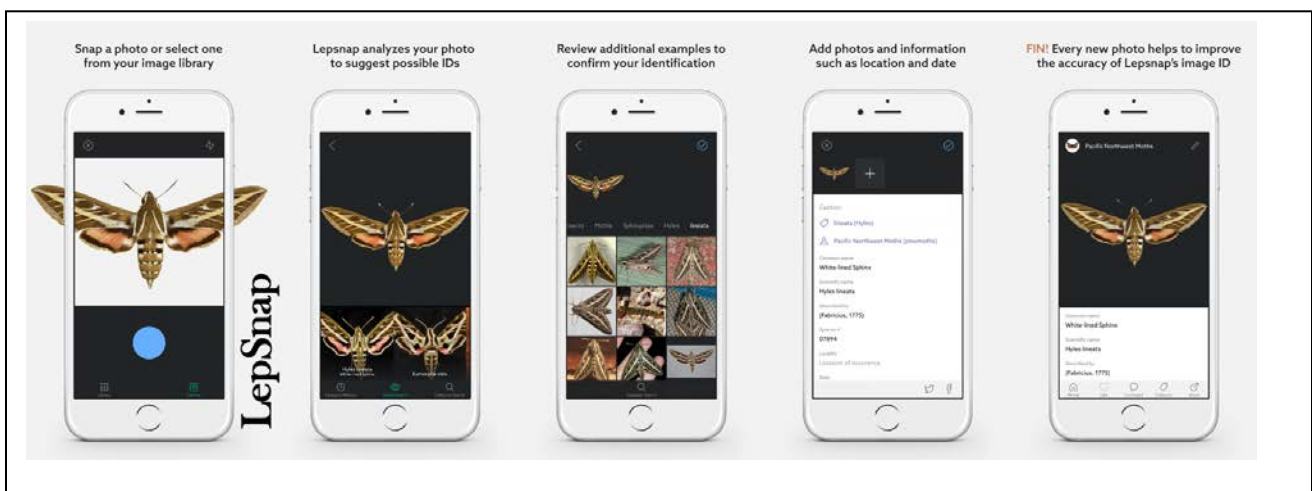
We are primarily working with other Symbiota TCNs and other Symbiota portals. We are also generally collaborating with a variety of individuals, projects and organizations to extend the ability to mobilize biodiversity data and promote the use of data in research.

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 collaborators (FieldGuide & Visopedia) are developing this app. 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) 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**), **cv-Batch** (an API service for batch-processing images), and **cv-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 cv-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 cv-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.

We have held five LepNet meetings **1)** LepNet Orientation Meeting July 21 2016 (virtual), **2)** LepNet and ButterflyNet in-person Meeting August 11 2016; **3)** the all-hands meeting at the November 6, 2017 iDigBio Summit; **4)** three virtual joint LepNet/SCAN meeting January 25, 2017, March 2, 2017, March 29, 2017. The virtual meetings were all recorded and are available on the project website as well as the PowerPoint presentations given during the in-person meetings. We presented an additional webinar that covered imaging standards for LepNet <http://www.lep-net.org/?p=383> . This webinar represented the culmination of extensive email correspondence to resolve minimal standards for images posted on LepNet.

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).

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.



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Submission #1198

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [tkarim](#)

Wednesday, August 30, 2017 - 12:22

128.138.167.199

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:

Yale, CU-Boulder, and the VMNH collectively databased and imaged about 3,000 new specimens during the reporting period. Yale has finished its portion of the grant, but continues to digitize newly acquired specimens. CU-Boulder, VMNH, and UCMP continue to digitize their remaining fossil insect collections.

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:

Butts, Norris, and Karim continue to work on iDigPaleo development and collaborations with other TCNs and organizations (e.g. PaleoNiches PEN, Cretaceous Worlds TCN, ePANDDA, and the Florissant Fossil Beds National Monument).

Share and Identify Opportunities and Strategies for Sustainability:

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

The VMNH has given nine collections tours of the Solite fossil insect collection and staffed a table on Solite insect fossils at a fossil fair at the Schiele Museum of Natural History in Gastonia, NC.

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

Butts, Karim, and Norris have submitted abstracts to ICOM-NATHIST, GSA, and ECN to present on iDigPaleo and the FIC-TCN.

Attachment 1

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1198>



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Submission #1213

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [mwdenslow](#)

Wednesday, September 6, 2017 - 14:04

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 84 collections serving data through the SERNEC portal. There are currently 3,231,627 specimens records and 233,086 (7%) of those records are georeferenced. There are currently 2,539,309 imaged specimen images available. There are currently 32 collections publishing to iDigBio.

Florida:

Two technicians were hired by Florida State University full-time for 12 weeks (May 22–August 11). They imaged and created skeletal records for 48,094 in-scope records during that time.

Georgia:

GA imaged 1,217 specimens during this time period (189,697 to date via this grant). Skeletal data (species name, state, county) for 4,188 non-Georgia specimens entered into Specify (18,105 to date).

COLG imaged 1,143 specimens during this time period (7,258 total for COLG – all specimens now imaged). All images uploaded to the SERNEC portal and linked to records.

GSW imaged 6,000 specimens during this time period (13,061 to date) and entered 10,170 skeletal records.

GAS imaged 614 specimens during this time period (18,248 imaged to date). 914 images were associated with their existing Specify record (7,252 to date).

Kentucky:

EKY imaged 277 specimens during the reporting period.

MUR imaged 5,000 specimens during the reporting period.

KNK completed imaging of their southeastern United States material and have a total of 22,898 images linked to the SERNEC portal.

South Carolina:

In June, July and August work continued at USCH (which added data and images for approximately 4,399 specimens to the SERNEC portal and CyVerse servers) and CLEMS (which added data and images for approximately 9,500 specimens to the SERNEC portal and CyVerse servers). USCH employed three student workers, and CLEMS employed one student worker and the curator was able contribute substantial time as well. During June and July work was completed at Francis Marion University Herbarium (FMUH), where two student workers and three student volunteers added data and images for approximately 5,671 specimens to the SERNEC portal and CyVerse servers. Work began in June and July at Newberry College (NBYC) and so far four student workers have added data and images for 7,857 specimens to the SERNEC portal and CyVerse servers. Additionally, in July skeletal data entry began at the University of South Carolina Salkehatchie Herbarium (SALK) and two student workers and two volunteers there have entered skeletal data for approximately 272 specimens to the SERNEC portal.

West Virginia:

Marshall (MUHW) has completed photographing the existing vascular plant collection (total ~41k specimens), therefore no photography took place over the summer. One student was hired on the grant and she transcribed skeletal geographic information for just over 10,000 specimens during June, July & August 2017.

WVU barcoded & imaged over 7,500 specimens & resumed uploads to the Cyverse server.

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>).

South Carolina:

A student volunteer working at Francis Marion University Herbarium (FMUH) created an instructional PowerPoint presentation detailing the process and procedures for capturing, converting and uploading specimen images now posted at: Alternative Workflows section here: <https://sernec.appstate.edu/resources>.

Identify Gaps in Digitization Areas and Technology:

All SERNEC:

The eBox company is currently out of business and suppliers for replacement light bulbs are very limited. We are still working on alternatives to deal with this issue.

Share and Identify Opportunities to Enhance Training Efforts:

All SERNEC:

Nothing to report.

Florida: FSU began encouraging participation in the WeDigBio event through listservs.

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

All SERNEC:

Records for voucher specimens of 22 'At Risk' species listed below were shared with Linda Chafin of the State Botanical Garden of Georgia (UGA) who is compiling Species Status Assessments for US Fish and Wildlife Service. These Status Assessments are critical to the review process that is used to determine whether or not a species will be added to the US List of Endangered Species. A total of 3,030 records were shared for these purposes.

List of target taxa:

Balduina atropurpurea, Coreopsis integrifolia, Croton elliotii, Fimbristylis perpusilla, Linderia subcoriacea, Lobelia boykinii, Ludwigia brevipes, Ludwigia spathulata, Macbridea caroliniana, Minuartia godfreyi, Najas filifolia, Ptilimnium ahlesii, Rhexia salicifolia, Rhynchospora crinipes, Rhynchospora thornei, Rudbeckia auriculata, Rudbeckia heliopsisidis, Sarracenia purpurea var. montana, Sarracenia rubra ssp. gulfensis, Scutellaria ocmulgee, Sporobolus teretifolius

Florida:

FSU organized a WeDigFLPlants workshop on August 8 at the Gainesville meeting space of iDigBio that engaged leadership of the Florida Native Plant Society, Florida Master Naturalists Program, Florida Master Gardeners Program, Florida Wildflower Foundation, the USF Herbarium (a PEN), iDigBio E&O working group, and SERNEC-engaged curators of FL and S GA (Valdosta) herbaria. Workshop participants discussed ways to build-out the WeDigFLPlants citizen science collaboration (<https://biospex.org/project/wedigflplants>).

Share and Identify Opportunities and Strategies for Sustainability:

All SERNEC:

Nothing to report

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

All SERNEC:

Nothing to report

Florida: See passage above about WeDigFLPlants workshop. FSU launched two new WeDigFLPlants expeditions on Notes from Nature during this time.

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

All SERNEC:

Nothing to report

Kentucky:

KNK: I advertised the completion of our SEUS specimen database (skeletal) with images at my Departmental retreat, gave examples of how this information could be used in undergraduate classes, and asked people to let me know if they wanted to collaborate on using this in their teaching. I'll be working with our new Intro Biology coordinator to see if we can work this in there.

Attachment 1**Attachment 2**

Source URL: <https://www.idigbio.org/node/564/submission/1213>



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Submission #1211

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [rhbaldree](#)

Wednesday, September 6, 2017 - 11:07

192.17.34.169

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:

rnb@illinois.edu

Progress in Digitization Efforts:

- Botanical Research Institute of Texas (BRIT) collection added to MyCoPortal (7July2017)
- Museum of Northern Arizona (MNA) collection added to MyCoPortal (29July2017)
- Index of the C.G. Lloyd Mycological Collection Specimens housed at BPI (BPI) observation profile added (2August2017)
- Long Island Mycological Club (LIMC) observation profile added (17July2017)
- University of Alabama Chytrid Culture Collection (UACCC) completed and published to iDigBio (9August2017)
- University of South Alabama Herbarium (USAM) collection completed and published to iDigBio (14August2017)
- Mushroom Mountain Fungarium collection added to MyCoPortal (15August2017)
- Bishop Museum, Herbarium Pacificum (BISH) collection completed and published to iDigBio (31August2017)
- MyCoPortal now has 3,314,405 specimen records and 276,301 observations from 89 institutions.

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

None

Identify Gaps in Digitization Areas and Technology:

None

Share and Identify Opportunities to Enhance Training Efforts:

- Teresa Iturriaga met with Roseanne Healy from University of Florida (FLAS) to train her in georeferencing (August2017)

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

- Andrew Miller attended the North American MycoFlora 2.0 Workshop held before the Mycological Society of America meeting, July 16, Athens, GA

Share and Identify Opportunities and Strategies for Sustainability:

- ARIZ switched from a Snapshot collection to a Live collection

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

- Video, "Hunting for Post-Fire Fungi in the Great Smoky Mountains National Park," shared on Facebook and Twitter pages of Illinois Natural History Survey.
- Presentation given at IX Latin American Congress of Mycology in Lima, Peru (23August2017); Miller, A.N. 2017. Digitization and data sharing of fungal specimens. IX Latin American Mycological Congress, Lima, Peru, August 24. (Keynote Address)
- Presentation given at Mycological Society of America in Athens, Georgia (16July2017) ; Miller, A.N. 2017. MyCoPortal. North American MycoFlora 2.0 Workshop, July 16, Athens, GA

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

- Heads, S.W., A.N. Miller, J.L. Crane, M.J. Thomas, D.M. Ruffatto, A.S. Methven, D.B. Raudabaugh, and Y. Wang. 2017. The oldest fossil mushroom. PLoS ONE 12(6): e0178327. doi: org/10.1371/journal.pone.0178327

Attachment 1**Attachment 2**

Source URL: <https://www.idigbio.org/node/564/submission/1211>



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Submission #1212

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [EPICC](#)

Wednesday, September 6, 2017 - 13:51

66.223.193.23

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 8/15/2017, the TCN has fully curated and computer cataloged 841,076 specimens (53% of goal) and made 53,084 of these specimens available in the iDigBio portal. The TCN has photographed 25,174 specimens (30% of goal) and georeferenced 16,971 localities (48% of goal).

Original source material digitized: At UCMP students have finished retrieving locality information on cards stored with Alaskan specimens to facilitate georeferencing.

At LACM, 8824 locality records are now cleaned and readied for georeferencing. Batch processed coordinates available internally for more than 8000 localities. These will be used for data visualizations, for researchers and industry requests, and as skeletal records until georeferencers are able to process them.

At NMNH, 674 specimen labels have been imaged and 358 have been transcribed through crowd sourced volunteers at SI Transcription Center. One volunteer developed data validation scripts to match specimen database internal IDs (irns) to non-standardized taxonomy and geographic data for data clean up and quality control.

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

LACM is developing new protocols for pre-digitization curation (rehousing, identification, etc.), cataloging, and photography that will reduce internal error and increase efficiency. They are also developing a new labeling system for loans, specimen transfers, expert opinion flags etc.

UO is focused on the reconciliation of georeferenced localities from member institutions. They have settled on a default 0.001 decimal degree bin size for synonymizing localities, allowing an easy first pass for creating the locality synonym list.

Identify Gaps in Digitization Areas and Technology:

UO is currently suffering from a six-week-long disruption in their Specify attachment server, the web service that supports sharing images online. They initially ran out of memory on the VM hosting the service, but once that was rectified, they ran into an as-yet-unsolved problem preventing our other services from connecting to the attachment server. Because this issue coincided with the departure of our museum's IT specialist for another job, they have been slow to remedy the problem.

LACM is not yet using KE-EMu, and therefore still not exporting data to iDigBio. They are ~60% through cleaning legacy taxonomic records and ~80% complete cleaning legacy locality records. Once complete they will begin data migration.

UCMP is in the process of hiring several more students to take specimen photographs.

At CAS, turnover in personnel has slightly slowed progress in some areas. A new graduate student is scheduled to start in September.

Share and Identify Opportunities to Enhance Training Efforts:

Five EPICC participants (Clites, Dietl, Hendy, Skibinski, Vendetti) attended an iDigBio-sponsored Mollusk Digitization Workshop in Newark, Delaware in July 2017. Clites (UCMP) also visited NMNH and discussed workflows for their upcoming photography project as well as discussing collections policies. Hendy visited NMNH to present LACMIP inventory process to NMNH staff and discuss best strategies for crowd-sourcing their digitization efforts.

At NMNH, 22 online SI Transcription Center Volunteers transcribed and validated 358 specimen labels.

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

During the mollusk workshop, Clites discussed possibility of serving EPICC data through InvertEBase portal with PIs and the benefits that might bring to both TCNs.

Hendy (LACM) is collaborating with Alexandra Buczek of the American Museum of Natural History on the Pliocene fauna of California, including analysis of LACMIP specimens, fieldwork in Southern California, and collaboration with the San Diego Museum of Natural History.

Share and Identify Opportunities and Strategies for Sustainability:

Synergy is developing between EPICC TCN and LACMIP's CSBR grant "Cretaceous Seas of California" which is broadening their student/volunteer base, improving training and best practice adoption, and building on their digital infrastructure.

Specify is transitioning to a user-institution-supported model. The University of Oregon Museum of Natural and Cultural History is working to be on the board of this new Specify governance so that they can ensure the development and maintenance of services needed to sustain the paleoinformatic community.

At UCMP volunteers continue to prove a valuable asset to funded projects by focusing on more time consuming or cumbersome aspects of the EPICC project less suited to students.

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

TCN staff trained 7 undergraduate students, 2 recent college graduates, 2 graduate students, 5 teachers and 25 other volunteers.

The Introduction about About page for EPICC VFE webpage has been written, as well as the pages for Educators. We are waiting for final comments on the modules, glossary and teacher guides from our advisors before launching the site.

Estes-Smargiassi (LACM) attended the Earth Science Educators Rendezvous to speak about Citizen Curation & Paleontology. Estes-Smargiassi attended SPNHC to speak about LACMIP inventory process. LACMIP received Paleontological Society Education and Outreach grant to expand Citizen Curation & Paleontology project. LACM gave tours to multiple groups including NHMLAC Gallery Interpreters and Proyectos Dinosaurios. Multiple presentations at the Western Society of Malacologists meeting related to EPICC. Clites presented on TCN efforts to standardize taxonomic and stratigraphic data through the creation of concordances at the Digital Data in Biodiversity Research Conference in June 2017.

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

NMNH secured funding for "full production" mass digitization of 45,000 specimen lots through internal SI funding sources. Mass digitization workflows are being finalized and space is being configured. Mass digitization (includes imaging and transcription of ~1000 specimen trays per week) will begin Nov 6, 2017.

Attachment 1

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1212>



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Submission #1204

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [BruceL](#)

Saturday, September 2, 2017 - 15:45

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 17,240 Cretaceous specimens total, with 1,505 databased since the last reporting period in late June. Most 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 2,007 Cretaceous localities associated with this project. We are also continuing to image ammonoid specimens and during this reporting period 85 new images were generated; these have been shared with Jon Hendricks for use in the Cretaceous Atlas project.

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

40 localities were georeferenced in this reporting period;

13,129 specimens were databased (in EMu) in the reporting period

they now have 58,288 relevant specimen records TOTAL in their database;

they have imaged 10,868 specimens in the reporting period;

and have a TOTAL of 43,830 relevant specimens imaged, (many with multiple orientations).

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

They acquired 282 new images and added 16 new localities to the database since the last reporting period. Their inventory of Cretaceous specimens by taking iPad images of the labels is also nearly complete, with drawer and cabinet numbers added to Specify for about two thirds of specimen records.

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

They have georeferenced 43 new WIS localities since the last reporting period. They have databased 117 new specimen records since the last reporting period and have databased 486 specimens total. They have also produced 51 images of 18 specimens during this reporting period for a total of 51 images thus far.

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

they have georeferenced 28 localities in the reporting period;

they have a total of 41,109 relevant specimen records in their database (563 of these are vertebrates);

and they imaged 71 specimens during this reporting period such that now they have a total of 330 images.

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

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

With regard to photographing specimens using a single shot, there is no one way to focus in on all specimens. There are varying heights of microstructures on a specimen that can become somewhat distorted in a final image if not taking this into consideration. Specimens and their characteristics come out clearer if different methods of focusing and levels of exposure are tested for each individual specimen.

Focus stacking does not seem to be the best method for creating crisp images for all types of specimens, at least with higher quality equipment.

Identify Gaps in Digitization Areas and Technology:

Regarding the University of New Mexico (UNM) portion of the project, led by PI Cori Myers, they are having difficulty making better quality images with focus stacking than with single shot methods, again this is maybe due to high quality equipment.

Share and Identify Opportunities to Enhance Training Efforts:

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

An undergraduate Digitization Assistant from SUNY-Geneseo devoted 335 hours during June, July, and early August to processing a backlog of digital images (provided by TCN partners) of nearly 175 species of fossils for future addition onto the Cretaceous Atlas of Ancient Life (www.cretaceousatlas.org).

Regarding the Yale University portion of the project, led by PI Susan Butts, they are providing

images to the Digital Encyclopedia of Ancient Life (DEAL), a broader outreach aspect of the project, see: <http://www.digitalatlasofancientlife.org/learn/>

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

Their graduate student working on the grant has been gone this summer but will be back the last week of August to resume working on digitization. Further, they will be hiring another student, using funds from another project, to help improve the curation of this material to facilitate the digitization work.

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

Share and Identify Opportunities and Strategies for Sustainability:

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

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

1) An avocational paleontologist from Colorado contacted PI's Lieberman and Hendricks about possible incorporation of her superb 3D models of WIS fossils (e.g., <https://sketchfab.com/Paleogirl/collections>) onto the Cretaceous Atlas website. We are excited about this partnership and have already begun incorporating some of these models onto pages for individual species of ammonites. For example:

- *Hoploscaphites spedeni* <http://www.cretaceousatlas.org/species/hoploscaphites-spedeni/>
- *Hoploscaphites nebrascensis* <http://www.cretaceousatlas.org/species/hoploscaphites-nebrascensis/>
- *Hoploscaphites nicolletii* <http://www.cretaceousatlas.org/species/hoploscaphites-nicolletii/>

2) Hendricks has focused Cretaceous Atlas development efforts on two areas: development of pages for important WIS index fossils (particularly ammonoids) and the important Maastrichtian ammonoid family Scaphitidae, which is now becoming well developed: <http://www.cretaceousatlas.org/taxonlist-cephalopoda-scaphitidae/> and <http://www.cretaceousatlas.org/families/Scaphitidae/>.

3) Elizabeth Hermsen and PI Hendricks have nearly finished the next chapter of the Digital Encyclopedia of Ancient Life, which is focused on systematics, the nuts-and-bolts of taxonomy, and the basics of phylogenetics. This chapter may be accessed at <http://www.digitalatlasofancientlife.org/learn/systematics/>. We will plan to work with iDigBio to formally announce this chapter to the wider community in the very near future.

Regarding the University of New Mexico (UNM) portion of the project, led by PI Cori Myers they are keeping active in the area of social media and their number of followers is steadily increasing.

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

Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman, he along with collections manager Julien Kimmig at KU and Erin Saupe, faculty member at Oxford University, will be presenting a talk at the 2017 Annual Meeting of the Geological Society of America in Seattle in the session Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past I. The talk is titled, "Digitizing fossils to enhance macroevolutionary research: the Paleoniches and Cretaceous World Thematic Collections Networks" The abstract may be accessed at: <https://gsa.confex.com/gsa/2017AM/meetingapp.cgi/Paper/298736>

Regarding the Paleontological Research Institution portion of the project, led by PI Jonathan Hendricks, he will be presenting on the ammonoid portion of the Cretaceous Atlas at the 2017 Annual Meeting of the Geological Society of America in Seattle. The talk is 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, led by PI Cori Myers they have spent time learning how to use the photography equipment, the camera functions, and understanding the software (this includes making virtual objects). They are also writing instructions for other workers, present and future, that will be using the photography equipment. Further, she, along with her graduate student, will be presenting a talk at the upcoming Geological Society of America Annual Meeting in Seattle describing her work analyzing biogeographic patterns during the Cretaceous.

Attachment 1

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1204>



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Submission #1201

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [neilscobb](#)

Saturday, September 2, 2017 - 12:05

134.114.107.116

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

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

see attachment

Attachment 1

[LepNet_SCAN_Aug_2017.docx](#)

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1201>

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

September 18, 2017

Neil Cobb

Progress in Digitization Efforts:

Beginning with the April 2017 report, the bi-monthly reporting will be a combined report covering LepNet and SCAN productivity because there is so much cross-over activity between the two networks. 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.

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	14,069,428	12,399,677	1,669,751
# Georeferenced	11,140,653	9,935,691	1,204,962
# Imaged	1,311,385	1,094,853	216,532
# Ided to species	7,424,760	6,203,317	1,221,443

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 1,669,751 records, representing >64,000 species and

93% 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	# Ided to species	# Georeferenced and Ided to Species
Nymphalidae	534,497	76%	97%	75%
Noctuidae	222,978	68%	96%	65%
Pieridae	222,643	73%	99%	73%
Hesperiidae	177,057	75%	98%	74%
Lycaenidae	170,690	74%	98%	73%
Erebidae	123,943	67%	96%	64%
Papilionidae	119,332	53%	99%	52%

What is most encouraging about the lepidopteran records is that 88% 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. We are committed to developing stronger connections with Mexico and have added 15 Mexican recordsets, four of which are new collections using the SCAN portal.

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 their 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 4

Table 4. Number of records for the five focal taxa groups targeted by SCAN.

	# Specimen Records	# Georeferenced	# Ided to species	# Georeferenced and Ided to Species
Formicidae	915,648	84%	52%	43%
Carabidae	542,912	79%	63%	51%
Acrididae	160744	79%	92%	73%
Tenebrionidae	154,918	84%	61%	52%
Spiders	198,838	77%	83%	60%
Total/Average	1,973,060	81%	70%	56%

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.

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:

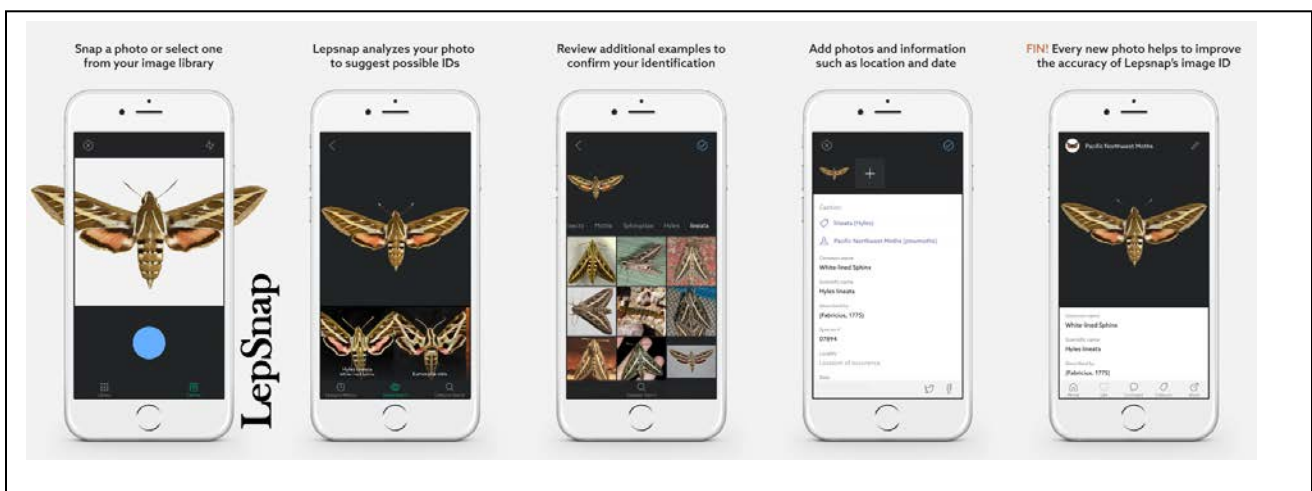
We are primarily working with other Symbiota TCNs and other Symbiota portals. We are also generally collaborating with a variety of individuals, projects and organizations to extend the ability to mobilize biodiversity data and promote the use of data in research.

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 collaborators (FieldGuide & Visopedia) are developing this app. 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) 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**), **cv-Batch** (an API service for batch-processing images), and **cv-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 cv-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 cv-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.

We have held five LepNet meetings **1)** LepNet Orientation Meeting July 21 2016 (virtual), **2)** LepNet and ButterflyNet in-person Meeting August 11 2016; **3)** the all-hands meeting at the November 6, 2017 iDigBio Summit; **4)** three virtual joint LepNet/SCAN meeting January 25, 2017, March 2, 2017, March 29, 2017. The virtual meetings were all recorded and are available on the project website as well as the PowerPoint presentations given during the in-person meetings. We presented an additional webinar that covered imaging standards for LepNet <http://www.lep-net.org/?p=383> . This webinar represented the culmination of extensive email correspondence to resolve minimal standards for images posted on LepNet.

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).

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.



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Submission #1208

Submission information

Form: [TCN Bi-Monthly Progress Report to iDigBio](#)

Submitted by [cskema](#)

Tuesday, September 5, 2017 - 11:28

100.14.12.46

TCN Name:

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

Person completing the report:

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Progress in Digitization Efforts:

Please see attached pdf.

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.

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

Nothing to report.

Attachment 1

[2017_08_MAM_Bi-monthly_Progress_Summary.pdf](#)

Attachment 2

Source URL: <https://www.idigbio.org/node/564/submission/1208>

Mid-Atlantic Megalopolis TCN
Bi-Monthly Progress Report
July – August 2017



Progress in Digitization Efforts: The current numbers for progress of digitization efforts by specimen category are shown in Table 1. BAL and CHR are waiting for a light box to use with their imaging rig (see details in previous bimonthly reports). Digitization has not yet begun at SIM or TAWES. The MARY database has been uploaded to Symbiota and images are currently being sorted to already extant records and category of completion.

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

Specimen Stage	HERBARIUM									Totals
	BAL	CHR	DOV	HUDC	MARY	MCA	MOAR	NY	PH	
# specimens imaged (no stage, not in Symbiota yet)	0	0	7,003	1,179	0	1,268	6,122	101,062	2,258	119,192
# specimens imaged, and uploaded to Symbiota along with skeletal data (Unprocessed Stage)	0	600	2,206	4,478	0	22,725	1,964	0	52,762	84,735
# specimens as above + completely transcribed and transcription reviewed (Stage 1)	0	1,439	0	219	0	1,292	4,059	87,871*	1,940	96,820
# specimens as above + georeferenced (Stage 2)	0	64	0	0	0	0	273	40,587*	0	40,924
# specimens that need special attention, e.g. go back to sheet, etc. (Stage 3)	0	46	0	0	0	0	20	0	0	66
# specimens as above + closed as complete (Closed Stage)	0	0	0	0	0	0	0	0	0	0
Totals	0	2,149	9,209	5,876	0	25,285	12,438	229,520	57,260	341,737

*Not uploaded to Symbiota yet as NY is using in-house workflow/database until later steps in process.

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: Nothing to report.

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

Share and Identify Education and Outreach Activities: Nothing to report.

Other Progress: Nothing to report.