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

May 2018

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

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☒ EPICC	☒ MAM	☒ SCAN
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☒ GLI	☒ MiCC	☒ SoRo
☒ InvertEBase	☒ oVert	☒ VACS

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

~~InvertNet~~	~~MaCC~~	~~TTD~~
~~LBCC~~	~~NEVP~~	

iDigBio is funded by a grant from the National Science Foundation's Advancing Digitization of Biodiversity Collections Program (Cooperative Agreement EF-1115210). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

	January 1, 2011 to March 5, 2018 (7 years)				February 4 to March 5, 2018 (29 days)				March 6 to April 27, 2018 (53 days)			
Website	**Users**	**Sessions**	**Pageviews**	**Bounce Rate**	**Users**	**Sessions**	**Pageviews**	**Bounce Rate**	**Users**	**Sessions**	**Pageviews**	**Bounce Rate**
iDigBio Portal	102,572	154,088	462,295	64%	1,594	2,717	10,357	52%	2,845	4,710	16,069	53%
iDigBio Website	187,747	292,014	629,602	62%	8,887	10,901	18,681	70%	12,191	16,029	28,304	67%
Aquatic Invasives	8,339	10,783	22,526	71%	42	59	179	36%	72%	101%	503%	50%
Digital Atlas of Ancient Life	981	1,208	2,837	67%	740	894	1,675	68%	2,059	2,383	4,283	76%
Pennsylvanian of Ancient Life	NA	NA	NA	NA	253	327	1,582	64%	476	597	2,044	63%
Neogene Atlas of Ancient Life	NA	NA	NA	NA	134	315	3,466	44%	314	559	3,179	54%
Cretaceous Atlas of Ancient Life	NA	NA	NA	NA	0	0	0	NA	260	301	1,138	57%
Fossil Marine Invertebrate Communities (EPICC)	NA	NA	NA	NA	161	173	165	0	110	141	309	60%
Fossil Insect Collaborative	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SCAN (Arthropods)	58,738	129,598	463,040	58%	2,348	4,501	14,739	52%	3,438	6,699	20,199	53%
LepNet Portal	2,446	4,125	10,413	55%	194	300	854	52%	294	451	780	71%
LepNet WordPress	5,874	7,807	15,288	72%	169	240	603	65%	362	550	1,371	55%
InvertEBase	10,708	13,683	29,098	71%	381	504	1,134	62%	726	929	2,048	64%
Mycoportal	84,853	186,109	568,425	54%	2,987	5,840	17,802	51%	4,916	10,066	32,076	53%
LBCC Lichen	124,170	294,874	944,962	56%	4,459	8,889	31,196	58%	7,502	15,459	48,052	57%
LBCC Frullania	15,867	21,333	41,432	74%	277	346	615	67%	581	722	1,303	71%
LBCC Arctic	7,498	9,496	21,367	74%	93	115	306	69%	165	188	564	69%
LBCC Bryophyte Portal	31,702	76,943	265,861	45%	755	1,441	5,487	40%	na[1]	na	na	na
LBCC Bryophyte Website[1]	28,095	68,612	233,754	46%	755	1,441	5,487	40%	1,312	2,667	11,806	47%
Macroalgae	36,228	66,237	21,843	52%	1,381	1,941	5,559	64%	1,950	3,086	10,175	53%
Herbarios del Noroeste de Mexico	16,429	27,148	161,083	58%	1,393	2,315	16,751	56%	2,726	4,380	21,947	59%
SERNEC	42,238	110,790	403,697	45%	1,735	4,808	23,459	34%	2943	8,806	44,535	34%
SEINet vPlants	3,464	4,877	13,789	65%	1,165	1,515	4,361	65%	1,935	2,699	7,220	65%
SEINet Intermountain	72,096	132,186	591,181	46%	1,484	2,895	14,602	34%	2,820	5,576	30,085	30%
SEINet Arizona-New Mexico	358,820	782,069	4,276,561	51%	12,794	23,731	113,353	53%	25,810	49,251	227,303	46%
SEINet Midwest Herbaria	17,366	36,587	131,620	48%	571	1,631	10,604	33%	1003	2534	12,671	32%
Mid-Atlantic Herbaria	3,419	9,275	33,803	46%	318	1,171	3,647	43%	419	1,822	6,223	42%
NANSH	20,978	29,537	69,112	66%	266	525	1,747	40%	517	1,017	3,339	42%
Northern Great Plains	25,882	37,695	91,374	68%	375	562	1,439	61%	634	1,148	2,638	63%
OregonFlora Portal	71,303	192,204	496,751	44%	1,047	2,210	5,948	43%	2,108	4,674	13,698	41%
Mobilizing New England Vascular Plant Specimen Data (NEVP)	18,425	35,883	144,452	49%	446	1,033	6,538	38%	711	1,844	8,648	38%
Southern Rockies Plant Niches (SoRo)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
Tri-Trophic Databasing (TTD)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
A Centralized Digital Archive of Vouchered Animal Communication Signals	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Open Exploration of Vertebrate Diversity in 3D (oVert)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
InvertNet	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VertNet	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[1] **The 30 day stats suggest both portals are the same, but different over their lifetimes**

	January 1, 2011 to March 5, 2018				February 4 to March 5, 2018 (30 days)				March 6 to April 27, 2018 (53 days)			
	Users	**Sessions**	**Pageviews**	**Bounce Rate**	**Users**	**Sessions**	**Pageviews**	**Bounce Rate**	**Users**	**Sessions**	**Pageviews**	**Bounce Rate**
iDigBio	**290,319**	**446,102**	**1,091,897**	**63%**	**10,481**	**13,618**	**29,038**	**61%**	**15,036**	**20,739**	**44,373**	**60%**
TCN and related portals	**1,065,919**	**2,289,059**	**9,054,269**	**53%**	**36,723**	**69,722**	**293,298**	**47%**	**66,092**	**128,550**	**517,639**	**47%**
TOTAL	**1,356,238**	**2,735,161**	**10,146,166**	**58%**	**47,204**	**83,340**	**322,336**	**NA**	**81,128**	**149,289**	**562,012**	**NA**
Non-iDigBio by taxa												
Plant-Lichen	893,980	1,935,746	7,942,642	**55%**	29,314	56,569	251,099	**49%**	53,136	105,873	450,207	**49%**
Invertebrates	77,766	155,213	517,839	**64%**	3,092	5,545	17,330	**58%**	4,820	8,629	24,398	**61%**
Fungi	84,853	186,109	568,425	**54%**	2,987	5,840	17,802	**51%**	4,916	10,066	32,076	**53%**
Paleo	NA	NA	NA	NA	1,288	1,709	6,888	**53%**	3,219	3,981	10,953	**62%**
Multiphyla	8,339	10,783	22,526	**71%**	42	59	179	**36%**	1	1	5	**50%**
Vertebrates	0	0	0	**NA**	0	0	0	NA	0	0	0	NA
	Per Day				Per Day				Per Day			
	Users	**Sessions**	**Pageviews**		**Users**	**Sessions**	**Pageviews**		**Users**	**Sessions**	**Pageviews**	
iDigBio	111	170	417		361	470	1,001		284	391	837	
TCN and related portals	407	874	3,456		1,266	2,404	10,114		1,247	2,425	9,767	
TOTAL	518	1,044	3,873		1,628	2,874	11,115		1,531	2,817	10,604	
					0	0	0		0	0	0	
Non-iDigBio by taxa					0	0	0		0	0	0	
Plant-Lichen	341	739	3,032		1,011	1,951	8,659		1,003	1,998	8,494	
Invertebrates	30	59	198		107	191	598		91	163	460	
Fungi	32	71	217		103	201	614		93	190	605	
Paleo					44	59	238		61	75	207	
Multiphyla	3	4	9		1	2	6		0	0	0	
Vertebrates	0	0	0		0	0	0		0	0	0	

Submission #1290

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by EPICC
Thursday, April 26, 2018 - 14:33
136.152.143.61

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 4/1/2018, the TCN has fully curated and computer cataloged 1,348,715 specimens (86% of goal) and made 68,916 of these specimens available in the iDigBio portal. The TCN has photographed 35,892 specimens (43% of goal) and georeferenced 19,562 localities (63% of goal). At NMNH, the full production photography run finished, with the creation of over 37,965 specimen lot records with specimen lot and label images, with additional “standard view” images of the best-preserved specimens within lots.

Share and Identify Best Practices and Standards (including Lessons Learned):
Liz Nesbitt’s paper, Cenozoic marine formations of Washington and Oregon: an annotated catalogue was published in PaleoBios (https://escholarship.org/uc/item/04q5f9cr). We are hoping this provides a standard for further publications in this style.

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.

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

Share and Identify Opportunities to Enhance Training Efforts:
UCMP is having an undergraduate student make videos documenting EPICC workflows to use when training future students.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Discussions with other fossil TCNs about adding a project “tag” in our data so that researchers can search for data from a specific NSF-funded project. This will likely go in the DwC:projectName field.

Share and Identify Opportunities and Strategies for Sustainability:
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.

The central California (Kettleman Hills) Virtual Field Experience was launched (https://epiccvfe.berkeley.edu/kettleman-hills/) and widely shared with educators through list serves.

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.

An article was published in Wooster magazine, a publication of the College of Wooster about the EPICC project's digitization efforts featuring Wooster alumni Kathy Hollis (NMNH) and Erica Clites (UCMP).

Google Analytics

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

Attachment 1

Attachment 2

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

Submission #1291

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by BruceL
Thursday, April 26, 2018 - 17:05
129.237.108.132

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, it is nearing completion and the grant will expire at the end of June (although there is an active PEN that will be continuing from Indiana University). We have databased 2,509 more specimens since the last reporting period, and now have a total of 297,441 specimens databased associated with this project. Further, we now have a total of 265,505 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. All of our major taxonomic groups from the relevant time intervals have been completely databased. Further, all pertinent localities have been georeferenced.

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

The Paleontological Research Institution's (PRI) component of the Paleoniches TCN project (PI Hendricks) is nearing its completion and the grant will expire at the end of June.

Related to the completion of grant objectives, PI Hendricks and a staff member in the Education department at PRI, Andrielle Swaby, have 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. These curricular materials will be made publicly available by the end of June when the grant expires.

Since the time of the last report, 26 additional species have been added to the Neogene Atlas, which now includes detailed records and photographs for 593 species from the southeastern United States.

Finally, PI Hendricks has been trained by PRI collections staff to use Specify and to perform georeferencing activities. Using these new skills, he has begun digitizing specimens of Neogene mollusk fossils from the southeastern United States from PRI's collections; all of these records will

be provided to iDigBio and a summary will be provided with the next (and final) report.

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:
N/A

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

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/1291

Submission #1293

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by BruceL
Saturday, April 28, 2018 - 14:55
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:
Digitization Highlights across the project:

Total specimens now databased: 149,136 (when include contributions from PEN 157,554)

Total localities now georeferenced: 11,116 (when include contributions from PEN 11,541)

Digitization highlights by institution:

Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman and with major involvement from collections manager Julien Kimmig, they have databased 24,415 fossil specimens total, with 6,182 specimens databased since the last reporting period. All of these specimen records are also georeferenced. In addition, they have georeferenced 2,091 localities since the last reporting period and have now georeferenced a total of 3,218 Cretaceous localities associated with this project. They also generated 200 new images.

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; PI Hendricks) have focused upon new additions to the Digital Encyclopedia of Ancient Life (DEAL). The most significant update is that an all new chapter on Geological Time has been produced. This chapter focuses upon general concepts and principles of geological time (including the vastness of millions and

billions of years of time), as well as uniformitarianism), relative and absolute age dating, the geological time scale, and geological maps. This new chapter can be accessed and explored at: http://www.digitalatlasofancientlife.org/learn/geological-time/

Progress also continues to be made on the next DEAL chapter, which will focus on the fossil record of cephalopods.

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

They have databased 72,063 Cretaceous specimens total, with 3,805 databased since the last reporting period. 65,316 of these specimen records are also georeferenced. In addition, they have georeferenced 14 localities since the last reporting period and now georeferenced a total of 2,241 Cretaceous localities associated with this project. They also generated 3,535 new composite (multiple view) images.

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

They have databased 3758 Cretaceous specimens total, with 0 databased since the last reporting period. 2437 of these specimen records are also georeferenced. In addition, they have georeferenced 7 localities since the last reporting period and now georeferenced a total of 533 Cretaceous localities associated with this project. They also generated 1673 new images.

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

They have databased 11,950 Cretaceous specimens total, with 1355 databased since the last reporting period.

They have not yet imported their georeferences back into the database, but several 100 localities have been georeferenced so far. They have also added 64 new localities to Specify for specimens that previously were databased as NO DATA localities. These specimens have mostly complete locality data and were cataloged incorrectly in the 1980s.

They generated 1256 new images. They will be uploaded to Specify in the next month. They also sent several images to Jon Hendricks at PRI for the Cretaceous Atlas.

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

They have databased 818 Cretaceous specimens total, with 209 databased since the last reporting period. 96% of these specimen records are also georeferenced. In addition, They have georeferenced 16 localities since the last reporting period and now georeferenced a total of 96 Cretaceous localities associated with this project.
They are also much closer to completion of migration of data to Arctos. They now have a total of 416 of their specimen records uploaded and 96 georeferenced localities.

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 218 Cretaceous specimens total (represented by 62 specimen lots), with 218 databased since the last reporting period (all other specimens georeferenced to date in this project were previously databased). In addition, they have georeferenced 52 localities since the last reporting period and now georeferenced a total of 603 Cretaceous localities associated with this project (they re-evaluated our data in the past month and discovered they had underreported the number of unique localities in the past).

Regarding the University of Texas portion of the project, led by Rowan Martindale and Lisa Boucher

They have databased ~ 15,190 Cretaceous specimens total, with 6 databased since the last reporting period. 14,838 of these specimen records are also georeferenced. In addition, they have georeferenced 270 localities since the last reporting period and now georeferenced a total of 3,698 Cretaceous localities associated with this project. They have also generated 469 new images.

The lead PI on the Texas portion of this project, Dr. Ann Molineux, unfortunately passed away in February 2018 after a long battle with cancer. Former co-PI, Dr. Rowan Martindale has become the new PI and Dr. Lisa Boucher, at the Non-Vertebrate Paleontology (NPL) Laboratory, has become the co-PI.

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

They have databased 20,724 Cretaceous specimens total (1,384 lots), with 5,217 specimens databased (235 lots) since the last reporting period. 233 of these specimen records are also georeferenced (the remaining localities do not have sufficient geographic information for effective georeferencing). In addition, they have georeferenced 64 localities since the last reporting period and now georeferenced a total of 527 Cretaceous localities associated with this project (298 of these georeferenced localities are associated with collection objects, the remaining 299 georeferenced localities are in the database but are not yet used by one or more collection objects).

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 8418 Cretaceous specimens total, with 980 databased since the last reporting period. 2648 of these specimen records are also georeferenced. In addition, they have georeferenced 119 localities since the last reporting period and now georeferenced a total of 425 Cretaceous localities associated with this project. They also generated 412 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 Paleontological Research Institution portion of the project, led by PI Jonathan Hendricks, an undergraduate student from SUNY-Geneseo has been recruited to help at PRI with processing images of fossils for the Cretaceous Atlas of Ancient Life (www.cretaceousatlas.org) during summer 2018. This student will also help to run a new photogrammetry system that will be acquired using grant funding to facilitate the development of 3D models of fossils that will be incorporated into the DEAL website.

Regarding the University of New Mexico (UNM) portion of the project, led by PI Cori Myers, their 2 volunteer students are still active and they will be recruiting 1 high school 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, led by PI Jonathan Hendricks, The Digital Atlas Twitter account (@PaleoDigAtlas) currently has 1039 followers and has produced 660 tweets.

Regarding the University of New Mexico (UNM) portion of the project, led by PI Cori Myers, social media projects are ongoing and seem to have steady interest.

Google Analytics

Other Progress (that doesn't fit into the above categories):
Regarding the University of Kansas portion of the project, they have a manuscript in press at that journal Biology Letters that focuses on the Red Queen hypothesis and ecological patterns in the fossil record that is an outgrowth of the research conducted during the course of this grant. The lead author is Luke Strotz, the post-doc supported by the grant, and other authors are Bruce Lieberman and collections manager Julien Kimmig.

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1293

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

Submission #1295

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by chrisneefus
Monday, April 30, 2018 - 10:45
132.177.112.80

TCN Name:
The Macroalgal Herbarium Consortium: Accessing 150 Years of Specimen Data to Understand Changes in the Marine/Aquatic Environment

Person completing the report:
Chris.neefus@unh.edu

Progress in Digitization Efforts:
Most of the easy specimens have been imaged, transcribed and georeferenced. We have been working on the more difficult ones. A chart of our overall progress to date is attached.

Share and Identify Best Practices and Standards (including Lessons Learned):
We have not made any significant changes to our workflow. We are using essentially the same practices that have been documented earlier for flat herbarium sheet.

Identify Gaps in Digitization Areas and Technology:
One issue we are dealing with at the moment is an apparent inability of Harvard's collection database (a modified version of Specify) to import data from other systems including Symbiota. To keep things on track, we have been imaging many of Harvard's macroalgal specimens at UNH. We have uploaded the images to the macroalgal portal along with skeletal data (catalog number & scientific name). We have transcribed the locality and georeferenced most of these. We are not transcribing the rest of the label information because Harvard wants to do that themselves to ensure consistency (they have a collectors database, and other validation tools in their system). At the moment, Harvard is not certain that they are going to be able to import the locality and geolocation info into their system.

Share and Identify Opportunities to Enhance Training Efforts:
We haven't trained any new personnel during this quarter.

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

Share and Identify Opportunities and Strategies for Sustainability:
Sustainability can come from making a resource useful to an increased audience. One of the primary justifications that most TCNs have used for their digitization efforts is the ability to examine changes in species distributions and community composition over time. To simplify the visualization

of temporal biogeographic changes, we developed a Spatial Module for Symbiota. The Spatial Module makes it very easy for portal users to map changes in species distribution. We think this will lead to increased usage of the portals and greater support.

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

Google Analytics

Other Progress (that doesn't fit into the above categories):
Presentation at the Northeast Algal Symposium, Bretton Woods NH, April 16, 2018:
Brandon O'Brien, Christopher Neefus, & Benjamin Brandt. The spatial module – new tools and applications in the macroalgae herbarium portal.

Attachment 1
digitization numbers 04-26-18.pdf

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1295

				Percent Complete				
Digitizing Institution	**Start**	**Collections**	**Specimens**	**Records Created**	**On Portal**	**Imaged**	**Transcribed**	**Geo-referenced**
University of New Hampshire	Year 1	10	140,221					
New York Botanical Garden	Year 1	5	172,613					
University of North Carolina	Year 1	7	60,891					
University of Michigan	Year 1	5	95,589					
University of Washington	Year 1	3	25,775					
Duke University	Year 1	1	17,828					
University of Alaska SE	Year 1	1	9,889					
Bishop Museum	Year 1	1	65,000					
Field Museum	Year 1	1	48,058					
Oregon State University	Year 1	1	12,120					
University of Guam	Year 1	1	13,600					
University of California - Berkeley	Year 2	9	230,869					
University of Hawaii	Year 2	1	4,730					
Harvard University	Year 2	1	125,000					
Academy of Natural Sciences	Year 3	1	37,816					
University of Vermont	Year 3	1	3,062					
	Totals	49	1,063,061	800,949	770,606	711,661	588,693	532,581

Submission #1296

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by neilscobb
Monday, April 30, 2018 - 11:25
47.215.135.75

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
LepNet_SCAN_May_2018.docx

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

Attachment 1

Attachment 2
ADBC_Googl_Analytics_April_2018.xlsx

Source URL: https://www.idigbio.org/node/564/submission/1296

Submission #1297

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by neilscobb
Monday, April 30, 2018 - 11:26
47.215.135.75

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

Person completing the report:
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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
LepNet_SCAN_May_2018.docx

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

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1297

Lepidoptera of North America Network &
Symbiota Collections of Arthropods Network (SCAN)
Quarterly Report

May 4, 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. All data presented here were accessed on April 25, 2018. **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.

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	15,106,312	12,738,525	2,145,413
# Georeferenced	11,909,989	10,173,510	1,600,992
# Imaged	1,644,083	1,114,824	466,947
# Identified to species	8,912,191	6,713,714	2,053,152

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.

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. **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 Identified to species	# Georeferenced & Ided to species
Nymphalidae	590,194	486,026	447,581	371,040
Noctuidae	298,665	205,086	274,365	192,241
Pieridae	243,687	196,497	206,786	165,561
Hesperiidae	200,559	154,747	184,514	145,195
Lycaenidae	186,185	139,148	138,123	103,779
Geometridae	176,979	129,785	157,111	116,921
Erebidae	163,663	111,720	152,155	103,947
Papilionidae	128,265	78,916	90,530	51,503

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 are developing 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):

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

Taxa	# Specimen Records	# Georeferenced	# Specimen Identified to species	# Georeferenced & Ided to species
Formicidae	973,248	815,624	511,888	418,725
Carabidae	563,999	448,353	391,853	313,326
Araneae	221,871	176,284	186,555	140,615
Acrididae	190,303	146,044	177,259	136,461
Tenebrionidae	168,219	146,576	105,725	92,159

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.

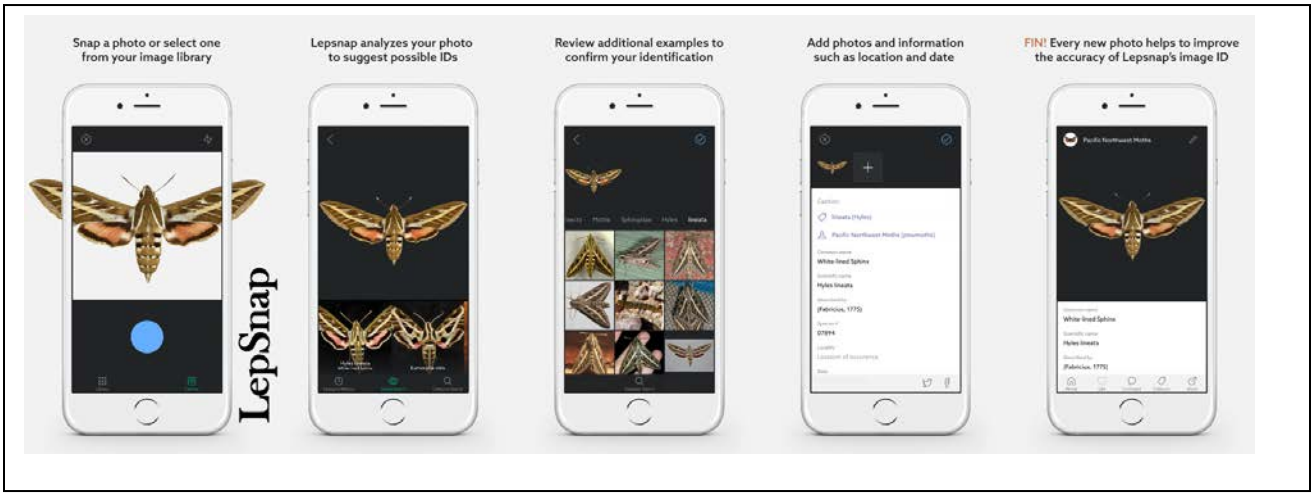
Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We are primarily working with other Symbiota TCNs and other Symbiota portals. We are also generally collaborating with a variety of individuals, projects and organizations to extend the ability to mobilize biodiversity data and promote the use of data in research. We are serving data from 159 collections, we continue to add one collection per month.

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. We have added five new collections since the last update.

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**), and **Fg-Batch** (an API service for batch-processing images). 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 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.

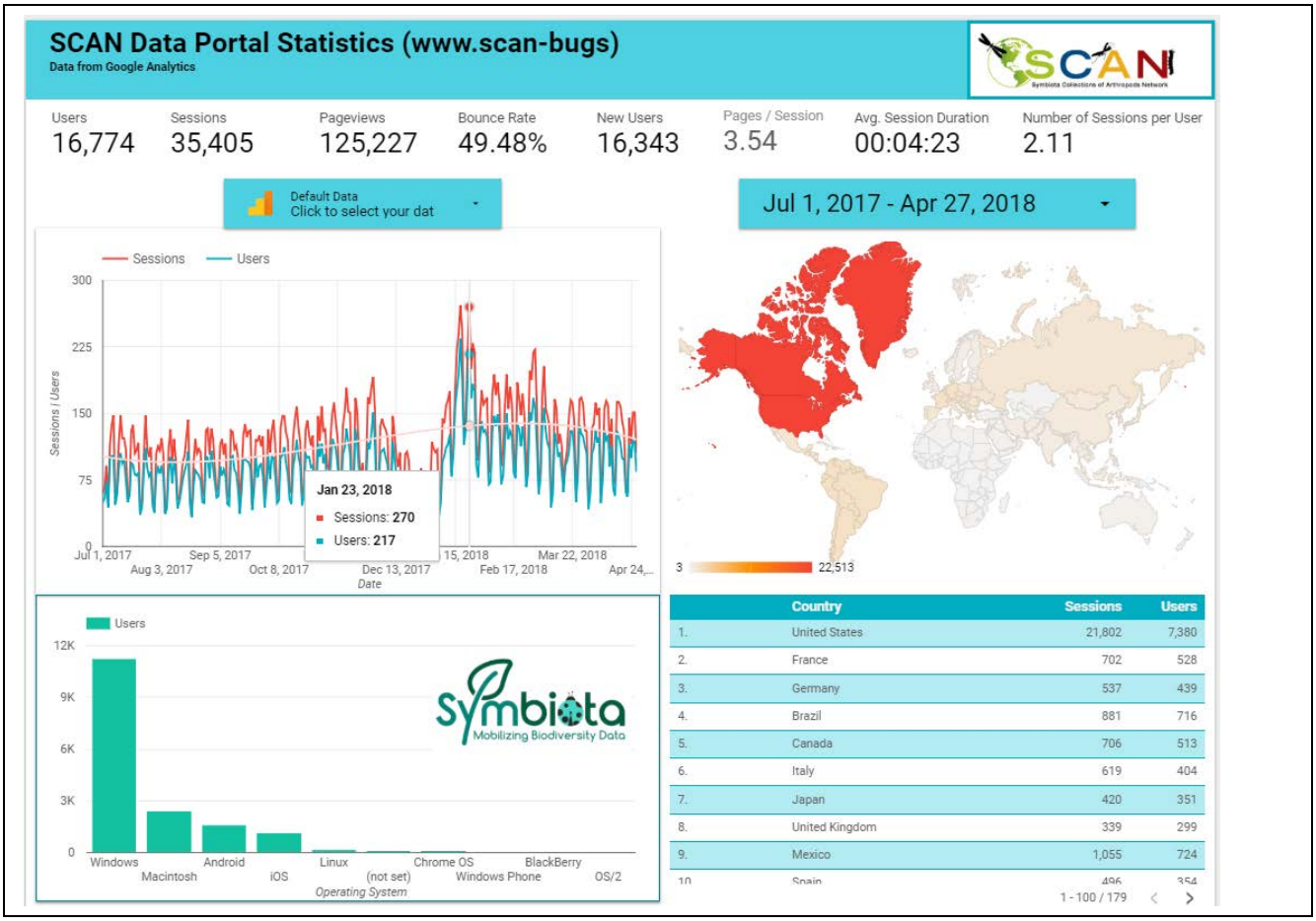
Project Name	**Name, Affiliation (contacts)**
Puerto Rico Hurricane Project	Catherine Hulshof
Woolly bear tymbal morphology Project	Nick Dowdy
Colias eurytheme Project	Matt Nielsen,
Agriculturally significant Lepidoptera Project	Jen Zaspel, Bledsoe, Neil Cobb, Klem
Pieris biocontrol Project	JJ Weis
Mimallonid 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 graphical stats for the second year to date for the SCAN portal, http://scan-bugs.org/portal/index.php and the LepNet data portal http://symbiota4.acis.ufl.edu/scan/lepnet/portal/index.php. 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. We also have a WordPress site http://www.lep-net.org/ that features LepNet but also provides SCAN updates.



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

Submission #1302

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by tkarim
Tuesday, May 1, 2018 - 19:18
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:
LACMIP: Since the last quarterly report, the Natural History Museum of Los Angeles County's Invertebrate Paleontology department (LACMIP) has transitioned from beta-testing workflows to full-production digitization. Pre-digitization activities have focused on the sorting and identification of non-type specimens (1,684 spms identified), as well as labeling type specimens with LACMIP catalog numbers (20% of Statz type drawers completely labeled). An additional 339 high-resolution digital images have been captured, and 70 non-type specimens have been cataloged into LACMIP's new Axiell-EMu database. One student has been dedicated to the sorting, identification, cataloging, and imaging of Bibionidae to fulfill an external research request on Fossil Insects of LA specimens.

CU-Boulder: We continue to database and image fossil insect specimens (1349 specimen records added to Specify and about 1500 images were acquired in the reporting period), mostly from our Green River collections. We now have 65,088 fossil insect and spider records in Specify.

Share and Identify Best Practices and Standards (including Lessons Learned):
LACMIP: Preparation for PI Hendy's presentation at the SPNHC meeting (New Zealand, August 2018) has included developing a method for digitizing all literature associated with the Statz Collection, which is now underway.

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:
We are in the process of setting up google analytics for the iDigPaleo site as outlined by Neil Cobb. This should be completed in the next few weeks.

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):
LACMIP also intends to disseminate results of the Fossil Insects of LA project at the 5th International Paleontology Congress (France, July 2018), and one abstract has been submitted for acceptance to this meeting. Coordinated, externally-funded efforts to rehouse this collection are also progressing; two Delta cabinets to be dedicated to Fossil Insects of LA specimens have been delivered to the museum.

Attachment 1

Attachment 2

Submission #1303

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by jrallen99
Wednesday, May 2, 2018 - 01:18
73.153.162.155

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:
Collectively for the current quarter ~February – April of 2018 we have entered 23,374 new records into databases, barcoded 99,271 new specimens, imaged 113,992 new specimens and georeferenced 4,009 records. The project is ramping up with the current quarter being the most productive quarter to date on the project. In aggregate the project has now produced 46,977 new database records, 190,561 newly barcoded specimens, 201,698 new images and 6,041 new georeferences.

Share and Identify Best Practices and Standards (including Lessons Learned):
UNM put a new Ortery Photosimile 200 with Nikon D850 into service. Phil Tonne redesigned the camera mount and it now produces superior images to their Photo E Box Plus 1419 fitted with a Nikon D800E.
At Brown undergraduate student worker Lance Gloss has made good progress with a locality improvement project to increase the accuracy of locality data that will decrease future georeferencing uncertainties. Lance has augmented over 1,000 early SoRo records using published accounts of various collecting trips to add more detailed locality and habitat data to records that otherwise contained only vague, state-level, locations. It is our hope that these efforts will help other herbaria improve the locality data for their specimens from these same collecting expeditions and provide better baseline data for historic records where field notes exist.
Harvard (GH) switched from stamping the processed specimens with “imaged” to barcodes that include already the word “imaged”. The reduction of the stamping process sped up the imaging speed considerably.
NAVA created a folder called “weird specimens for review” for the digitization technicians to place specimens that were missing accession numbers, had illegible accession numbers, or had duplicate accession numbers. That way Nora Talkington could correct errors in SEINet before the erroneous photos were uploaded and led to a large scale QC of the herbarium. It can be tricky to backup files during the digitization process as it can slow down the imaging process waiting for images to transfer. NAVA decided to use an external harddrive to store all the files and later move files to ASC’s dropbox folder for backup. (Uploading files to ASC’s dropbox took a considerable amount of

time ~3-5 seconds/photo).
NYBG has been using OCR text to search through “skeletal” records that have been barcoded and imaged to find those that occur in the SoRo region so staff can fully transcribe the records. This works very well for printed labels and handwritten labels that have typewritten headers and footers. However, for fully handwritten labels, it can be very difficult to determine the locality on thousands of specimens. To help with this, NYBG recently created two crowdsourcing expeditions through Notes from Nature to ask the crowd to enter countries and states only. NYBG has done several Notes from Nature expeditions to fully database records, and while they are all completed over time, they can take several months to finish. However, their two country/state expeditions finished in less than a week, adding basic location data to 10,000 records. These data are then added to the database for SoRo staff to easily find project records. This work also helps the Mid-Atlantic digitization project, another locality-based project, find specimens from that region as well.
COLO used an array/ dictionary of terms in excel and raw OCR data to extract high level geography (country, state and county) to help focus in on specimens specific to the SoRo region for specimens without skeletal data.

Identify Gaps in Digitization Areas and Technology:
The discontinued Ortech 1419 Photo eBox is still an issue, but it sounds like collections are having success with the Ortery Photosimile 200. This is a more expensive solution that was not initially budgeted for and will require shifting some funding at institutions that still need to buy a lightbox.
RMBL ran into some problems with the iDigBio Image Uploader caused by browser incompatibility. Updating the browser (Firefox) to the most recent version mostly eliminated the problems. Technical assistance from iDigBio was timely and helpful.

Share and Identify Opportunities to Enhance Training Efforts:
Steve Perkins (SJNM) made a trip to Fort Lewis Durango during their training and was able to meet with PM Ryan Allen (COLO) and Ross McCauley (FLD) to get some familiarity with the equipment and project prior to SJNM’s official start. This was a great opportunity for introductions and to leverage training across multiple institutions. When the geography works (collections are in close proximity) this can be very effective to get collections thinking about the digitization process prior to launching their project.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
COLO is working on a partnership to digitize the City of Boulder Open Space and Mountain Parks Herbarium. This would add a relevant collection to the network that was not originally proposed or funded by NSF, but will add ~3,000 specimens to the SoRo project.
UNM is working with the Seeds of Success Program and have allowed the BLM offices in Santa Fe and Taos to image their specimens for this program at UNM.
The staff that helped digitize the NAVA collection (Alex Henrie and Jak Kearsley) are now digitizing the Northern Arizona collection (ASC).

Share and Identify Opportunities and Strategies for Sustainability:
UNM has been encouraging the BLM to contribute to their long-term imaging needs. Even small contracts and grants, combined with work-study funding opportunities, will allow us to continue imaging beyond this grant if we can find a partner to keep the project going into the future.
Several other collections have expressed anxiety over the future of digitization post funding. Many of our smaller partners do not have an annual Herbarium budget and would greatly benefit from a process to apply for small amounts of funding to image new material as it is accessioned.

Share and Identify Education and Outreach (E&O) Activities:
Steve Rolfsmeier (CSCN) presented a poster at the Black Hills Botany and Ecology Workshop about recent activities in the High Plains Herbarium that included a section on the SoRo grant.
Rick Williams (RMBL) gave a talk and participated in a workshop on “Uses of Crowdsourced and Citizen Science Data” for educators and land managers at Idaho State University. In particular, he demonstrated the use of online herbarium data for research and education.

Google Analytics

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

The ALAM collection was featured in a news article in the Valley Currier (linked on the SoRo wiki). We have had several articles written about the project since the start of the project that are also featured. Michael Yost is now working on georeferencing small collections using past TCN experience. In aggregate 15 new project staff were added to the SoRo project.

Attachment 1

Attachment 2

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

Submission #1304

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by kmcameron
Wednesday, May 2, 2018 - 12:24
128.104.98.103

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:
This will be our final quarterly report since the project is scheduled to end on May 30, 2018. See attachment.

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

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

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

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

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

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

Google Analytics

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

Attachment 1
BimonthlyReport_May2018.docx

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1304

GREAT LAKES INVASIVES TCN – quarterly report
To Date: May 2, 2018
(last quarterly report before project ends on May 30, 2018

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

CURRENT TOTALS FOR USA FUNDED MUSEUMS: 909,104 records,
of which 774,535 (84%) have been imaged

(+ ***Canadensys*** plant data increases the total to **1,031,247 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	4212	735	4181
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	3078	35356
Morton Aboretum	21422	2334	20006
New York Botanical Garden	165813	59824	156277
New York State Museum	0	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	100379	17991	92150
University of Notre Dame Herbarium	0	0	0
University of Wisconsin-LaCrosse	7863	7421	7860
University of Wisconsin-Madison Herbarium	96245	21250	95143
University of Wisconsin-Milwaukee	7796	2060	7570
University of Wisconsin-Stevens Point,	27171	11139	23841
Western Michigan University	1023	0	1005
Totals	755354	254943	712117

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 - Mollusc Division	2376	0	2350
University of Michigan Museum of Zoology - Mollusks	26771	13673	10372
University of WI-Madison Zoological - Mollusks	531	425	460
Totals	46038	22240	16146

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	1,031,247	396,246	788,481

Submission #1305

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by mwdenslow
Wednesday, May 2, 2018 - 13:32
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 108 collections serving data through the SERNEC portal. There are currently 4,137,749 specimens records and 353,463 (9%) of those records are georeferenced. There are currently 3,444,769 imaged specimen images available. There are currently 45 collections publishing to iDigBio.

Florida:
FLAS imaged 598 Division of Plant Industry Herbarium (PIHG) specimens and reorganization/renaming of additional PIHG raw nef files in Adobe Lightroom (LR) was done and IPTC metadata was applied to select sets. PIHG provided, after several iterations, a csv data file that Kent Perkins has started parsing and modifying in preparation for upload to the SERNEC portal. FLAS cataloged 775 FLAS specimens with skeletal data in the SERNEC portal. A new volunteer, Jake Fleming, has georeferenced 131 FLAS SERNEC records.

FSU trained 5 student interns, databased and imaged 4702 records.
USF imaged and transcribed 6992 specimens from the SERNEC region with a total of 187,714 specimens publishing to iDigBio, SERNEC portal, & GBIF to date.

Georgia:
GA imaged 0 specimens during this time period (190,140 to date via this grant). Skeletal data (species name, state, county) for 10,080 non-Georgia specimens entered into Specify (58,154 to date).
Kentucky:
BEREA imaged 21,779 specimens along with entry of skeletal record data into SERNEC portal.
EKY imaged 8 specimens.

Louisiana:
Working on approximately 50,000 labels from NLU partially digitized during 2017. Also getting ready

to upload 150,000 accession numbers transcribed from NLU sheets in 2017.

Mississippi:
During this quarter, we loaded approximately 1,000 images from our consortium herbaria. No specimens from MISSA were processed, but we were visited by Wayne Morris, who reviewed and annotated specimens in five families. We have processed a request for an extension on out TCN grant and hired two student workers to assist with the work during May-June 2018.

South Carolina:
USCH added approximately 2,221 specimen images (with a current total of 33,904 imaged specimens) 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 13,404 specimen images (with a current total of 63,447 imaged specimens) and employed one student worker and had three volunteers (including two students). A student has been hired for the early summer 2018.
A mobile imaging unit returned to NBYC in February to complete imaging the collection (approximately 12,500 specimens remaining). Students are being hired for the summer through July, 2018.
Two student workers and two volunteers imaged 288 specimens at SALK. The SALK collection has been completed with a total of 470 specimen images.
So far in the life of the project we have imaged 62% of the holdings held by the nine participating herbaria in SC (153,370 images of the approximately 249,298 relevant specimen records noted in the SERNEC portal). We expect to finish the NBYC collection in June, while imaging work continues at USCH and CLEMS.
West Virginia:
MUHW hired one student for spring 2018. Our accessioned vascular plant collection now stands at 41,950. All are imaged. We had previously added skeletal geographic data to all 41K+ specimens and completely transcribed approximately 6,500 specimens; in the reporting period we have transcribed data from all fields to an additional 8,542 specimens, for a total of approximately 15,000 completely transcribed specimens (36% of the collection). Approximately 4% are georeferenced.
WVU barcoded 6291 and imaged 5652 specimens (total to date: 73,167 barcoded; 72,572 imaged)

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).

Identify Gaps in Digitization Areas and Technology:
All SERNEC:
Nothing to report

Mississippi:
As of summer 2017, we had georeferenced all of the digitized specimens in our collection for which this was possible, but were at 72% completion of georeferencing across our 26,603 specimens that are identified to species level. Since that time, we have digitized approximately 300 specimens that need to be loaded to SERNEC/iDigBio and potentially georeferenced.

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

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

All SERNEC:
See Education and Outreach (E&O) Activities section

Florida:
The Florida Museum staff held a digitization summit to share experiences and discuss departmental standards. Kent Perkins met with the UF Digital Library staff to discuss equipment and image processing.

West Virginia:
WVU: PJ Harmon worked intensively to merge and convert 90,494 fully transcribed label records from FoxPro database (not yet all imaged).

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

Louisiana: working with BRIT to maintain collaborative efforts as they study the NLU collection transferred there.

Mississippi:
MISSA will be working with our IT unit to migrate the herbarium web site to a new server during summer 2018.

Share and Identify Education and Outreach (E&O) Activities:
All SERNEC:
We had a large outreach event for Earth Day called Take A Note utilizing Notes from Nature. The event was hosted by the Florida Museum of Natural History. A special kisosk expedition was created for the event. This special expedition got over 3,000 transcriptions at the table from 329 total visitors. Notes from Nature gets about 1,000 transcriptions a day. The Take a Note event resulted in 5,583 transcriptions on Earth Day, the second biggest day ever for Notes from Nature so far.

Florida:
FLAS: A Ph.D. in Geography, Jake Fleming, has joined us as a volunteer. Jake is georeferencing specimens and developing procedures and resources to assist staff and volunteers with georeferencing.
FSU: Published http://www.cpalms.org/Public/PreviewResourceLesson/Preview/171734

West Virginia:
WVU: herbarium specimens images were included in an “Art and Science” exhibit at the Morgantown Art Center. These were on display to the general public for the month of March and will later be installed in WVU Biology Dept.

Google Analytics

Other Progress (that doesn’t fit into the above categories):
All SERNEC:
We have begun the process of applying for no cost extensions across the project. It is anticipated that all PIs will continue working into the extension year.

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1305

Submission #1306

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by dcblackburn
Wednesday, May 2, 2018 - 14:15
10.243.21.179

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 1,000 media files to MorphoSource as part of the oVert TCN. We have CT-scanned >2,300 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. Among the participating oVert institutions, we have so far scanned representatives of more than 2,100 genera in 500 vertebrate families.

Over the past few months, we have worked with iDigBio staff Kevin Love to generate priority lists of both taxa and collections for digitization. The strategy used by the oVert TCN in selecting specimens for imaging is to prioritize type species of each extant vertebrate genus and then to select a specimen from oVert-participating institutions that is data-rich and preferably associated with tissues and/or other media. When not available from an oVert-participating institution then we will prioritize a suitable specimen from another US-based institution. For fishes, we generated this priority list using taxonomic data from the Catalog of Fishes, and for reptiles, we did this using the Reptile Database. oVert-participating institutions are now working with these target lists to determine which taxa to prioritize scanning as part of the project.

Share and Identify Best Practices and Standards (including Lessons Learned):
We continue to work closely with staff at both iDigBio (Dan Stoner, Kevin Love) and MorphoSource (Doug Boyer, Julie Winchester) on several issues related to the oVert TCN. We have worked to improve the metadata ingested by MorphoSource from iDigBio for specimens with associated media files in MorphoSource. Second, we have worked with both iDigBio and MorphoSource on the strategy to share metadata for media files structured using Audubon Core via MorphoSource, as well as usage statistics (downloads, views, and text from download requests); these are now available via an RSS feed from MorphoSource (https://www.morphosource.org/About/report). The goal is to have institutions include the Audubon Core metadata file within their own IPT to publish records to iDigBio or other data aggregators.

We are also in the midst of working to standardize CT-scanning workflows across institutions. CoPI Ed Stanley has now completed visits to Museum of Comparative Zoology (Harvard University), University of Michigan Museum of Zoology, and the University of Chicago and Field Museum, where he worked with scanning staff to optimize and standardize workflows for scanning and uploading media files to MorphoSource. We are planning upcoming visits to Washington and TAMU. We have created a set of 'reference scans' for several specimens and physical reference standards that will reveal how different scanning technologies at participating institutions generate comparable digital datasets. These reference datasets are being shared via MorphoSource (https://www.morphosource.org/MyProjects/Dashboard/dashboard/select_project_id/477).

Because the oVert TCN relies on moving specimens among participating institutions, rather than "doing digitization" at the home institution, we developed 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 track 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.

We are developing an oVert-wide policy for digital data ownership, which has proven challenging because each institution has its own way to deal with this issue. We are working with MorphoSource and local IT departments at each institution to accomplish this task.

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. We also continue to work on tools for batch-uploading media files for ingestion into MorphoSource. We have already developed a number of time-saving measures for uploading media files and populating 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 workflow to make uploading and sharing of media files more efficient. In many ways, the workflows developed for populating metadata fields within MorphoSource provide a good starting point for other similar media-driven databases, including, e.g., GenBank.

Share and Identify Opportunities to Enhance Training Efforts:
As we are still in Year 1, we are focusing training efforts on staff based at CT-scanning institutions. This training focuses on standardizing scanning to optimize scan time, signal 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. These guides have been published online on the oVert iDigBio Wiki (https://www.idigbio.org/wiki/index.php/OVert:_Open_Exploration_of_Vertebrate_Diversity_in_3D).

Several institutions have undergraduate and doctoral students now working as grant-funded technicians, thus providing opportunities for training students in CT research methods.

We have also recently advertised opportunities for training in CT-scanning at Friday Harbor Labs as part of the Broader Impacts of the oVert TCN (http://bit.ly/ScanWithoVert). While at scientific conferences, we are disseminating this advertisement to solicit applications from undergrad and graduate students as well as professionals.

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. We are discussing opportunities to work with other institutions that have ongoing collaborations with oVert-participating institutions, such as scanning large marine mammal specimens through connections at Texas A&M-Galveston, and scanning mammal specimens of interest at the University of Minnesota through the University of Chicago. Lead PI Blackburn has also been involved in conversations with colleagues in other countries, providing opportunities for sharing lessons learned from oVert with similar initiatives in Australia, Czech Republic, etc. Michigan hosted visiting researchers from Oxford for scanning opportunities, and have been working together on developing scanning methods.

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. We anticipate several PEN proposals for the fall of 2018.

PI Blackburn will be giving an invited keynote on the oVert TCN at the upcoming iDigBio Digital Data in Biodiversity Research conference at UC-Berkeley in June 2018.

Share and Identify Opportunities and Strategies for Sustainability:
The oVert TCN builds on existing resources by adding media files to an existing database platform, MorphoSource (supported by Duke University and the US National Science Foundation), and each institution is individually responsible for long-term storage of original media files if they choose to do so.

Share and Identify Education and Outreach (E&O) Activities:
We are planning 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 Julie Bokor (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. We are also beginning to develop segmented CT datasets that can be 3D-printed and used in outreach.

Information about products from the oVert TCN are regularly communicated on social media (https://twitter.com/hashtag/overttcn).

Oona Takano and other oVert participants recently presented a poster on the oVert TCN at the American Ornithological Meeting in Tucson, Arizona, and we have a number of oVert-related posters and talks at upcoming meetings in the summer of 2018.

Google Analytics

Other Progress (that doesn't fit into the above categories):
As of this report, there are six scientific publications citing one of the 16 oVert TCN Awards.

Bock, A., Doraiswamy, H., Summers, A., & Silva, C. (2018). Topoangler: Interactive topology-based extraction of fishes. IEEE transactions on visualization and computer graphics, 24(1), 812-821.
Boyer, D.M. & Harrington, A.R. (2018). Scaling of bony canals for encephalic vessels in euarchontans: Implications for the role of the vertebral artery and brain metabolism. Journal of Human Evolution, 114, 85-101.
Conway, K.W., Stewart, A. L., & Summers, A. P. (2018). A new species of sea urchin associating clingfish of the genus Delllichthys from New Zealand (Teleostei, Gobeisocidae). ZooKeys, 740, 77-

95.
Hongjamrassilp, W., Summers, A. P., & Hastings, P. A. (2018). Heterochrony in fringeheads (Neoclinus) and amplification of an extraordinary aggressive display in the Sarcastic Fringehead (Teleostei: Blenniiformes). Journal of Morphology.
Kolmann, M. A., Huie, J. M., Evans, K., & Summers, A. P. (2018). Specialized specialists and the narrow niche fallacy: a tale of scale-feeding fishes. Royal Society Open Science, 5(1), 171581.
Lundberg, J.G., Hendrickson, D.A., Luckenbill, K.R. & Arce, M. (2017). Satan's skeleton revealed: a tomographic and comparative osteology of Satan eurystomus, the subterranean Widemouth Blindcat (Siluriformes, Ictaluridae). Proceedings of the Academy of Natural Sciences of Philadelphia, 165(1), 117-173.

Attachment 1

Attachment 2

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

Submission #1307

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by psierwald
Wednesday, May 2, 2018 - 15:33
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:
Progress in Digitization Efforts:*
FMNH: In January, 2018, we started an extensive georeferencing program in the pinned insect collection. 9,310 precise locations (5,441 unique precise locations) from 21 US states and 626 counties georeferenced. Speed, efficiency and accuracy measured through several routines. These will be fully documented.
FMNH Invertebrates: Total records entered into database as of 2 May 2018: 45,548. Since Feb. 2018 ca, 700 lots have been labeled by volunteers and KGJ. 1,500 recently databased and labeled lots were integrated into the collection by KGJ. The nomenclature of all records entered into the collections database as part of the TCN has been checked against the authority list and their nomenclature was updated.
FMNH Insects: At present, over 163,000 records have been entered into our KE EMu database (representing over 710,000 total specimens databased and barcoded). Volunteers/interns are continuing to work on creating and inserting header labels for all unit trays in preparation for data entry of the Histeridae collection. Data entry of the Histeridae collection has begun with over 12,000 records entered representing 12,856 specimens. Databased almost 400 North American Colias eurytheme specimens (Lepidoptera: Pieridae) as part of visiting scientist's research on "Evolution in response to climate change in the seasonal polyphenism of Colias eurytheme butterflies".
Zoological Museum, Michigan, Invertebrates: Eight undergraduate students (six work/study and two non-work/study students) continued data entry (10 to 15 hours/week). Data entry was mainly focused on the land snail family Polygyridae and 971 new records were added to UMMZ Specify database during 01/01/2018 - 02/28/2018 resulting in a total of 57,779 records added since the beginning of this project. During the same period 241 lots were imaged (total 11,233 lots imaged). Data entry activity was completely halted during the months of March and April due to the collection move - it will be reinitiated in May.
DMNH:. The DMNH digital presence continues to grow with 36,587 records in our Specify database; 36,591 records in Symbiota, and 27,699 records in iDigBio. We have streamlined our workflow by adding three part-time, temporary positions in February 2018. These workers assist with georeferencing and do prep work to improve the speed with which our digital records are

updated, standardized, and uploaded. As a consequence, there has been a large jump in the rate at which specimens are being added to Specify. Prior to the new workflow, we averaged 1670 records per month but in the two months since we changed workflow we have averaged 3933 records per month. In addition, we have georeferenced over 1300 localities in 15 US states, resulting in 8,034 georeferenced records or 22% of our on-line records.
CMNH: Our progress has been hindered by technical issues which are currently being ad-dressed. XBioD, the online database maintained by Ohio State University experienced major technical difficulties in January 2018 and as a result we are unable to enter data into the database. OSU have been working with new staff and their IT department to fix the problem but we are unaware of the expected timeline for it return. Our workflow has been modified and all imagining and transcription continues, however we have a ~13,000 specimen backlog awaiting data entry.
All previously entered data (95,811 specimens) are secured and still available on GBIF. In this time we have finished capturing data for all North American moths and butterflies with the col-lections and we have started digitizing our global holdings of moths.
Auburn: :. At present, we have digitized ~202,335 insect specimens. Work continues on the pinned specimens, and students have been mainly focused on digitizing the Curculionidae family of weevils. Work has begun on the taxonomic pre-curation phase of the pinned Chrysomelidae collection. Three undergraduate students were trained for data entry. One has been working on digitizing our large Trichoptera wet collection. One community volunteer and one graduate student have begun digitizing our slide collection.
Frost: We now have >66,000 occurrence records on the SCAN Symbiota portal, representing >6,000 taxa. These records are dominated by beetles (Coleoptera), but we have a growing num-ber of Diptera, Hymenoptera, and minor orders (Mecoptera, Plecoptera, etc.) 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. In our latest efforts we have begun to digitize spider lots and specimens. These spiders have been imaged (>1,000 lots) and queued for transcription in TaxonWorks.

PEN grant: Chicago Academy of Sciences, start date: September 2016
CAS/PNNM Invertebrates: We are cleaning specimen records in Arctos as we verify physical specimens in the collection with data. This verification process helps catch errors in transcription (recent and historic) or from the data migration. New labels with more complete information are being added to specimens. We are researching type status for specimens and adding verified citations to Arctos and these specimen records. Our team is learning how to manipulate the new stacking components and software and we are creating workflow documents for our specimen photography manual for photo stacking. In the InvertEBase Symbiota portal, we have 15,322 specimen records displayed from Arctos, contributing 2,105 species.
CAS/PNN Insects: We have started georeferencing using GeoLocate, which is provided through the Arctos system. In conjuction with georeferencing, we are cleaning specimen records in Arctos. 26,127 specimen records uploaded to SCAN

Share and Identify Best Practices and Standards (including Lessons Learned):
FMNH: developing detailed documentation on retrospectively georeferencing large pinned in-sect collection.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: We have learned that georeferencing legacy records within Specify is preferred over batch georeferencing data before upload into Specify because an uncertainty radius can be added to the record. DMNH is moving through United States records on a state by state basis, an approach that allows the georeferencer to become familiar with a particular area and decreases the amount of time spent on each georeference.
CMNH: Nothing to report
Auburn: Nothing to report
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. For specimens in ethanol, a recent focus of ours, imaging followed by transcription is still the way to go.

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

Identify Gaps in Digitization Areas and Technology:
FMNH Invertebrates/Insects: PIs Sierwald and Bieler, with FMNH collection manager Crystal Maier are continuing collaboration with Argonne National Laboratory scientists Mark Hereld and Nicola Ferrier, building the first prototype for high-through-put imaging of pinned insects. Further funding for software development will be sought.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: Georeferencing continues to be the least efficient part of our workflows. A collabora-tive georeferencing project for Mollusks would be welcome.
CMNH: Nothing to report
Auburn: Nothing to report
Frost: nothing to report

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

Share and Identify Opportunities to Enhance Training Efforts:
FMNH Invertebrates/Insects: Continued work on finalizing the FMNH manual for the digiti-zation workflow of the pinned insect collection and data entry into KE EMu. It will be used in all future training procedures.
DMNH: Ten students from the Widener Natural History Collections class (see E&O below) were introduced to data entry and georeferencing as part of the laboratory experience.
Zoological Museum, Michigan, Invertebrates: Nothing to report
CMNH: Nothing to report
Auburn: We aim to pull undergraduates from the Department of Entomology and Plant Pathol-ogy and train them in digitization as well as pre-curation activities.
Frost: nothing to report

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
FMNH: ongoing collaboration with PEN grant institutions: Chicago Academy of Sciences, and Museum of Northern Arizona, as well as Argonne National Laboratory to develop a high-through-put pinned insect digitization system.
FMNH Invertebrates: J. Gerber (FMNH) and Dawn Roberts (CAS) discussed production of outreach material on Chicago area mollusks.
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: co-PI Shea will be at the Digital Data in Biodiversity meeting in Berkeley, CA this June to discuss both the pedagogical outcomes and the research outcomes of the Widener Class (see E&O below). In addition, Widener and DMNH are exploring the possibility of organizing a workshop for ecology professors located at colleges and universities in the mid-Atlantic area to introduce them to the use of digitized natural history collection data in the classroom.
CMNH: Nicole Gunter participated as an invited speaker for iDigBio webinar on experience with trying to set up collaboration with correctional facility. This project has currently stalled given staff

turnover at facility.
Auburn: We have been communicating with iDigBio and VertNet to make our data available through their IPT's and then into SCAN and InvertEBase.
Frost: We continue to collaborate with the Speciesfile group (University of Illinois) in the development and testing of their databasing software, TaxonWorks.

PEN grant: Chicago Academy of Sciences
CAS/PNNM: Dawn Roberts met with Jochen Gerger of the Field Museum to start planning field guides themed around malacology that are part of our broader impacts on the grant.

Share and Identify Opportunities and Strategies for Sustainability:
FMNH Insects/Invertebrates: Received subaward through funded PEN grant 17-01842 to the Museum of Northern Arizona: Biodiversity of the Colorado Plateau, start date: 15 April 2018.
Zoological Museum, Michigan, Invertebrates: Nothing to report
DMNH: We continue to make progress towards publishing the results of the AMS President's Symposium that including results of the digitization workshop. Two papers are currently in peer-review, and three more are expected to be submitted by May 1st. All papers will be pub-lished in the October volume.
CMNH: nothing to report
Auburn: Students from the Entomology and Biology departments will be helpful in pre-curation projects and streamlining the digitization process even more.
Frost: nothing to report

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

Share and Identify Education and Outreach (E&O) Activities:
FMNH Insects: Participated in quarterly Collection Club meeting on April 19 & 20th. Insect collection participants continued transcribing photo slides. Gave behind-the-scenes tour of the insect alcohol collection and lab.
FMNH Invertebrates: J. Gerber (FMNH) and Dawn Roberts (CAS) discussed production of outreach material on Chicago area mollusks.
Zoological Museum, Michigan, Invertebrates: Nothing to report.
DMNH: DMNH and Widener University collaborated on an upper level ecology class in the Spring semester of the 2017-2018 school year called "Bio 388: Natural History Collections" The majority of the class and lab experience was devoted to using digital natural history data for original research projects. Five groups of two students participated in: data entry in Specify, georeferencing using GeoLocate, downloading data from iDigBio and Symbiota, data standardization and cleanup, hypothesis development and testing, and dataset mapping in GIS. Student assignments included traditional scientific writing such as project proposals combined with informal scientific writing in the form of blogging, social media posts, and developing the conceptual layout of a museum exhibit. Two of the five pairs of students completed projects using freshwater bivalve data; one of these students now intends to incorporate digitized natural history data into their graduate school dissertation work.
In addition, the Digitization Exhibit continues to move forward. We have reviewed and provided comments on the first draft of the text, and have written an RFP for the design and production of the panels. We expect to reach out to co-PIs soon to solicit images and research stories. The expected completion time is August 2018.
CMNH: As part of Discovery Day events at CMNH, we included a small display on digitization and discussed its importance with the general public. We also hosted a 1-hour virtual behind the scenes tour of Invertebrate Zoology collection as part of our public programming, this tour included highlighting our digitization, a brief discussion of our work flow, exploring some of our data on GBIF and discussion of global benefits.
Auburn: During our monthly public tours of the museum, we highlight our digitization efforts and

discuss the importance of natural history collections.
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 in Wildlife Sciences).

PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: We are assessing our collection to identify potential specimens to include in species guides for local mollusks as part of our broader impacts.
CAS/PNN Insects: We hired an intern who is georeferencing entomology localities.

Google Analytics

Other Progress (that doesn't fit into the above categories):
FMNH: Nothing to report
Zoological Museum, Michigan, Invertebrates: Nothing to report.
DMNH: Nothing to report
CMNH: Project to recurate bee collection now entirely finished. This project started as an undergraduate summer internship with the student continuing with limited weekly hours while finishing her degree. The aim of the project was to investigate quality of curation and identification a group for which CMNH has never employed a melittologist (bee expert), overall curation was improved by ~60 % which includes correcting 116 misidentifications, identifying 942 specimens to a lower taxonomic unit or identifying 1045 specimens below Anthophila for the first time. We are currently writing up the results for a small publication on why investing in recuration is important in digitization.
Auburn: Nothing to report
Frost: nothing to report

PEN grant: Chicago Academy of Sciences
CAS/PNNM: We had a project staff update: Erica Krimmel, our assistant collections manager, moved to California. We just hired a new staff member, who will be starting in early June.

Attachment 1

Attachment 2

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

Submission #1308

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by cskema
Thursday, May 3, 2018 - 15:58
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_05_MAM_Quarterly_Progress_Summary.pdf

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1308

Mid-Atlantic Megalopolis TCN

Quarterly Progress Report

February – April 2018

Progress in Digitization Efforts: The current numbers for progress of digitization efforts by specimen category are shown in Table 1. Highlights are that imaging at HUDC, MCA, and MOAR is complete; transcription is complete at MCA; transcription and review are complete at MOAR. A third imaging blitz by MOAR staff took place at MARY from 5 - 9 April 2018 and 6,820 images were taken. An imaging blitz has been scheduled at TAWES (6 – 8 June 2018). BALT is still waiting to receive a light box to use with their imaging rig (see details in previous bimonthly reports). 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)	4,357	10,614	350	0	0	185,681	6,159	1,445	**208,903**
# specimens imaged, and uploaded to Symbiota along with skeletal data, transcription/review may or may not be in progress (Unprocessed Stage + Expert Required + Pending Review)	8,011	10,920	6,546	14,425	0	0	166,612	14,207	**225,783**
# specimens as above + completely transcribed and transcription reviewed (Stage 1)	1,615	945	893	36,609	18,809	105,399	36,411	1	**200,682**
# specimens as above + georeferenced (Stage 2)	64	91	1	0	1,667	0	351	0	**2,174**
# specimens that need special attention, e.g. go back to sheet, etc. (Stage 3)	46	0	6	11	603	0	0	0	**666**
# specimens as above + closed as complete (Closed Stage)	0	0	0	19	10	0	0	0	**29**
Totals	**14,093**	**22,570**	**7,796**	**51,064**	**21,089**	**291,080**	**209,533**	**15,653**	**638,237**

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

Identify Gaps in Digitization Areas and Technology: MOAR is continuing to conduct research on focus quality issues in herbarium specimen imaging, including comparing Nikon and Canon focus abilities, and improving and characterizing our FineFocus protocol.

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: DOV held transcription events for members of the public and for interns from the Mt. Cuba Center (Hockessin, DE), and incorporated the MAM Project into coursework in a plant systematics course for undergraduates at Delaware State University. HUDC is including transcription of specimens as a routine lab in Howard University's General Biology 2 course. Four MAM abstracts were submitted for the Botany 2018 Meeting from CHRB, DOV, HUDC, and MOAR; details of these will be included in the quarterly report after the conference in July.

Other Progress: Nothing to report.

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

Submission #1309

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by mikewebster
Friday, May 4, 2018 - 09:58
128.84.6.98

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

Person completing the report:
msw244@cornell.edu

Progress in Digitization Efforts:
We have not made any further progress on ADBC-related digitization during the current 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:
None at this time

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
None at this time

Share and Identify Opportunities and Strategies for Sustainability:
None at this time

Share and Identify Education and Outreach (E&O) Activities:
None at this time

Google Analytics

Other Progress (that doesn't fit into the above categories):
Our collection of digitized audio recordings continues to grow rapidly, in particular through a recently launched online tool that allows recordists to upload audio recordings and photos (along with metadata) directly. Although these recordings are not associated with physical specimens, they are valuable "media specimens" that capture the behavioral phenotype. Thanks to this new upload

capability, the growth of our audio collection during the first quarter of 2018 is up 49% (20,500 recordings uploaded) compared to the same quarter for 2017.

Attachment 1

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1309

Submission #1310

Submission information

Form: TCN Quarterly Progress Report to iDigBio
Submitted by djennings
Friday, May 4, 2018 - 10:11
10.246.30.12

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:
amiller7@ILLINOIS.EDU

Progress in Digitization Efforts:
See attached report

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

Identify Gaps in Digitization Areas and Technology:
See attached report

Share and Identify Opportunities to Enhance Training Efforts:
See attached report

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
See attached report

Share and Identify Opportunities and Strategies for Sustainability:
See attached report

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

Google Analytics

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

Attachment 1
MiCC_report_first_quarter_2018.pdf

Attachment 2

Source URL: https://www.idigbio.org/node/564/submission/1310

First quarter 2018

Progress in Digitization Efforts

- Added University of Tennessee, Chattanooga (UCHT) as a Live Collection
- A new Data Curator, Diego Barroso, was hired and will start May 16.
- Three undergraduate Student Transcribers were hired and will start May 20.

Best Practices and Standards (Lessons Learned)

Gaps in Digitization Areas and Technology

- Beta version of GenBank Sequence Submission Tool in Symbiota completed and test sequences submitted to GenBank

Opportunities to Enhance Training Efforts

Collaboration with other TCNS, Institutions, and Organizations

- Andrew Miller represented Symbiota at the recent BCon meeting in Lawrence, KS in February.
- The MiCC project was cited in this publication on the MaCC project: Thiers BM, Halling RE. 2018. The Macrofungi Collection Consortium. Applications in Plant Sciences 6:e1021, doi:10.1002/aps3.1021

Opportunities and Strategies for Sustainability

Education and Outreach Activities

- Continued activity on Facebook group to engage with members online about new research and project updates
- Please see a summary of our Teachers Workshop from July 2017 (attached).

Other Progress

- Please see MyCoPortal Data Portal Statistics generated from Google Analytics (attached).

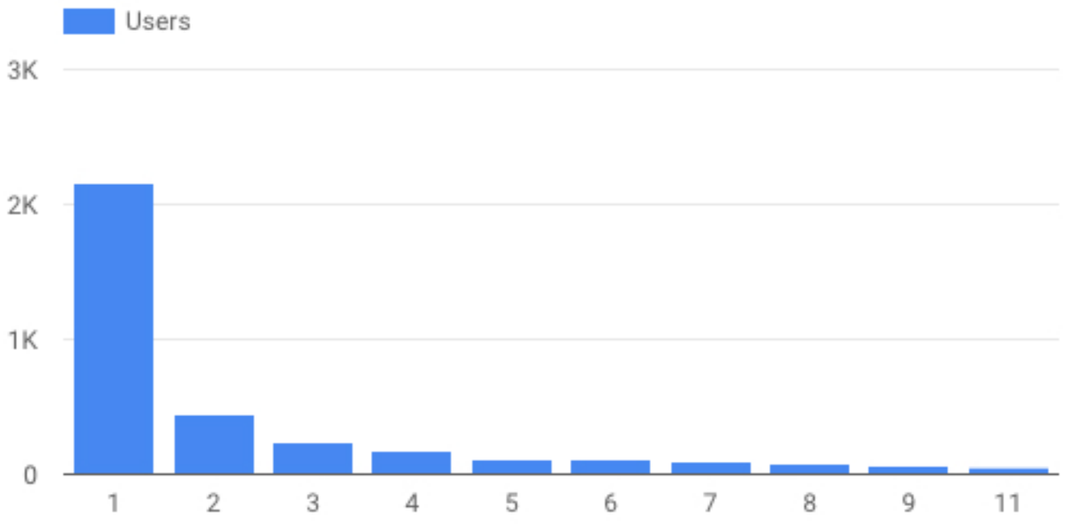
Marc Cubeta, Sharon Mozley-Standridge and colleagues recently hosted a Fungal Biology and Biodiversity STEM Educational Module Development workshop for pre-service, middle and high school biology/environmental science teachers on July 14-18, 2017 at the University of Georgia-Athens (UGA). The workshop was sponsored by the Mycological Society of America (MSA) and National Science Foundation and based on the premise that teachers have limited time to discuss fungi as isolated taxonomic units in their curriculum. The workshop began with a cordial welcome from Josef Broder, Associate Dean of Academic Affairs and Marin Brewer from UGA. Members of the society, including graduate students, presented lectures and provided examples of laboratory-based exercises for use by teachers in their classrooms. Teachers interacted with MSA members during the workshop and meeting, participated in a foray at Unicoi State Park in Helen, GA, attended the MSA opening reception/social, MSA Presidential address and research presentations. The workshop culminated with the teachers developing a fungal-based lesson plan to illustrate key fundamental concepts in core scientific disciplines and address next generation educational standards. We would like to thank Lindsey Becker, Sarah Bergemann, Meredith Blackwell, Andrea Bruce, Lori Carris, Brianna Hoge, Julia Kerrigan, Andy Methven, Andrew Miller, Molly Phillips, Andrea Porras-Alfaro, Chris Smyth, Henry Van Cotter, and Tom Volk for volunteering their valuable time to serve as instructors and mentors and Maxton Collins and Lanette Phillips for assisting with workshop preparation.

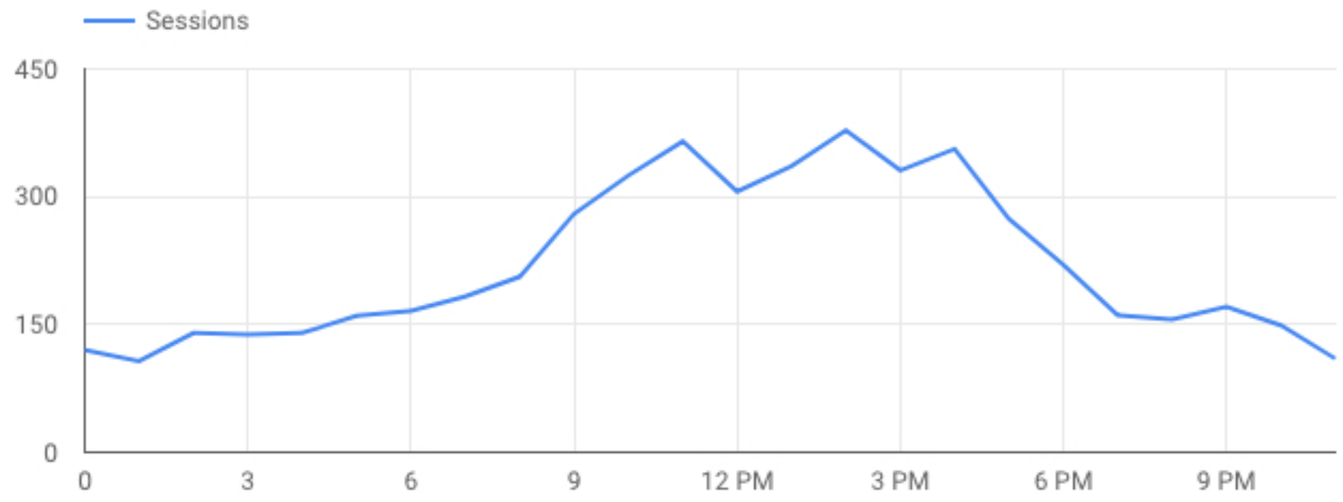
MyCoPortal Data Portal Statistics

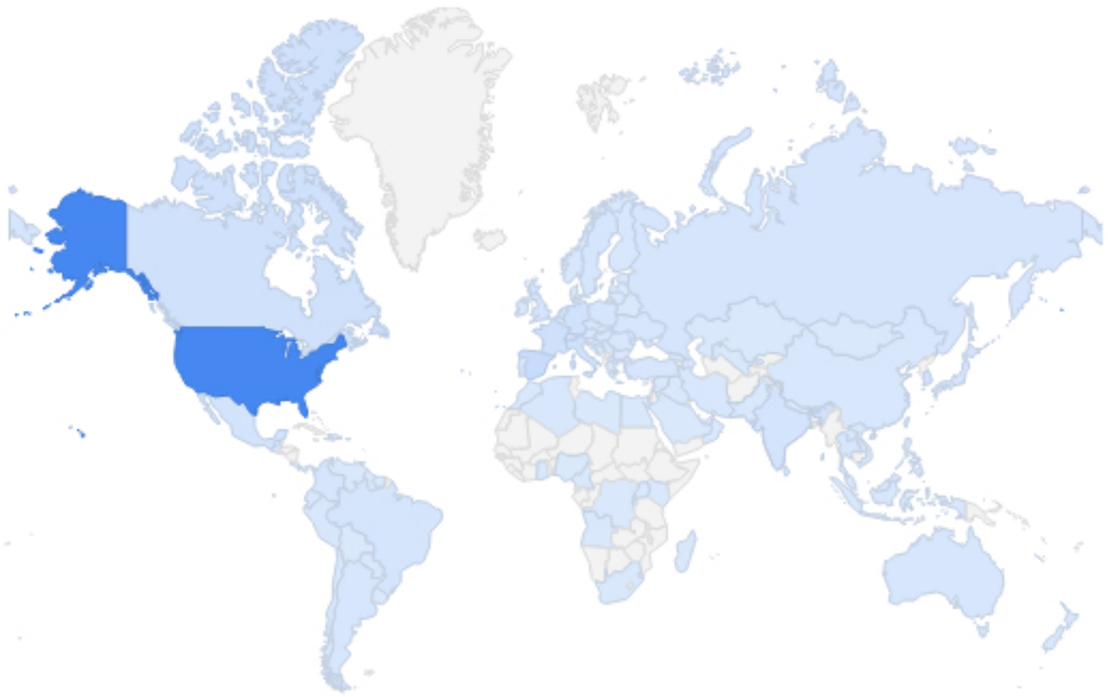
www.mycoportal.org **Data from Google Analytics**

MYCOLOGY COLLECTIONS PORTAL

Users	New Users	Sessions	Number of Sessions per User	Pageviews	Pages / Session	Avg. Session Duration	Bounce Rate
2,822	2,152	5,278	1.87	16,151	3.06	00:03:36	53.90%







	Country	Sessions
1.	United States	2,372
2.	Spain	290
3.	France	167
4.	Canada	163
5.	Germany	139
6.	Italy	137
7.	South Korea	110
8.	Mexico	105
9.	India	92
10.	Brazil	85
11.	Netherlands	73

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Apr 1, 2018 - Jun 30, 2018