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

February 2017

Reports included:

☐ InvertNet	☐ VACS	☒ MiCC
☐ LBCC	☒ FIC	☒ EPICC
☒ PALEONICHES	☐ MHC	☒ Cretaceous World
☒ MaCC	☒ GLI	☒ Megalopolis
☒ NEVP	☒ InvertEBase	☒ LepNet
☒ SCAN	☒ SERNEC	

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Submission #953

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by BruceL
Thursday, February 9, 2017 - 15:46
24.124.69.244

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

Person completing the report:
blieber@ku.edu

Progress in Digitization Efforts:
Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman, we now have a total of 270,231 specimens databased. Further, we now have a total of 224,280 databased specimens that are also georeferenced associated with this project. In addition, a total of 9,112 localities have been georeferenced. We have also nearly completed databasing our Poriferan holdings. Other major taxonomic groups have been completely databased and georeferenced.

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

Since the last update, the following activities have been completed:

1) Detailed family-level overviews continue to be developed for the Neogene Atlas, with 18 developed for gastropods since the last update. These descriptions (e.g., for Conidae: http://neogeneatlas.org/families/Conidae/) have now been written for ~2/3 of the gastropod families on the Neogene Atlas. Our goal is to complete the remaining 10-15 by the time of the next update.
2) Localities associated with the Trisha Kelley collection of Neogene fossils are being georeferenced. IGSN numbers are being applied to bulk samples before being entered into Specify.
3) Approximately 166 lots of Plio-Pleistocene mollusks from southern Florida have been added to our Specify database and some of these are now in the process of being photographed. Photographs will go on the Neogene Atlas and will also be provided to iDigBio.

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.

Other Progress (that doesn't fit into the above categories):
A post-doc involved with this project, Luke Strotz at KU, is currently conducting analyses that use specimen data collected during the course of this project to study the association between ecology, biogeography, and macroevolution in deep time.

Attachment 1

Attachment 2

Submission #952

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by bthiers
Tuesday, January 31, 2017 - 12:18
69.74.186.251

TCN Name:
The Macrofungi Collection Consortium: Unlocking a Biodiversity Resource for Understanding Biotec Interactions, Nutrient Cycling and Human Affairs

Person completing the report:
bthiers@nybg.org

Progress in Digitization Efforts:
Only three institutions were still digitizing specimens durind the period of October 2016 -- Jan 2017. These are The New York Botanical Garden (NY), San Francisco State University (SFSU), and University of Arizona (ARIZ). During this time, NY completed the digitization of its macrofungi collections. During this time, NY digitized 4624 specimens, SFSU digitized 1248 specimens, and University of Arizona digitized 4987 specimens. Additionally, NY completed 9577 records, adding locality data, and georeferenced approximately 20,000 specimens.

Share and Identify Best Practices and Standards (including Lessons Learned):
At NY we entered all data directly into the Mycoportal. Now at the end of the project, we are importing the data back into our institutional database, and this is taking much longer than anticipated because our database has better authority control than the Mycoportal, and there are may mistakes to correct. From this experience, we learned that it is better to enter data into our own database, and then export it to the MycoPortal. We have developed a rapid data entry system in our own database that provides many of the functions (e.g., OCR) that expedited data entry in the MycoPortal.

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:
Several manuscripts are in progress with leaders of the MycoPortal project.

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

Share and Identify Education and Outreach (E&O) Activities:
A presentation about the MycoPortal was given by B. Thiers at the annual meeting of the North American Mycological Society in September, 2016. Thiers and Halling held an open house and tour for the New York Mycological Society on 4 January 2017. Thiers and Halling have provided information on how to process specimens for accession into a herbarium as part of an initiative among the citizen mycology community to voucher the specimens for which they fund DNA sequencing and deposition of sequences in GenBank.

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

Attachment 1

Attachment 2

Submission #964

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by psweney
Wednesday, February 22, 2017 - 13:05
130.132.173.38

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

Person completing the report:
p_sweeney@att.net

Progress in Digitization Efforts:
Capture of collection level-information (i.e., “pre-capture”) is complete. Approximately 800,000 specimens have been pre-captured -- with at least current identification captured. As part of the primary digitization phase, approximately 777,518 records and 787,517 images have been captured. We have begun to capture phenology data using functionality in Symbiota.

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

Identify Gaps in Digitization Areas and Technology:
nothing to report

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We continue to collaborate with iPlant, the FilteredPush project, the Symbiota team, and iDigBio.

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

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

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

Attachment 1

Attachment 2

Submission #958

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by neilscobb
Tuesday, February 21, 2017 - 01:03
134.114.203.87

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 attached file

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

Identify Gaps in Digitization Areas and Technology:
see attached file

Share and Identify Opportunities to Enhance Training Efforts:
see attached file

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

Share and Identify Opportunities and Strategies for Sustainability:
see attached file

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

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

Attachment 1
LepNet_Feb_2017.docx

Attachment 2

Lepidoptera of North America Network
March 6, 2017
Neil Cobb

Progress in Digitization Efforts:

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 have established a collection on the LepNet Portal and have served data. Twenty museums are serving DwC archives to iDigBio and six museums are still establishing connections with the LepNet portal.

To date we have produced 354,086 records from LepNet TCN collections (Table 1 and Table 2). We also serve an additional 50,532 from unfunded collaborators and 304,487 records from collections that serve data to iDigBio but were also willing to share their data on the LepNet portal.

Table 1. Records from three categories of data providers to LepNet data portal. LepNet TCN collection stats are provided for individual collections in Table 2.

	LepNet TCN Total	SCAN Broader Impact	Added Value Collections	TOTAL
# Specimen Records	354,086	50,532	304,487	708,449
# Georeferenced	205,715	17,642	274,823	498,180
# Imaged	8,143	8,784	133,146	150,073
# IDed to Species	323,975	38,325	300,023	662,323
# Families	NA	NA	NA	1,827
# Genera	NA	NA	NA	21,452
# Species	NA	NA	NA	53,482

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

Identify Gaps in Digitization Areas and Technology:
We need to harvest additional data (i.e. beyond LepNet) to better understand the biogeography of Lepidoptera taxa. We are meeting this need by incorporating additional collections into the LepNet database, including observational records from iNaturalist.

Share and Identify Opportunities to Enhance Training Efforts: We will develop resources on the WordPress site http://www.lep-net.org/ .

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We are primarily working with other Symbiota TCNs and other Symbiota portals.

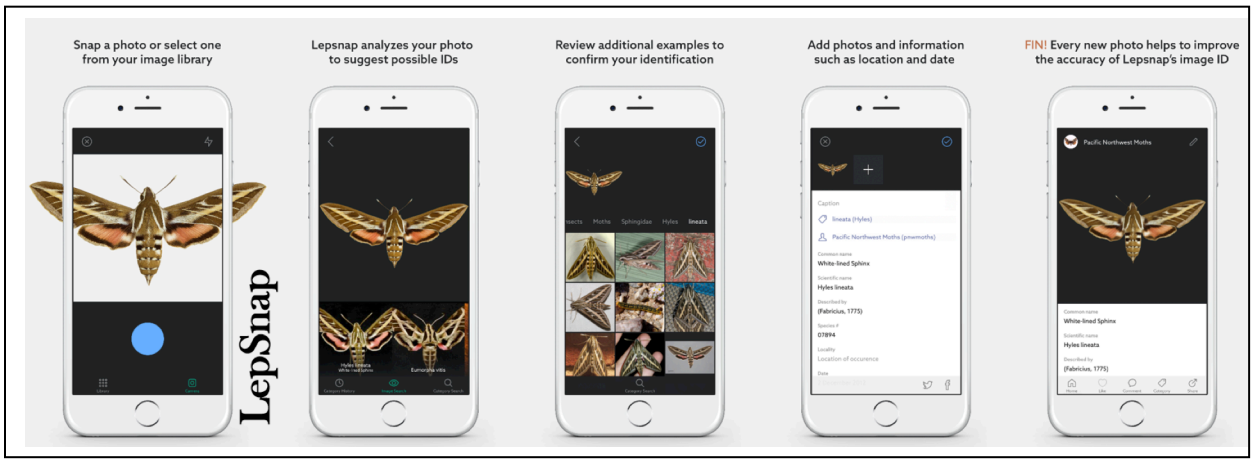
Share and Identify Opportunities and Strategies for Sustainability: Not Yet

Table 2. Number of specimen records digitized and associated summary statistics for each LepNet collection. From http://symbiota4.acis.ufl.edu/scan/lepnet/portal/index.php .

Collection	Total Expected records	Total Expected records Feb 2017	Records delivered Feb, 9 2017
Entomology Collection at the Natural History Museum of Utah	7,416	1,135	19,107
Yale Peabody Museum, Entomology Division	149,293	22,842	155,520
K-State Museum of Entomological and Prairie Arthropod Research	28,043	4,291	16,611
New Mexico State Collection of Arthropods	10,676	1,633	5,363
Mississippi Entomological Museum	136,559	20,894	46,903
The Albert J. Cook Arthropod Research Collection	128,022	19,587	35,168
Arizona State University Hasbrouck Insect Collection	44,622	6,827	10,892
Museum of Comparative Zoology, Harvard University	105,045	16,072	25,270
Colorado Plateau Museum of Arthropod Biodiversity	14,112	2,159	2,442
Western Washington University Insect Collection	3,800	581	656
Denver Museum of Nature & Science	25,835	3,953	4,091
UAM Insect Collection	59,291	9,072	8,728
University of Delaware Insect Research Collection	7,732	1,183	978
C.P. Gillette Museum of Arthropod Diversity	155,086	23,728	17,385
William F. Barr Entomological Museum	26,029	3,982	1,867
Ohio State C.A. Triplehorn Insect Collection	54,373	8,319	1,399
The Purdue Entomological Research Collection	12,476	1,909	299
University of Georgia Collection of Arthropods	28,500	4,361	358
R. M.Bohart Museum of Entomology	148,826	22,770	472
Oregon State Arthropod Collection	146,703	22,446	420
Academy of Natural Sciences Entomology Collection - Live Data	51,473	7,875	110
Florida Museum of Natural History, McGuire Center for Lepidoptera and Biodiversity	248,500	38,021	44
Milwaukee Public Museum, Invertebrate Zoology-Insect Collection	51,133	7,823	3
Clemson University Arthropod Collection	16,607	2,541	0
University of Minnesota Insect Collection	61,000	9,333	0
University of Nevada, Reno, Museum of Natural History, Entomology Research Collection	16,000	2,448	0
Total	**1,737,152**	**265,784**	**354,086**

We have not made sustainability plans to date.

Other Progress (that doesn't fit into the above categories): We continue to provide North American data we have obtained from other sources to increase the quantity of data available to LepNet users. We are making significant progress in developing our LepSnap app.



Submission #957

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by neilscobb
Tuesday, February 21, 2017 - 01:02
134.114.203.87

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

Person completing the report:
neilscobb@gmail.com

Progress in Digitization Efforts:
see attached file

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

Identify Gaps in Digitization Areas and Technology:
see attached file

Share and Identify Opportunities to Enhance Training Efforts:
see attached file

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

Share and Identify Opportunities and Strategies for Sustainability:
see attached file

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

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

Attachment 1
SCAN_Feb_2017.docx

Attachment 2

Southwest Collections of Arthropods Network Update

March 6, 2017

Neil Cobb

Progress in Digitization Efforts:

The Southwest Collections of Arthropods Network NSF-TCN grant ended July 1, 2016. Three of the ten collections will officially operate through June 2017 on one-year no-cost extensions and all collections will continue to digitize. SCAN as a network continues through unfunded collaborators and PEN grants. SCAN users will also benefit from the advances to Symbiota through the newly funded NSF-ADBC Lepidoptera of North America Network (LepNet), other Symbiota portals, and sponsorship from other agencies.

The SCAN project focused on the following activities, 1) digitize specimen label data and image of exemplar specimens; 2) solicit participation from museums through the PEN program. Four PEN projects have been funded to date (Harvard, Ohio State University, BYU, and Academy of Natural Sciences Philadelphia) and one planned PEN with University of Texas – El Paso); 3) solicit and support participation by non-SCAN museums; 4) develop framework for using data in ecological modeling; and 5) ASU lead an education outreach program in collaboration with iDigBio. 748268

Label Transcription: The 10 original SCAN institutions met their target quota for digitizing labels from pinned specimens. **Table 1** presents five sets of statistics derived from our data portal

Table 1. Number of specimen records digitized and associated summary statistics. From http://symbiota4.acis.ufl.edu/scan/portal/index.php . SCAN TCN numbers refers to the 10 original museums receiving ADBC funding. SCAN PEN includes the four additional funded museums. SCAN non-funded numbers include 37 museums contributing cataloged specimen data. InvertEBase numbers refer to arthropod records contributed by the InvertEBase TCN. Total Served includes all SCAN data and other datasets with North American arthropod records (e.g., GBIF, Tri-Trophic TCN, iNaturalist). For comparison, we show specimen records transcribed in yellow in the bottom row in December, 2016. The decrease in number of "broader-impact records is due to removal of all Lepidoptera records, which are now included in LepNet TCN numbers.

	SCAN TCN Total	SCAN PEN Total	SCAN Broader Impact	Added Value Collections	InvertEBase	TOTAL
# Specimen Records	1,277,810	1,008,103	591,785	6,980,751	357,652	10,216,101
# Georeferenced	1,130,782	671,910	348,504	5,529,983	90,744	7,771,923
# Imaged	116,333	549	117,993	162,668	6,566	404,109
# IDed to Species	738,391	356,411	292,164	3,982,000	111,157	5,480,123
Specimens Dec 2016	1,118,546	980,294	748,268	4,461,627	287,746	8,557,888

as of February 9, 2017. These include the following data: **1)** The original 10 SCAN institutions

funded by the NSF-ADBC program; **2)** The four PEN grants, **3)** The 37 "broader-impact" collections that have entered data into the SCAN portal but were not funded by the NSF-ADBC program; **4)**; Added-value institutions that have agreed to post their data on SCAN as well as iDigBio; and **5)** Arthropod data from three InvertEBase museums 4) the total of these first two categories; and **6)** The total records in the SCAN portal. The purpose of serving added-value data is to provide as complete information as possible to persons that are considering research projects. We serve all arthropod records produced by InvertEBase on the SCAN portal http://symbiota4.acis.ufl.edu/scan/portal/index.php and in turn we encourage collections to serve all non-arthropod invertebrate data on InvertEBase portal http://www.invertebase.org/portal/index.php . Three of the PEN grants (Harvard, BYU, and Ohio State University) have either met their quotas or they are on track to meet their quotas. In this

Other Progress (that doesn't fit into the above categories): We continue to provide North American data we have obtained from other sources to increase the quantity of data available to SCAN users. We have grown from serving 10 collection datasets to serving 83 data sets through SCAN. We are re-building our data harvested from North American data from GBIF and are in the process of hosting data from other non-TCN arthropod data sets that have been harvested by iDigBio.

Imaging: Table 1 displays the number of specimens that have at least one image, in most cases there are at least two images produced to date for all categories of data providers that have contributed to SCAN.

Share and Identify Best Practices and Standards (including Lessons Learned):
We are identifying best practices on a weekly basis and sharing those with respective people within SCAN http://scan1.acis.ufl.edu/ .
Identify Gaps in Digitization Areas and Technology:
We need to harvest additional data (i.e. beyond SCAN) to better understand the biogeography of arthropod taxa. We are meeting this need by incorporating additional collections into the SCAN database, including observational records from iNaturalist.
Share and Identify Opportunities to Enhance Training Efforts: Nothing new to report, we are working on activities already described in previous reports.
Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
We are primarily working with other Symbiota TCNs.
Share and Identify Opportunities and Strategies for Sustainability:
We have a sustainability plan for Colorado State University and the University of Colorado.

Submission #956

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by tkarim
Friday, February 17, 2017 - 15:32
128.138.65.92

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:
A total of 1,514 new specimens were databased and 3,001 specimens were imaged across the TCN during the reporting period. The YPM specimens being digitized at this point are new accessions. This includes an amber collection transferred from the YPM Division of Entomology. This digitization effort is funded internally, not from this grant, but represents material relevant to the FIC TCN.

Share and Identify Best Practices and Standards (including Lessons Learned):
Yale has started using Inselect and macro imaging to image and crop specimens from amber specimens with multiple insects. CU-Boulder will begin experimenting with this in the next reporting period.

Identify Gaps in Digitization Areas and Technology:
Some of the VMNH holotypes are out on loan and they are waiting for images of the specimens. These images would help identify other fossils in the collection.

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Butts attended the iDigBio Education and Outreach Working Group Workshop "Incorporating K-12 Outreach Into Digitized Collections Programs Workshop", December 5-6, 2016 at the Smithsonian Institute (https://www.idigbio.org/wiki/index.php/Incorporating_K-12_Outreach_Into_Digitized_Collections_Programs_Workshop). She presented on iDigPaleo on behalf of the Fossil Insect Collaborative and is a contributing author on the Best Practices document produced at this workshop.

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

Share and Identify Education and Outreach (E&O) Activities:
634 followers on the main Fossil Insect Collaborative Facebook page and 176 followers on Twitter. The weDIGbugs2 Twitter account has 181 followers. We are making regular FossilFriday posts to Twitter and cross-posting to the Fossil Insect Collaborative and UCMP Twitter accounts, and to UCMP and Erwin's (PI) Facebook pages. Our BFIP website is now up and going at bfip.berkeley.edu. Dr. Marwa Ibraheem El-Faramawi made a recent post about Frans Blom and the UCMP amber archives http://bfip.berkeley.edu/2017/01/20/marwas-crush/.

Anna Holden PhD candidate at the American Museum of Natural History working on the Rancho La Brea (RLB) and McKittrick (MK) insects is incorporating BFIP data to reconstruct the paleoenvironment and shifting insect communities in California since the late Ice Age to the present. She has created a Flickr album (https://www.flickr.com/photos/annarholden/albums) of UCMP specimens to reach out to academics and citizen scientists to help in identifying the RLB and MK insect remains. This was also posted to her Facebook page.

The VMNH has been posting Fossil Friday posts on social media, as well as general sharing on Facebook. They have one new blog entry on Updates From the Paleontology Lab (http://www.paleolab.org) related to fossil insects.

YPM PIs Norris and Butts are working with Armand Morgan (YPM education staff) and 6 interns (plus one supervisor) from the Peabody EVOLUTIONS after school program. The students are part of the SciCorps group, which represents the most senior members of the EVOLUTIONS program (most have been in the program for 3 years). Interns have had multiple sessions learning about fossil insect collections, taphonomy and systematics of fossil insects, research using fossil insects, and the importance of collections to research. They are providing feedback to the design, use, and content of iDigPaleo and will also engage with Peabody Museum visitors to get additional feedback on iDigPaleo.

Karim, Butts, and Norris have been working with H. Meyer (Park Paleontologist, Florissant Fossil Beds) and G. Antell (Intern, Florissant Fossil Beds) and developer J. Lauters (contractor) on mobile app development that will utilize FIC-TCN data. The app will be used by visitors to the Florissant Fossil Beds while walking on the Petrified Forest Loop. At various spots along the trail users will “capture” fossil insects (similar to Pokemon Go!) on their mobile device. Once captured, users will gain access to basic content about the specimen, collector, general information about that group of insects (e.g. information about tse tse flies in general), etc. All content will meet accessibility guidelines as outlined by the CU-Boulder accessible technology office (e.g., for visually impaired users audio captions will be available) and we will utilize their Digital Accessibility Services to test the app before launch. App users will also be directed to idigpaleo.org to explore more images and data related to each captured fossil insect. This will give users a chance to use the app beyond the park. Lastly, we are exploring linking captured specimens to BHL or the Paleobiology Database (PBDB) so that users can start to explore the associated scientific literature or at least be exposed to its existence. Specimens from Florissant are ideal for pushing the link to scientific literature for two reasons: 1) many were published before 1925 and the original literature is freely available online; 2) most of the publications have been entered to the PBDB.

Other Progress (that doesn’t fit into the above categories):
Work is underway to incorporate fossil insects into the UCMP docent program. This program enlists graduate students to teach paleontological lessons to classes of elementary through high school students that visit the museum. Currently fossil insects are not part of curricula but that is changing. Also the UCMP E&O staff together with the PI and Undergraduate Research Apprentice Program students are developing fossil insect related content for the UCMP's Understanding Global Change website using the middle Miocene Stewart Valley, Nevada site as an example of how periods of elevated global temperatures, combined with topographic changes (e.g., Sierra Nevada uplift increased orographic effect) result in dramatic landscape/environmental changes that have directly

impacted the insect and associated biotic diversity in the Basin and Range since 16 million years ago.

C. Byrd left the VMNH at the end of December 2016 to join the Sternberg Museum's Collection Management team. The VMNH are in the process of finding an intern to assist with imaging, and hope to pick up speed in the coming months.

The MCZ has hired a new digitization assistant, Emily Black, replacing John Mewherter (who in the end has taken more than 10.000 pictures for the project).
They have shared pictures of the fly Acartophthalmites tertiaria from Baltic amber with Jindřich Roháček, from the Silesian Museum at Opava (Czech Republic) and shared pictures and loaned Solenopsis sp. ants from Dominican amber with Dietrich Gotzek from the National Museum of Natural History.

Fossil insect specimens from CU-Boulder and images taken by Zelagin (CU-Boulder) as part of this project were recently published: MAKARKIN, V.N., 2017. An interesting new genus of Berothinae (Neuroptera: Berothidae) from the early Eocene Green River Formation, Colorado. Zootaxa, 4226(4), pp.594-600.

Attachment 1

Attachment 2

Submission #966

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by kmcameron
Monday, February 27, 2017 - 11:19
128.104.98.216

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

Person completing the report:
kmcameron@wisc.edu

Progress in Digitization Efforts:
See attached table

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

Identify Gaps in Digitization Areas and Technology:
Nothing to share

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

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

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

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

Other Progress (that doesn't fit into the above categories):
Nothing to share

Attachment 1
GLITCN_progress report_Feb2017.pdf

Attachment 2

GREAT LAKES INVASIVES TCN – Bi-monthly report **To Date: Feb 20, 2017**

Great Lakes Invasives TCN Portal Collection Statistics *(as of Feb 20, 2017)*

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

TOTALS FOR USA MUSEUMS: 795,716 records, of which 649,262 (82%) have been imaged
(+ ***Canadensys*** plant data increases the total to **918,532 records** and 663,453 images)

Note: Data cleaning was performed this month to eliminate duplicate records

PLANTS – USA

Collection-Herbaria	Specimens	Georefd	Imaged
Albion College	1232	16	1223
Butler University, Friesner Herbarium	11526	7	6444
Calvin College	735	0	699
Central Michigan University	3742	289	3711
Eastern Michigan University Herbarium	2469	620	2345
Field Museum of Natural History	66119	60926	64850
Grand Valley State University	365	10	359
Hillsdale College Herbarium	344	15	342
Hope College	594	3	583
Illinois Natural History Survey	48937	5462	30733
J. F. Bell Museum of Natural History Herbarium	56441	1438	44836
Miami University, Willard Sherman Turrell Herbarium	18188	3	18152
Michigan State University	28566	0	28386
Morton Aboretum	21412	1939	19947
New York Botanical Garden	146990	57213	11848
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	75829	7788	67808
University of Notre Dame, Greene/Nieuwland Herbarium	0	0	0
University of Wisconsin-LaCrosse	6972	4726	6969
University of Wisconsin-Madison, WIS	94567	18834	91740
University of Wisconsin-Milwaukee	7796	2060	7570
University of Wisconsin-Stevens Point	0	0	0
Totals	650244	187012	595223

FISH

Collection-Fish	Specimens	Georefd	Imaged
Field Museum of Natural History - Fish	5213	371	4341
Illinois Natural History Survey - Fish	30403	8325	19231
J. F. Bell Museum of Natural History - Fish	15727	13603	3533
Ohio State Museum of Biological Diversity - Fish Division	9033	0	9005
University of Michigan Museum of Zoology - Fish	34834	1762	643
U of Wisconsin-Madison Zoological Museum - Fish	4601	445	4298
Totals	99811	24506	41051

MOLLUSKS

Collection - Mollusks	Specimens	Georefd	Imaged
Field Museum of Natural History - Mollusks	6438	159	0
Illinois Natural History Survey - Mollusks	10317	11431	2964
J. F. Bell Museum of Natural History - Mollusks	0	0	0
Ohio State Museum of Biological Diversity - Mollusc	2376	0	2350
University of Michigan Museum of Zoology - Mollusks	24299	2	7214
U of Wisconsin-Madison Zoological Museum - Mollusks	531	425	460
Totals	45661	12017	12988

PLANTS – CANADIAN (Canadensys)

Collection-Canadensys	Specimens	Georefd	Imaged
Green Plant Herbarium	18906	9832	0
Herbarium, Biodiversity Centre of Ontario	10230	0	10230
Herbier Louis-Marie (QFA)	13321	9895	0
Herbier du QuÃ©bec (QUE)	504	504	0
Jardin Botanique de MontrÃ©al	1286	37	0
Marie-Victorin Herbarium	35383	13491	394
University of British Columbia Herbarium	26521	14165	3567
University of Manitoba Vascular Plant Herbarium	5745	5566	0
University of Toronto at Mississauga Herbarium	10920	4014	0
Totals	122816	57504	14191

Submission #963

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by cskema
Wednesday, February 22, 2017 - 12:50
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:
The current numbers for progress of digitization efforts by specimen category are shown in attached pdf in Table 1. As in the last report, some MAM collaborators are still trying to round up the last necessary imaging equipment. Anne Barber, the MAM Project Coordinator, has gotten MOAR's first remote herbarium digitization project started with training students in barcoding, stamping and imaging at MCA.

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

Identify Gaps in Digitization Areas and Technology:
OR Tech has gone out of business, so the "standard" herbarium digitization light box is no longer available on the market.

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
The MAM Project is dovetailing nicely with a number of research projects underway at NY, including the flora of Central Park, surveys of the intertidal wetlands along the Hudson and invasive species in lower Westchester area, and the Ecoflora of New York City. Results from these local field studies are being incorporated into the MAM data, and these projects are benefitting greatly from the data coming out of the MAM Project.

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

Share and Identify Education and Outreach (E&O) Activities:
HUDC reports that there will be an undergraduate student presentation of a summary of the HUDC digitization project, including MAM work, at the Howard University Research week in April 2017.

Other Progress (that doesn't fit into the above categories):
NY reports that the MAM Project will provide an advancement opportunity for one of our former interns, Ginger Apolo, who is the project coordinator for MAM at NY, and NY has recently hired a college undergraduate intern to work on the project. HUDC has hired an undergraduate student, Amber Durand, to help with technical aspects of MAM Project. MOAR is working with an independent fabrication lab in Philadelphia to design and build the last light boxes (4) required for the MAM Project.

Attachment 1
2017_02_MAM_Bi-monthly_Progress_Summary.pdf

Attachment 2

Mid-Atlantic Megalopolis TCN

Bi-Monthly Progress Report

December 2016 – February 2017

Progress in Digitization Efforts: The current numbers for progress of digitization efforts by specimen category are shown in Table 1. As in the last report, MAM collaborators are still trying to round up the last necessary imaging equipment. Anne Barber, the MAM Project Coordinator, has gotten MOAR's first remote herbarium digitization project started with training students in barcoding, stamping and imaging at MCA.

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

	HERBARIUM									
Specimen Stage	BALT	CHRB	DOV	HUDC	MARY	MCA	MOAR	NY	PH	**Totals**
# specimens imaged (no stage, not in Symbiota yet)	0	0	1,648	0	10,216	4,380	3,905	11,042	15,675	**46,866**
# specimens imaged, and uploaded to Symbiota along with skeletal data (Unprocessed Stage)	0	3,008	0	0	0	766	743	0	11,016	**15,533**
# specimens as above + completely transcribed and transcription reviewed (Stage 1)	0	0	0	0	0	0	2,231	13,146*	0	**15,377**
# specimens as above + georeferenced (Stage 2)	0	0	0	0	0	0	128	0	0	**128**
# specimens that need special attention, e.g. go back to sheet, etc. (Stage 3)	0	0	0	0	0	0	16	0	0	**16**
# specimens as above + closed as complete (Closed Stage)	0	0	0	0	0	0	0	0	0	**0**

*Not uploaded to Symbiota yet as NY is using in-house workflow/database until georeferencing step.

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

Identify Gaps in Digitization Areas and Technology: OR Tech has gone out of business, so the "standard" herbarium digitization light box is no longer available on the market.

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations: The MAM Project is dovetailing nicely with a number of research projects underway at NY, including the flora of Central Park, surveys of the intertidal wetlands along the Hudson and invasive species in lower Westchester area, and the Ecoflora of New York City. Results from these local field studies are being incorporated into the MAM data, and these projects are benefitting greatly from the data coming out of the MAM Project.

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

Share and Identify Education and Outreach Activities: HUDC reports that there will be an undergraduate student presentation of a summary of the HUDC digitization project, including MAM work, at the Howard University Research week in April 2017.

Other Progress: NY reports that the MAM Project will provide an advancement opportunity for one of our former interns, Ginger Apolo, who is the project coordinator for MAM at NY, and NY has recently hired a college undergraduate intern to work on the project. HUDC has hired an undergraduate student, Amber Durand, to help with technical aspects of MAM Project. MOAR is working with an independent fabrication lab in Philadelphia to design and build the last light boxes (4) required for the MAM Project.

Submission #960

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by psierwald
Tuesday, February 21, 2017 - 16:13
107.0.125.5

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

Person completing the report:
psierwald@fieldmuseum.org

Progress in Digitization Efforts:
FMNH Invertebrates: 2064 records entered into the database by K. Griffin-Jakymec [KGJ] (47 freshwater bivalves; 188 FW gastropods; 1939 terrestrial gastropods) resulting in a grand total of 40663 records to date; 1830 lots were identified by S. Clark [SC], several hundred additional lots by J. Gerber [JG]; contents of ca. 200 matchboxes from the G. R. Webb Collection were sorted into lots and their data researched by KJG in preparation for identification and data entry; SC and JG completed gastropod name file with a total of 4819 names. Volunteers, an intern and KGJ re-labeled ca. 700 previously digitized lots.
FMNH Insects: At present, 101,300 records have been entered into our KE EMu database (representing 645,550 total specimens databased and barcoded). Data entry of the North American pinned Dytiscidae collection has been completed. Data entry of Noteridae (pinned collection, Coleoptera) is in process. Graduate intern Xavier Zahnle has been hired and is in the pre-curation phase of the pinned Hydrophilidae collection. Upon completion, data entry of this collection will begin.
Zoological Museum, Michigan, Invertebrates: 6 undergraduate students (10 to 15 hours/week) entered 3,950 new records into UMMZ Specify database during 12/01/2016-02/15/2017 (land snails: 3,216; freshwater snails: 262; freshwater bivalves: 29; Marine snails: 437); during the same period 438 data entries were georeferenced and 667 lots were imaged (freshwater snails: 372; freshwater bivalves: 295).
DMNH: Over the past 2 months, DMNH has focused on data cleaning of geography and loca-tion data for the freshwater gastropods. This was done in two iterations: first we identified as many localities as possible and determined their correct county, state and country, and second we translated countries, states and counties into GNIS standard names. The geography tree in Specify has been updated to reflect the GNIS names, with significant changes in France, Kenya, Liberia and Madagascar and more minor changes in Indonesia, Panama, and the Philippines. In addition, we have added Habitat Class data for 9,265 of 9,378 total lots (98.8%): 6,667 lots of freshwater species, 2,257 marine species mixed into predominantly freshwater taxa (mostly Neritidae), 288 estuarine lots, terrestrial lots and 36 freshwater/estuarine lots. Finally, Collecting Dates were converted from the problematic Excel form to one that Specify recognizes, and Collector Names

have been converted to Specify “Agents”. Upload to Specify now expected by mid-March.
CMNH: A total of 65,916 specimens have been digitized to date and include over 11,734 new records for the period 19 Nov 2016-21 Feb 2017. Digitization of our Diptera collection was al-most completed with all specimens imaged and assigned barcodes, and the vast majority tran-scribed and entered; 15,426 records are publically available. Digitization of Apoidea was com-pleted representing 5,961 specimens. Digitization of our minor holdings of Orthoptera has commenced. An additional ~3400 images have been taken and are either transcribed to be entered or awaiting transcription during the work Study spring break. The Cleveland Insect data are now being served via an IPT instance to Symbiota SCAN and updated monthly.
Auburn: We continue to make good progress in insect specimen databasing efforts. To date we have accessioned ~180,000 insect specimens. Efforts have also shifted to focusing on other ter-restrial arthropod groups. We have accessioned ~32,000 non-spider arachnid specimens (54% of the collection) and ~2,600 myriapods (87% of the collection). Efforts have also shifted to the spider collection with over 10,000 specimens accessioned, approximately half of which have been determined or existing determinations checked.
Frost: At least 35,000 Odonata specimens have been imaged and imported into our transcrip-tion/digitization workbench/database (TaxonWorks). More than 5,000 Odonata specimens/lots have been transcribed, with >9,000 georeferenced. A similar process has been applied to our butterfly collection, of which >4,400 specimens have been imaged and uploaded to the database. Our ethanol-preserved Anoplura and Mallophaga collection is actively being databased on a spreadsheet (DwCA); 260 lots have been digitized so far. Our hoverfly (Syrphidae), soldier fly (Stratiomyidae) and Aculeata collections have been staged for digitization. Our team now consists of 3 part-time, wage payroll staff digitizing specimens and transcribing labels, and 1 grad student working on georeferencing odonates. We went through a slow period in December and January but are now working extensively. We are now working on Coleoptera and have digitized 923 Coccinellidae and 2063 Curculionidae specimens.
Additionally, Deans worked with the SCAN/Symbiota team to establish DwCA and spreadsheet upload functionality for our data. We are now sharing data through SCAN.

PEN grant: Chicago Academy of Sciences, start date: September 2016
CAS/PNNM Invertebrates: We put together collection metadata, created malacology and en-tomology collection categories in our Arctos database, and worked with Ed Gilbert to have CHAS institutional collections for malacology and entomology created in the Symbiota InvertEBase and SCAN portals. We’ve conducted a review of data for our malacology type specimens and compiled bibliographic references for these specimens. We’re performing data cleaning for malacology specimen data and cross-referencing this with catalogue book records. We’ve begun identification of records in the archives and historical collection management records for inclusion in the data unification process.
CAS/PNN Insects: See above.

Share and Identify Best Practices and Standards (including Lessons Learned):
FMNH Invertebrates: nothing to report
FMNH Insects: part-time temporary intern is pre-curating significant section of the North American Coleoptera collection for faster data entry. Data etnry straight into Ke-Emu still deemed most efficient
Zoological Museum, Michigan, Invertebrates: nothing to report
DMNH: We have been developing workflows for novice collections to use as they begin to dig-itize their datasets and move them to Symbiota. Completed workflows include: “Minimum data required to set up a Symbiota presence” and “Moving data from Symbiota to iDigBio”.
CMNH: nothing new to report
Auburn: As previously reported database entry directly into Specify continues; this has slowed progress on the front end but circumvents the need for downstream database checking and con-version from excel.
Frost: We continue to update our workflows, which are available as Google Docs

(http://bit.ly/FrostSOPs). Additionally, we have published several posts on our blog about les-sons we've learned, from alcohol vial best practices to georeferencing. These posts are available at: http://sites.psu.edu/frost/category/curation/ and/or http://sites.psu.edu/frost/tag/digitization/
We've been testing the image => transcribe => georeference workflow. For some types of spec-imens (e.g., Odonata, which are almost 2 dimensional and very well protected as specimens) this flow was rapid. We've found that for pinned material and vials a straight transcription into spreadsheet (DwCA) might be faster. This is being tested with the Coleoptera specimens men-tioned above.
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: We are creating workflow documents that will guide our second intern in the process of incorporating historic records into existing malacology and entomology specimen data. Data cleaning protocols continue to be refined. We have a few volunteers assist with portions of the data cleaning process, carried out in Excel and Open Refine as much as possible before data is imported into Arctos.
CAS/PNN Insects: See above.

Identify Gaps in Digitization Areas and Technology:
FMNH Invertebrates/Insects: KE EMu version 5.0 installation complete, not considerably faster than previous version
Zoological Museum, Michigan, Invertebrates: nothing to report
DMNH: Rapid georeferencing of specimen data is the biggest hurdle we face. Received funding for mollusk digitization workshop from iDigBio, workshop schedule 15-17 July 2017. The workshop contains georeferencing training session specifically for mollusks
CMNH: nothing to report
Auburn: Batch georeferencing and data checking continues to be very tedious and time consuming
Frost: nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: nothing to report
CAS/PNN Insects: nothing to report

Share and Identify Opportunities to Enhance Training Efforts:
FMNH Invertebrates/Insects: Organization of georeferencing training workshop, conducted at FMNH May 11, 2017.
FMNH Invertebrates/Insects and DMNH: There will be an iDigBio sponsored digitization workshop at the upcoming American Malacological Society meeting in July 2017. This work-shop will reach out to other mollusk collections to discuss best practices developed during InvertEBase, data standardization, and georeferencing. A ½ day workshop in georeferencing will be a focal point of the meeting. We have invited 28 people and have had 19 acceptances so far. The remaining spots will be open to applicants soon, with an application deadline in mid-March.
Zoological Museum, Michigan, Invertebrates: nothing to report
CMNH: nothing to report
Auburn: Nothing to report at this time
Frost: nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: nothing to report
CAS/PNN Insects: nothing to report

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
FMNH Insects: Digitization of North American Odonata in the Wisconsin Insect Research Col-lection funded through Field Museum, digitized data will be housed in Specify. Preparations underway to host these data on the SCAN Portal as well.
Sierwald and Bieler are collaborating with Drs M. Hereld and N. Ferrier at Argonne National laboratory in the further development of ‘Rapid 3D capture of physical specimens’ to advance a pipeline for high-throughput digitization of large scale collections (see attached pdf of LDRD2016

poster [https://today.anl.gov/2016/10/2016-ldrd-day/]. Hereld, Ferrier and Sierwald are on the program committee an eScience workshop entitled: “BigDig: High Throughput Digitization for Natural History Collections” at the 2017 eScience conference in Aukland, NZ.
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: nothing to report
CMNH: The collaboration between CMNH and Northeast Reintergration Center is still pro-ceeding.
Auburn: nothing to report
Frost: We continue to collaborate with Matt Yoder and the Speciesfile group in their develop-ment of TaxonWorks. Their system can now export data to Symbiota, and they've been working to customize or otherwise adapt their interface to meet our needs.

PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: We have been collaborating with PI Rudiger from the FMNH to validate taxonomy in our malacology data and make updates.
CAS/PNN Insects: We have been collaborating with PI Sierwald from the FMNH to validate taxonomy in our entomology data and make updates using resources including the World Spider Catalog (http://www.wsc.nmbe.ch/).

Share and Identify Opportunities and Strategies for Sustainability:
FMNH Insects/Invertebrates: several small scale digitization projects added with use of FMNH in-house funding, waiting to hear about funding of two PEN proposals, submitted Octo-ber 2016
Zoological Museum, Michigan, Invertebrates: nothing to report
DMNH: We will present findings of the workshop to the AMS membership at the President’s Symposium, and the resulting papers will be published by the American Malacological Bulletin.
CMNH: followed up with NERC regarding sustainability of collaboration.
Auburn: nothing to report
Frost: nothing to report
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: nothing to report
CAS/PNN Insects: nothing to report

Share and Identify Education and Outreach (E&O) Activities:
FMNH Invertebrates: Undergraduate Intern Rachel Kistinger (Roosevelt University) has been trained in zoological taxonomy and collection management methods and is now helping with re-labeling, re-housing and arranging newly digitized freshwater bivalves.
FMNH Insects: Hosted & participated in our second “Worldwide Engagement for Digitizing Biocollections (WeDigBio)”. In order to build support for natural history collections and their digitization activities, and to increase digitization rates, we invited the public, including college, university and high school students to participate in this four-day transcription event. Over 200 volunteers gathered to help transcribe labels from specimens across the museum. Both attendance and the number of records transcribed surpassed the previous effort in 2015.
Zoological Museum, Michigan, Invertebrates: So far 1 high school volunteer, 15 undergradu-ate students and 1 master student have been hired and trained for data entry, molluscan taxono-my, museum curation, specimen imaging, and georeferencing.
DMNH: As a member of the iDigBio E&O committee, DMNH has participated in writing Chapter 2, “Using Objects and Collections Data in K-12: theory and practice”. This chapter is part of the output from the December E&O meeting at the National Museum of Natural History, Smithsonian Institution, and is intended to provide guidance to biocollections profes-sionals who are interested in working with K-12 educators to incorporate digital collections in formal and informal educational environments.
CMNH: Collections Manager, Nicole Gunter, led a program for 25 Cuyahoga Community Col-lege students that highlighted the utility of biological collections and the digitization efforts at the museum.

Auburn: nothing to report
Frost: We now have an undergrad working with us for credit. She is assisting in the digitization of Odonata. Soon another undergrad will help us digitize Hymenoptera. Both of these students were recruited through our outreach efforts in undergraduate entomology classes.
PEN grant: Chicago Academy of Sciences
CAS/PNNM Invertebrates: nothing to report
CAS/PNN Insects: We've hired our first intern through the NSF PEN grant; they are focusing on data curation of hymenoptera specimens. We have another intern and a volunteer also work-ing on specimen and data curation in the entomology collection.

Other Progress (that doesn't fit into the above categories):
FMNH: PIs Sierwald and Bieler attended the iDigBio Summit in Chattanooga, TN in October.
Zoological Museum, Michigan, Invertebrates: So far 1 high school volunteer, 15 undergradu-ate students and 1 master student have been hired and trained for data entry, molluscan taxono-my, museum curation, specimen imaging, and georeferencing.
DMNH: Presented a poster at the Partnership for the Delaware Estuary meeting in Cape May, NJ highlighting the InvertEBase TCN. Spoke with multiple NGOs and consultants about the InvertEBase.org and iDigBio.org websites as resources for their planning activities and field work, especially with respect to freshwater bivalves. http://www.delawareestuary.org/wp-content/uploads/2017/01/2017- PDE- Science-Summit- Program.pdf
CMNH: A new student volunteer was recruited that will be working on a small research project on hymenoptera, as part of the project volunteer is identifying part of our unsorted collection which will be databased.
Auburn: nothing to report
Frost: PI Deans attended the iDigBio Summit in Chattanooga, TN in October
PEN grant: Chicago Academy of Sciences
CAS/PNNM: Malacology type specimens have been preservationally rehoused.

Attachment 1
BigDig_workshop.pdf

Attachment 2

LDRD DAY 2016

RAPID 3D CAPTURE OF PHYSICAL SPECIMENS

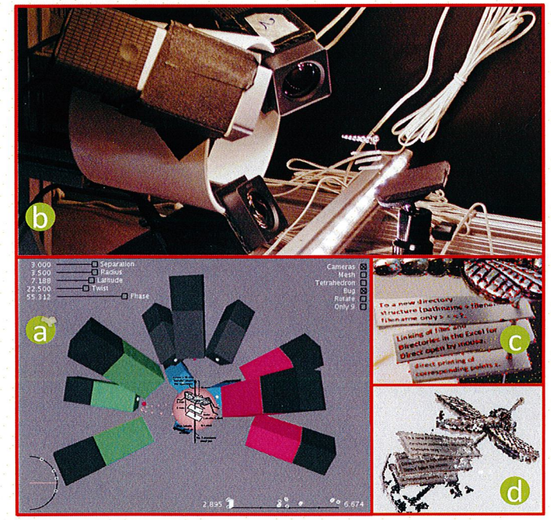
Advanced pipeline for high-throughput digitization of large-scale collections

OVERVIEW

Why digitize large collections of objects? Large-scale collections of objects comprising millions of specimens provide data for studies of taxonomy, biodiversity, invasive species, biological conservation, land management, pollination, and biotic responses to climate change.

Our project will enable wholesale digitization of these collections, making them impervious to time, available for richly informative query-based exploration and analysis, accessible by a wider community of researchers, and available for outreach activities.

We will prototype a cost-effective, high-speed camera head with integrated computational imaging methods to enable robust digitization of objects for 3D model reconstruction and text recovery.



Clockwise from lower left: (a) tool developed to determine camera placement; (b) testing the first three-camera unit; (c) features detected in one camera view; (d) multi-view data combined to generate 3D model of label stack and insect.

BENEFITS

Key impacts:

- Enable development of new methods for robust capture of 3D models at high speed.
- Enable rapid capture of object and metadata for reliable data ingest for curated collections.
- Enable rapid capture and characterization of objects on production and assembly lines.

Key industry beneficiaries:

- Natural history museums
- Manufacturing industry (e.g., quality assurance)

FUTURE

The proposed rapid 3D capture technology can enable new science and analysis of physical specimens based on big data methods.

INVESTIGATORS

- Mark Hereld, Mathematics & Computer Science (MCS)
- Nicola J. Ferrier, MCS
- Nitin Agarwal, MCS Research Aide 2016
- Juliana Kim, MCS Science Undergraduate Laboratory Internships (SULI) 2015
- Joshua Koblich, MCS SULI 2015
- Andi Zang, MCS Research Aide 2014
- Bryan Dalle-Molle, MCS SULI 2014
- Daniel Shiff, University of Chicago Masters Program in Computer Science Practicum 2014

CONTACT

Mark Hereld
(630) 252-4017
hereld@anl.gov

U.S. DEPARTMENT OF ENERGY

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Argonne NATIONAL LABORATORY

Submission #965

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by mwdenslow
Wednesday, February 22, 2017 - 18:38
98.245.84.251

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 89 collections serving data through the SERNEC portal. There are currently 2,683,332 specimens records and 174,085 (6%) of those records are georeferenced. There are currently 2,088,076 imaged specimen images available. There are currently 31 collections publishing to iDigBio.

Alabama:
300 specimens were digitized during the reporting period.

Florida: FSU recruited and trained 7 interns for the Spring semester. The interns are determining if each folder is in- or out-of-scope, barcoding the specimens, and annotating the specimens to currently accepted names. During this reporting period they have handled 7,000 in-scope specimens (679 in-scope folders and many out-of-scope or already digitized folders). The interns are preparing the specimens for another major imaging push this summer by a pair of full-time imagers.
FLAS completed barcoding and imaging of the pteridophytes in the main collection. This nearly completes the barcoding, imaging and skeletal data for our main collection. Because we are matching barcodes with accession numbers we have a residual of problem specimens. We are working to clean those up by comparing those numbers to imaged specimens and making a listing of collections that are not part of the SERNEC geographical range but are already barcoded. Some of these specimens are actual duplicated accession numbers and receive new numbers. Others are the result of other specimens being incorrectly barcoded. We are continuing to image the Angus Gholson collection. We are also continuing to image the specimens which are fully cataloged in our legacy catalog. We created 5,198 images of specimens (nef or tif + jpg of each) during the reporting period. We have now imaged and created skeletal data for 123,815 specimens for this project, plus there are another ca. 72,000 on our legacy server. Barcoding of the PIHG collection is continuing. We are on cabinet number 8 of 11. We hired one new student employee on this project during the period and currently have eight.

Georgia:
No GA specimens were imaged during this time period (187,800 to date). Skeletal data (species name, state, county) for 1,760 non-Georgia specimens entered into Specify. WGC uploaded 5009 images with associated (skeletal) data to the SERNEC portal and published them to iDigBio as well. GAS imaged 746 specimens during the reporting period (15,785 to date). 3024 images were associated with their existing Specify record.

Kentucky:
EKY imaged 5,215 specimens during this time period (70,125 to date), all images on have been linked on the SERNEC portal.

Mississippi:
MISSA digitized 39,246 specimens; MISS digitized 124,288 specimens and USMS digitized 18,349 during the reporting period.

South Carolina:
During this time period we completed image processing from three herbaria who had prepared images but not completed converting or uploading them. Our totals of imaged and uploaded specimens linked with data in the SERNEC portal stand at 69,824 for the entire state, broken down as follows: CLEMS 20,642; USCH 17,677; USCS 14,509; FUGR 10,629 and CONV 6,367.

West Virginia:
MUHW has imaged and uploaded 39,000 specimens. MUHW has partially transcribed approximately 10,500 specimens. MUHW hired one undergraduate in January 2017.
WVA imaged 3,876 specimens for a total of 41,654 images (ca. 25K images uploaded).

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).
Alabama:

Florida: FLAS maintains a web site with information and specifications for this project at: http://www.flmnh.ufl.edu/museum-voices/seusbiohotspot/.

South Carolina: We found (thanks to Ben Montgomery of USCS) a commercial program called BarcodeFiler which reads jpg images, detects the barcode value of the scanned image, and then automatically renames the image file to match the correct barcode. We checked image files in this way to make sure that the file name matched the scanned image.

Identify Gaps in Digitization Areas and Technology:
The eBox company is currently out of business and suppliers for replacement light bulbs are very limted. We are currently working on alternatives to deal with this issue.

Florida: The FLAS museum server with our legacy images has been having errors in its file system and will not accept new images in some folders and has lost some images. Our Office of Museum Technology is working to correct the problem. We have all images archived by date of creation, but it is tedious to replace them. In general, archiving and storage of images is a major headache. We have 17.5 TB of images to maintain and the cost of archive disk space is still expensive.

Mississippi:
We are still working to link legacy records with images in the MSU collection. Transcription of specimen labels in the IBE collection is slowly moving forward.

South Carolina:
We had technical challenges related to mobile units. The imaging settings for one of our mobile units, initially set up properly, were altered after a break in the imaging process. Approximately 8,000 specimen images captured in this period resulted in upside down images and had to be reconverted –not just once, but twice.

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

Florida:
Society of Herbarium Curators is considering an online course for early professionals (especially students) on herbarium management and related topics for Fall semester.

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

West Virginia: MUHW continues to coordinate with and support Burgundy Wildlife Center in their efforts to ready their collection for imaging, which will hopefully occur at MUHW this spring. WVA is assisting with taxonomic and nomenclatural issues.

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

Florida: Society of Herbarium Curators and iDigBio are organizing a Botany 2017 workshop on the topic of Strategic Planning for YOUR Herbarium. Austin Mast, Andrea Weeks, and David Jennings are co-organizers.

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

Florida:
FSU produced two videos on herbaria for Florida STEM teachers in grades 6-12 and will begin advertising these in next few weeks once the accompanying lesson plans are completed.

Mississippi:
We participated in a First Year Experience course on museums and galleries at MSU during the Fall semester. Students spent one class in the MSU herbarium learning about the collection and curation of specimens.

West Virginia:
MUHW continues to train and mentor approximately six undergraduates in the herbarium through digitization efforts. WVA did a herbarium session for local county Master Gardeners, who may be recruited for future transcription volunteers.

Other Progress (that doesn't fit into the above categories):
All SERNEC:
Nothing to report.

South Carolina:
We are planning to complete uploading and processing approximately 3,000 more FUGR specimens this month, which will effectively complete the Furman collection. We are in the planning stages for preparing to move the mobile unit to Newberry College (NBYG) and Francis Marion University (FMUH) over the summer and also complete work at Winthrop University and the University of South Carolina at Salkehatchie.

Attachment 1

Attachment 2

Submission #959

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by akuhn
Tuesday, February 21, 2017 - 14:21
192.17.34.169

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

Person completing the report:
akuhn@illinois.edu

Progress in Digitization Efforts:
• 154,819 new records added to MyCoPortal
• 4,505 new records uploaded to USDA Forest Service, Rocky Mountain Research Station (FPF) collection (17Jan2017)
• Landcare Research (PDD) added to MyCoPortal and uploaded 99,615 existing records
• Progress analysis completed for all collections, four collections have completed their digitization goals, 13 collections are below 50% of their goal, while nine are above 50% of their goal (see attachment)
• MyCoPortal now has over 3 million occurrence records

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

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

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

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Symbiota Working Group (SWG) webinar presented in January defining sustainability of Symbiota portals and publishing datasets to GBIF and iDigBio.

Share and Identify Opportunities and Strategies for Sustainability:
• SWG continues conversation for portal sustainability and data publishing
• The mycoportal.org portal code file, and related SQL database, containing all digitized resource meta-data, is now replicated at INHS weekly as extracted compressed archives on distributed backup systems.

Share and Identify Education and Outreach (E&O) Activities:
• Continued activity on Facebook group to engage with members online about new research and project updates
• MycoPortal workshop at Mycological Society of America meeting in Athens, GA in July has been approved and teachers are being invited.

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

Attachment 1
MiCC_stats_as_of_20_Feb_2017.pdf

Attachment 2

Institution	Specimens to digitize	Specimens digitized as of 20-Feb-2017	% complete as of 20-Feb-2017
Academy of Natural Sciences	32,000	23,769	74%
Clemson University	4,800	4,833	101%
Cornell University	18,000	119,822	666%
Field Museum	70,000	94,031	134%
Harvard University	54,000	3,119	6%
Iowa State University	35,800	17,690	49%
Louisiana State University	10,000	6,140	61%
Miami University	50,000	17,985	36%
Michigan State University	31,500	11,103	35%
New York Botanical Garden	248,000	39,923	16%
Purdue University	55,570	15,793	28%
Rutgers University	40,000	17,519	44%
State University of New York, SUNY	18,000	2,873	16%
University of Arizona	20,000	17,136	86%
University of Arkansas	10,000	3,000	30%
University of California Berkeley	56,500	16,802	30%
University of Florida	40,000	25,446	64%
University of Georgia	40,000	19,453	49%
University of Illinois	55,000	20,942	38%
University of Michigan	65,000	65,890	101%
University of Minnesota	50,000	30,730	61%
University of Nebraska	50,000	45,148	90%
University of North Carolina	18,000	10,430	58%
University of Virginia	3,000	0	0%
University of Wisconsin-Madison	120,000	62,508	52%
University of Wyoming	28,200	22,152	79%
TOTAL	1,223,370	714,237	58%

Existing Data	**# of Records**
Collections in NSF proposal	Number of records
University of Alabama Chytrid Culture Collection	476
R. L. McGregor Herbarium, Kansas State University	2,945
USDA Rocky Mountain Research Station	4,505
University of Tennessee	5,015
Herbarium Pacificum, Bishop Museum	7,801
Illinois Natural History Survey	11,128
Oregon State University	48,528
Charles Gardner Shaw Mycological Herbarium, Washington	71,107
Arthur Fungarium, Purdue University	106,902
TOTAL	258,407

Collections in addition (not in proposal)	Number of records
René-Pomerlau Herbarium	0
University of Mississippi	21
Universidad de Buenos Aires	1,762
Fungarium of Foray Newfoundland and Labrador	2,107
E. C. Smith Herbarium, Acadia University	9,079
California State University Chico	10,398
Cercle des Mycologues de Montreal Fungarium	10,606
Royal Ontario Museum Fungarium	11,129
Brown University	12,643
University of British Columbia Herbarium	29,723
Center for Forest Mycology Research, USDA Forest Service	53,479
LandCare Research	99,615
TOTAL	240,562
TOTAL of all Existing Data	498,969

Submission #962

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by EPICC
Wednesday, February 22, 2017 - 12:10
128.32.154.17

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

Person completing the report:
eclites@berkeley.edu

Progress in Digitization Efforts:
As of 2/1/2017, the TCN has digitized 582,280 specimens, including 31,315 that are currently searchable via the iDigBio portal. In addition we have photographed 19,461 specimens and georeferenced 12,944 localities.

Georeferencing: Georeferencing of all UCMP and partner localities from CA state planes 1 and 2 is complete. UCMP has begun georeferencing Alaskan and coastal Mexican localities, which present some additional challenges because of incomplete locality descriptions.

Original source material digitized: Ongoing transcription of CAS catalogs and field notebooks as well as the LSJU (Stanford University) catalogs. UCMP completed scanning of 3 UC Davis locality registers. Continued transcription of locality descriptions not present in the database in order to prepare for georeferencing. LACM continues transcription of old ledger books (minimal background effort). These will be used: to a) identify ghost localities (an estimated 10% (~3000 localities) of our collection is presently not represented in our locality registry; b) create skeleton records that will allow for more efficient cataloguing of older collections, particularly those lacking registered localities.

Pre-digitization curation: LACM has continued working with members of the Southern California Paleontological Society (avocational group) and volunteer teachers from Los Angeles Unified School District more extensively in both pre-digitization (washing, sorting, and IDing) and now cataloguing activities. At PRI, the first level of pre-digitization checks have been accomplished for 23500 specimens.

Serving data to iDigBio: At the Burke Museum, 7235 specimen records have been cleaned or standardized and "Verified," and are ready to serve through VertNet.

Workflows: UAM incorporated the physical location of all specimens within the collection using the object tracking feature on Arctos and a barcode system.

Photography: In collaboration with the Smithsonian Digitization Program Office, the NMNH Department of Paleobiology conducted a five day pilot project to test mass digitization workflows for collections under the scope of the EPICC TCN. The pilot project was supported by SI Office of the Chief Information Officer Networking and Digital Asset Management System teams, SI Transcription Center, and NMNH Informatics. The workflows tested included movement of specimens from collections storage and curation preparation for imaging; movement and selection of specimens to and from imaging stations; image capture, file naming and embedding metadata; movement of images through virtual pipeline through quality control to specimen database EMu and digital asset management system; movement of images to SI Transcription Center for crowdsourced label transcription; export, clean up and ingest of label transcriptions into EMu.

The production tally was:
1085 Primary Specimen Tray (specimen lots) Images (250 daily avg for two imaging stations)
904 Individual specimens pulled from lots with scientific standards views
674 images of specimen labels

2663 Total Images

NMNH plans to tweak workflows based on the pilot in preparation for four months of "full production" beginning this July or August. On the pilot they were averaging one case a day, which will translate to about 100 cases in that four months. They have ~400 cases that fall within the scope of EPICC. During the pilot, they had open doors a few hours each day. Visitors were excited about the project's implications for scientific research.

Share and Identify Best Practices and Standards (including Lessons Learned):
CAS implemented a system of object (specimen) inventory where the physical location (drawer, cabinet) of the object is assigned an ID and is included with the object record during the digitization process. We are relying on volunteers to do the majority of this work. This has already vastly improved our efficiency in relocating specimens, as well as identifying the location within our collection of specimens of interest for several visiting researchers working on EPICC relevant material.

LACM instituted a time keeping system for various components of the workflow in order to better gauge impact of building digitization effort around results of pre-digitization inventory. They continue to work with local and visiting taxonomic experts to improve taxonomic quality of specimen data. They have now implemented use of the Cognysis Stackshot has greatly improved quality of images being captured and they are satisfied that its use has not added much time to their workflow.

At UCMP, PI Finnegan and Clites are working on refinements to the R script for making taxonomic corrections based on Austin Hendy's compiled taxonomic synonymies. This will be shared with other institutions once complete. The synonymies database has been converted to a GoogleSheet to facilitate multiple institutions adding new rows. When using this script, we have found it is best to check the taxonomy of 3-4 drawers at a time (300-1000 specimens) vs. doing ~3000 specimens at a time. This improves our ability to physically check the appropriate trays for possible errors on written specimen cards.

Identify Gaps in Digitization Areas and Technology:
LACM is continuing to clean data in preparation for migration to KE-Emu. Migration will take place once they are satisfied with data quality and integration (multiple generations of cataloguing efforts). Continued difficulty dealing with shared files among multiple workstations and personnel using Dropbox.

At UCMP, our photo station computer has a spotty wireless internet connection (no ethernet

available in that room), which makes uploading photos to our back-up drive and bulk uploads to CalPhotos more complex and time consuming.

Share and Identify Opportunities to Enhance Training Efforts:
Clites participated in paleo digitization webinar series on the Paleontological Resources Preservation Act proposed regulations, an introduction to DwC through the data management working group and an introduction to the DwC paleo working group.

A closed Facebook group was created for undergraduate student assistants at all EPICC institutions, but so far has not proved to be a lively forum for questions.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
CAS hosted Kesler Randall from the San Diego Natural History Museum who recently submitted a PEN proposal. They discussed workflows, best practices, and overall objectives of the EPICC grant.

LACM continues to collaborate with the Southern California Paleontological Society. LACMIP staff also participate in tours of local natural history collections to view best practices, curatorial approaches, and outreach activities at other institutions, including Santa Barbara Museum of Natural History and Raymond Alf Museum of Paleontology.

Holly Little attended a Paleo Interest Group meeting at TDWG in December and invited Denne Reed to talk to the paleo digitization working group during this month's webinar.
The TDWG interest group has a working space in GitHub where they will be developing Use Cases for addressing many of the questions collections managers have about paleo standards. The ultimate goal will be to create a Paleo Best Practices document/extension to the standard DwC fields.

At UCMP, Clites has been communicating with members of the Cretaceous Seaway TCN on DwC georeferencing fields and minimum fields to share via aggregator portals. Clites has also been in communication with Deb Paul, John Wieczorek and the Georeferencing Working Group with questions in preparation for leading a March webinar on these topics. UCMP staff continue to collaborate with iDigBio staff to plan an iDigBio workshop on Digital Data in Paleontological Research to be held March 27-28.

Share and Identify Opportunities and Strategies for Sustainability:
CAS is making improvements to its server structure to ensure long term viability of digital collections data.

LACM has volunteers from avocational groups with either taxonomic expertise or interest in participating in pre digitization curation. Reach out to community college and local universities for unpaid student interns. Look for opportunities to involve STEM teachers (often participating in summer training programs) to assist in digitization and outreach activities.

Share and Identify Education and Outreach (E&O) Activities:
Students continue to work in the collections at multiple museums, cataloging specimens, georeferencing localities and helping with other tasks. For Year Two, the TCN has trained 17 undergraduates, 5 graduate students, 4 recent college graduates, 5 high school students, 5 teachers and 10 other volunteers. At UCMP two students were trained in label printing.

The advisory board for the virtual field experiences (VFEs) was finalized. It will have 7 members, including 3 middle and high school teachers, 2 professors and 2 avocational paleontologists. We launched 5 draft web modules and requested comments from EPICC staff and our advisory board. An in person advisory board meeting is scheduled for Feb. 25-26 in Berkeley, with fieldwork for second VFE (on the Purisima Formation) to follow.

Hendy presented NSF EPICC TCN project at SCUM (Southern California Unified Malacologists) XXI Meeting at Santa Barbara Museum of Natural History. Estes-Smargiassi presented a case-study for how EPICC data can be applied towards novel paleobiological research. Links to abstracts or video of presentations can be found on our TCN website: http://epicc.berkeley.edu/products/

Other Progress (that doesn't fit into the above categories):
Held virtual TCN meeting Feb. 9. The group continues to make progress sharing taxonomic resources and these meetings continue to provide a good forum for updates and thinking about future goals and objectives.

CAS is currently developing data entry fields and controlled vocabulary for standardized digitization of ichnofossil specimens.

Attachment 1

Attachment 2

Submission #955

Submission information

Form: TCN Bi-Monthly Progress Report to iDigBio
Submitted by BruceL
Thursday, February 9, 2017 - 16:36
24.124.69.244

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

Person completing the report:
blieber@ku.edu

Progress in Digitization Efforts:
Regarding the University of Kansas portion of the project, led by PI Bruce S. Lieberman, associated with this project we have databased 14,594 Cretaceous specimens total, with 2,460 databased since the last reporting period in early December. Most of these specimen records are also georeferenced. At present we are focusing on databasing our ammonoids, as these represent a significant part of our collection strengths. In addition, associated with this project a total of 1,651 localities have been georeferenced thus far, 484 since our last reporting period. We have also begun our imaging associated with the project and have imaged 40 Cretaceous specimens since our last reporting period in early December.

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

Since the last report, PI Hendricks (Paleontological Research Institution) has completed the following activities related to the project:

1) At PRI, most attention has been recently focused on development of a “chapter” on gastropods for the Digital Encyclopedia of Ancient Life (DEAL), which is now nearly complete. It may be accessed at http://www.digitalatlasofancientlife.org/learn/mollusca/gastropoda/. This chapter features engaging videos about gastropods, novel images for understanding gastropod morphology (e.g., http://www.digitalatlasofancientlife.org/learn/mollusca/gastropoda/gastropoda-shell-form/), and overviews of each of the five major subclasses of Gastropoda (e.g., Caenogastropoda: http://www.digitalatlasofancientlife.org/learn/mollusca/gastropoda/caenogastropoda/). Nearly all of the images on this webpage are new and will be made freely available with Creative Commons licensing.

2) Current work on the Cretaceous Atlas of Ancient Life is focused on addition of echinoid species, e.g., http://www.cretaceousatlas.org/classes/echinoidea/.

Between now and the next reporting period, Hendricks will shift attention from the DEAL to prioritizing the addition of species to the Cretaceous Atlas.

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

45 localities were georeferenced in this reporting period, 5,420 specimens have been databased (in EMu) in the reporting period; they have 32,755 specimen records in their database *see best practices section below; they have generated 4,251 imaged in the reporting period and have imaged 22,110 specimens total. Finally, they are sending their data to iDigPaleo and iDigBio.

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

There were 220 localities georeferenced in this reporting period; 115 vertebrate paleontology and 13 invertebrate paleontology specimens were databased (in EMu) in the reporting period; they now have 1,012 Invertebrate Specimens and 2,293 Vertebrate Specimens TOTAL in their database. Finally, they we will be working on refining temporal and stratigraphic information for questionable specimens.

Regarding the University of Colorado portion of the project, led by PI Talia Karim, 358 localities were georeferenced in this reporting period; 526 specimens were databased (in Specify) in the reporting period and they have 8,026 TOTAL specimens in their database. They have imaged 26 specimens in the reporting period and have 26 specimens total imaged TOTAL. Finally, they are sending all their data to iDigPaleo and iDigBio.

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

They databased 875 specimens (207 catalog numbers) and georeferenced 8 localities.

Regarding the American Museum of Natural History portion of the project, led by PI Neil Landman and co-PI Ruth O'Leary: 138 localities were georeferenced in the reporting period for a total of 1,259 new specimens georeferenced. They also have ~15,300 relevant specimen records TOTAL in their database. 110 specimens were imaged in the reporting period and 210 specimens have been imaged TOTAL. Images have been sent to Jonathan Hendricks which will be provided to iDigPaleo and they will be sending data to iDigBio.

Regarding the University of Texas portion of the project, led by PI Ann Molineux:
320 localities were georeferenced in this reporting period; 854 records lots were databased (in Specify) in the reporting period; there are 33,012 records TOTAL in their database; and there are now 1,482 image attachments in Specify. Regarding 3D scans they have added 34 new specimens and in TOTAL of these there are 40 specimens, with 15 now online and 5 fully published, at https://sketchfab.com/NPLcollections/models

They have also sent a sample data set to whirligig for testing in iDigPaleo but we have no feedback yet and they send their data to iDigBio via VertNet, and a second upload has been sent to VertNet. The files may also be accessed through GBIF and they are developing a UT IPT with TACC.

Share and Identify Best Practices and Standards (including Lessons Learned):
Regarding the Yale University portion of the project, they identified a reporting error (based on discrepancy with results on iDigBio). They have been searching for all objects associated with the WIS localities; however, a few of the very prolific localities had truncated locality summary data strings which had the stratigraphic age stripped off. With these localities now included, our # of specimens is now accurate (and correlates to iDigBio results).

Regarding the Fort Hays State University portion of the project, they found having 2-3 people working together at the same time allows for significant progress to be made in georeferencing and in development of digitization workflows.

Regarding the University of Colorado portion of the project, David Zelagin (digitization assistant) has developed a “working" workflow document for digitization and this is provided as an attachment to the report.

Regarding the University of New Mexico portion of the project, they are still wrangling Specify to get it set up appropriately for their collection. So far they have found that it is best to clean and map their data prior to upload into Specify (although this is unlikely to be most efficient moving forward). Their students have been in touch with folks in the University of Kansas Biodiversity Institute, but there is only 1 person (Teresa) managing everybody’s questions, so things proceed a bit slowly.

Regarding the University of Texas portion of the project, they continue to update their wiki site to include technique improvements and they are running a workshop in April at this year’s AMMP’s Fossil Prep & Collection Symposium Topic: 3D laser scanning and image processing.

Identify Gaps in Digitization Areas and Technology:
Regarding the Fort Hays State University portion of the project, they are waiting for the rest of their digitization equipment to arrive.

Regarding the University of New Mexico portion of the project, they are investigating cameras to purchase for imaging key taxa.

Share and Identify Opportunities to Enhance Training Efforts:
Regarding the University of Kansas portion of the project, we have also just hired two undergraduate students who have begun databasing and imaging the specimens in our collections.

Regarding the South Dakota School of Mines & Technology portion of the project, led by co-PIs Laurie Anderson and Maribeth Price:

A new graduate student has started working on the project.

Regarding the University of Colorado portion of the project, they are interviewing undergraduates

and should have one hired by the first week in December to assist with data entry.

Share and Identify Collaborations with other TCNs, Institutions, and Organizations:
Regarding the University of Texas portion of the project, within WISTCN they have sent the first batch of data and images for 30 records (141 items) to Jon Hendricks for the Digital Atlas. They also have connections with the Specify group at KU and are developing a UT IPT and TACC is working on that with John Wieczorek (Berkeley). They are also talking with Michigan, specifically regarding their UMORF project to see if we can benefit from their approaches and vice versa.

Share and Identify Opportunities and Strategies for Sustainability:

Share and Identify Education and Outreach (E&O) Activities:
See Jon Hendricks' (PRI) work mentioned under "Progress in Digitization Efforts".

Regarding the Yale University portion of the project, Susan Butts was involved in a Working Group Workshop "Incorporating K-12 Outreach Into Digitized Collections Programs Workshop", December 5-6, 2016 at the Smithsonian Institute (https://www.idigbio.org/wiki/index.php/Incorporating_K-12_Outreach_Into_Digitized_Collections_Programs_Workshop). She presented on iDigPaleo on behalf of the Fossil Insect Collaborative and Cretaceous World TCNs and is a contributing author on the Best Practices document produced at this workshop.

Regarding the University of Texas portion of the project, staff and students continue to be part of several outreach activities within UT and community organizations and they have been testing 3D prints and braille editions of specimens.

Other Progress (that doesn't fit into the above categories):
We have developed a logo for the project which is attached with this report.

Regarding the Yale University portion of the project, Maya Juman, student digitizer, led public tours of the YPM Invertebrate Paleontology Division collections, emphasizing Cretaceous World collections and research.

Regarding the University of Colorado portion of the project, they hired Kelsie Gering, a freshman Geology major in December of 2017. During the reporting period, she has inventoried a total 12 cabinets (about 25% of our Cretaceous collection), updated the storage location for specimens in those cabinets in Specify, and has identified specimens that have not been entered into our databased. They are also starting to experiment with iPad imaging for some of the general collection mollusks and have been developing a workflow.

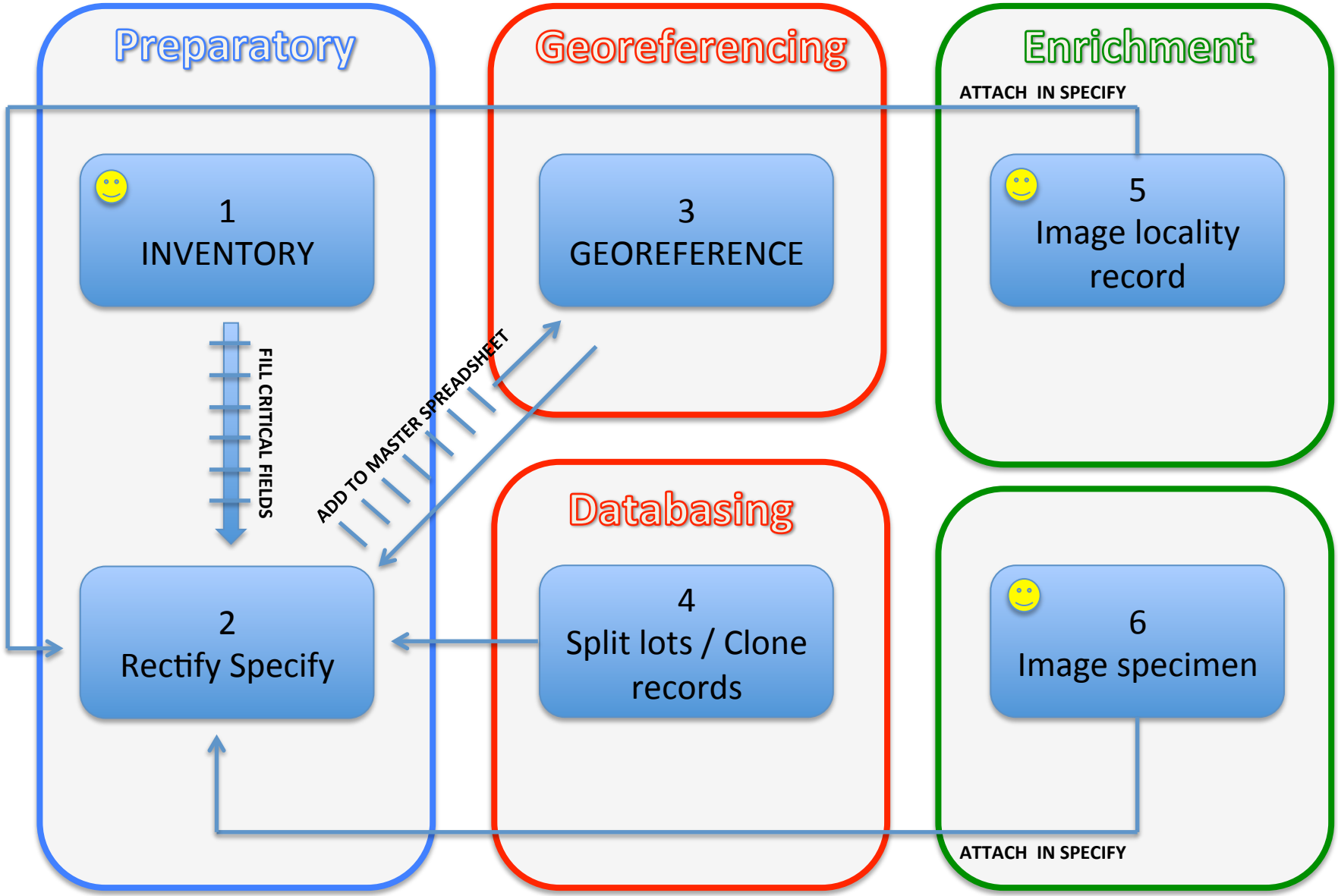
Regarding the University of Texas portion of the project, their TACC programmer Tomislav Urban is proceeding with the Specify Paleolocation integration. He has recreated 225 age layers on the new GIS server. This will be the plug in for Specify 7 (web).

Attachment 1
ColoradoCretaceousWorldModular Workflow.pptx

Attachment 2
CretaceousWorldLogo.jpg

Source URL: https://www.idigbio.org/node/564/submission/955

Cretaceous World “Modular Workflow”



Modular Workflow Explained

- Linear workflow abandoned to minimize “bottlenecks” in progress. Modules (Preparatory, Georeferencing, Enrichment) were designed so that they can be worked on independently of each other.

- A Happy Face  indicates a task that may be completed with student or volunteer labor and verified by a trusted agent. These tasks need minimal training to reach proficiency. All other tasks are to be completed by museum staff.

TASK 1: Inventory

- This task is essentially a physical inspection of all Cabinets or Drawers that may contain specimens/localities relevant to the project.
- All concerned specimens are inventoried to acquire their catalog #, and location (Cabinet and Drawer). Data is contained in a single excel spreadsheet.
- Specimens/lots identified as being from the right age and location can be passed on to task 2.

TASK 2: Rectify Specify

- This task concerns updating fields in the Specify database concerning a particular cataloged specimen and takes on many unique forms dependent on which other task it is coupled with.

- Relationship to task 1 (Inventory): Specimens identified as being relevant to the project via inventory have Chrono and Litho strat fields updated in Specify.
- Relationship to task 3 (Georeference): Those specimens that were incoming from task 1 are transferred to the Master Excel Spreadsheet for task 3.
- Relationship to task 4 (Split lots / Clone records): Once specimens are inventoried and the existing records are updated in Specify, the lots are split, creating a record for each specimen that retains all of the collection and georeferencing info of the parent lot.
- Relationship to task 5 (Image locality record): Generated images to be attached to locality record in Specify.
- Relationship to task 6 (Image specimen): Generated images to be attached to specimen record in Specify.

TASK 3: Georeference

- This task is straightforward georeferencing of our localities following established protocols. All localities undergo this task, although with varying degrees of success dependent on available collection information. Progress is stored on a Master Excel Spreadsheet that will ultimately be used to populate Specify with the generated georeferencing data.

TASK 4: Split Lots / Clone records

- Each fossil will be assigned a catalog number in line with existing IP section protocol.
- The existing lot record will be fully updated in Specify before splitting/cloning to create the individual records.

TASK 5: Image Locality Record

- The paper locality records on hand, to include notes, photographs, and maps, will be scanned and mapped to specimen/locality records in Specify.

TASK 6: Image Specimen

- After lots are broken individual specimens will be imaged and mapped to specimen records in specify. We will utilize an iPad for more general inventory imaging and selected exemplar specimens will be imaged using our Visionary Digital BK imaging system.

Cretaceous World