



Advancing Digitization of  
Biodiversity Collections (ADBC)

## ***2017 Annual Summit***

*Gainesville, Florida  
November 2-3, 2017*

*hosted by*



# Welcome



Dear colleagues,

Welcome to the 7th annual iDigBio-hosted summit for ADBC scientists and students! Again this year, the summit is a large event with an anticipated 130 participants, including those from 20 TCNs, other colleagues working with biodiversity collections data, guests from the NSF, and iDigBio. As in past years, we have a packed agenda of presentations and breakout groups, but we also have plenty of opportunities for networking and discussion. The latter include daily morning and afternoon breaks, lunches, an evening reception at the Florida Museum, and an open meeting space that is available any time of day for small groups to gather and discuss topics of specific interest to them.

The national effort to digitize information in biocollections has been successfully catalyzed by funding from NSF and activities of TCNs and iDigBio. As a community, we have defined digitization priorities, integrated best practices into workflows, provided cyberinfrastructure resources including a search portal, addressed major challenges via working groups, and built collaborations with data providers/users. We have improved digitization practices, increased involvement in digitization and training, and adopted informatics tools that improve the efficiency and scalability of digitization in all types of collections.

In its 7th year, iDigBio is working with staff in more than 500 collections in 336 institutions. We have communicated with our stakeholders to increase access to collections data through workshops, webinars, the iDigBio Spotlight, and social media. During its first 6 years, iDigBio sponsored attendance of 3,700 participants from 550 institutions to 118 workshops that targeted digitization-related topics. iDigBio has ingested 1,636 recordsets (up from 850 a year ago) containing 105 million specimen records and 22 million images and other media (up from 73 million and 17 million a year ago). Because of the way specimens in collections are organized, with some stored individually (e.g., plants on herbarium sheets, birds in drawers), and others stored as “lots” (several specimens of tadpoles in a jar of alcohol, many fossils in a shared matrix), we estimate that an average “specimen record” refers to about 3 specimens. This suggests that the number of specimens represented digitally in iDigBio is close to 315 million.

All data ingested are indexed so that queries and other types of index-based access are supported. Searches can be done through a Web-based graphical interface or through APIs. Search and analytical tools enable users to mine diverse data such as taxonomy, location, images, traits, and vocalizations. As TCNs generate increasingly complete and valuable data, iDigBio is placing a greater emphasis on data improvement and use in research and outreach. ADBC-funded initiatives including iDigBio, TCNs, and PENs have been cited in over 100 publications in 2017 alone, and the number is increasing rapidly — see graph at [idigbio.org/research](http://idigbio.org/research).

Outreach activities developed with TCNs include the creation of education-specific portals and innovative applications using specimen data and images, and educational modules using biodiversity data for K-12 and undergraduate audiences. We also engage directly with the public through online platforms and at events such as WeDigBio.

Our work is continuing, and the results are increasingly visible to the scientific community. Let’s make Summit VII a catalyst for even greater success!

A handwritten signature in black ink that reads "Larry Page". The signature is fluid and cursive, with a long horizontal line extending from the end.

Larry Page, Director  
iDigBio



## Contacts for Questions or Problems

If you encounter logistical issues during the Summit, please contact Project Assistant Cathy Bester at 352.214.5043.

## Wireless Access

Wireless access for onsite iDigBio guests is provided by the University of Florida. All participants will use one of the following wireless networks:

**uf** is for UF faculty, staff, and students only.

Go to [getonline.ufl.edu](http://getonline.ufl.edu) to get connected. Note that you will need your Gatorlink credentials.

**eduroam** allows any user from an eduroam participating site to get network access at any institution connected to eduroam.

Eduroam access is available at the University of Florida and the Gainesville Regional Airport.

**ufvisitor** is for all other participants.

You will be granted access to the Internet once you accept the Acceptable Use Policy.

Note that this service has restrictions (e.g., no VPN, SSH, or MySQL connections).

## Summit Wiki

For the most up-to-date information regarding the Summit agenda, participants, logistics and other items of interest, please visit the event wiki page at: [https://www.idigbio.org/wiki/index.php/ADBC\\_Summit\\_2017](https://www.idigbio.org/wiki/index.php/ADBC_Summit_2017)

## Adobe Connect

To the extent possible, the Summit sessions will be broadcasted and recorded using Adobe Connect. Meeting hosts will monitor the chat to address questions/concerns. To connect, go to

<https://idigbio.adobeconnect.com/summit7> and chose "Enter as Guest", type your first name and surname, then click "Enter Room". For more information: [https://www.idigbio.org/wiki/index.php/Web\\_Conferencing](https://www.idigbio.org/wiki/index.php/Web_Conferencing)

## Meals and Other Activities

We will provide box lunches November 2 and 3 for *registered* participants. **All** participants are invited to a catered reception with heavy hors d'oeuvres and a cash bar at Powell Hall on Thursday from 6:30 - 9:30 pm.

### Florida Museum Reception – Thursday, November 2, 6:30 - 9:30pm

Roland Roberts, NSF Program Director and BIO Centers Science Advisor, will welcome guests followed by a presentation about the Florida Museum's 100-year Anniversary by David Reed, Florida Museum Natural History Chair. Museum exhibits including the celebratory exhibition -- Rare, Beautiful & Fascinating: 100 Years @Florida Museum -- will be open throughout the evening. Heavy hors d'oeuvres and a cash bar will be among the offerings.

### Natural History Seminar at the Harn Chandler Auditorium – Friday, November 3, 4:00 - 5:45pm

Join us for light refreshments and a presentation by Jonathan Hendricks of the Paleontological Research Institute on the *Digital Atlas of Ancient Life*. Co-sponsored by the Florida Museum's Department of Natural History, iDigBio, the FOSSIL Project/myFOSSIL, and the Paleontological Society.



### Social Media

The hashtag for the event is #ADBCSummit.

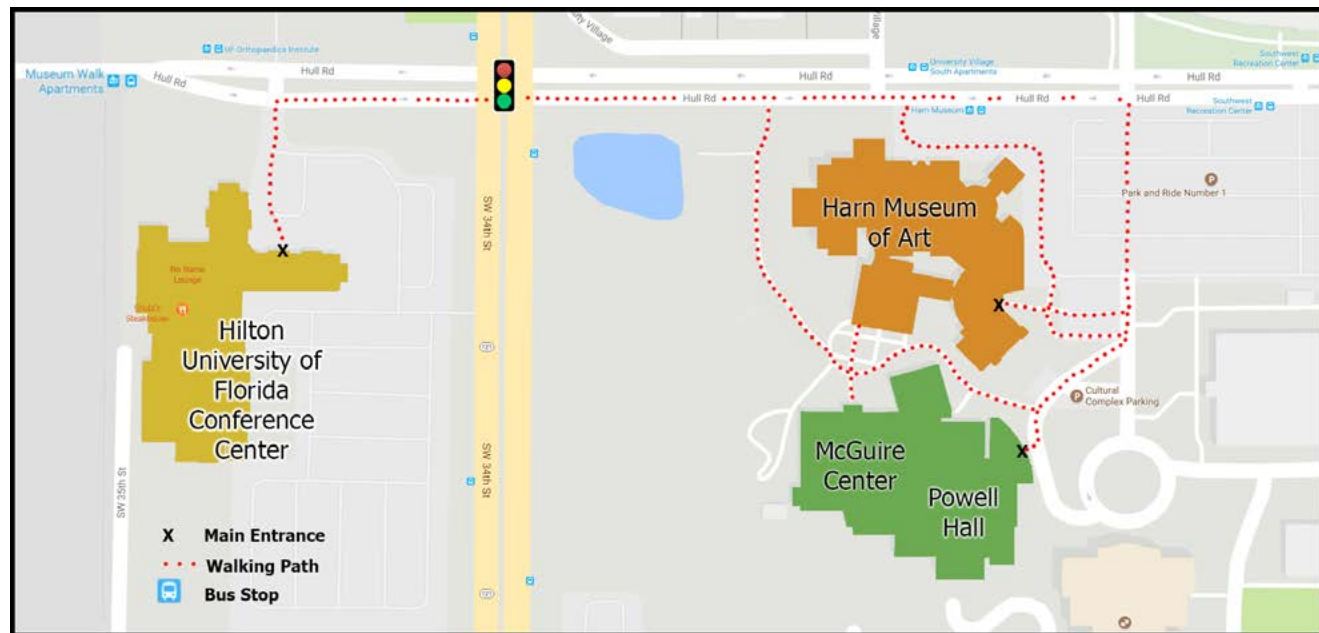
### Ground Transportation

There are bus stops near the Hilton and the museums. Bus routes 20, 21, 117, and 118 will take you to the center of campus (e.g., the collections at Dickinson Hall at the intersection of Museum Road and Newell Drive). Bus routes 117 and 118 are free; 20 and 21 are free with a Gator1 card or \$1.50 without. Real-time bus tracking is available at <https://ufl.transloc.com>.

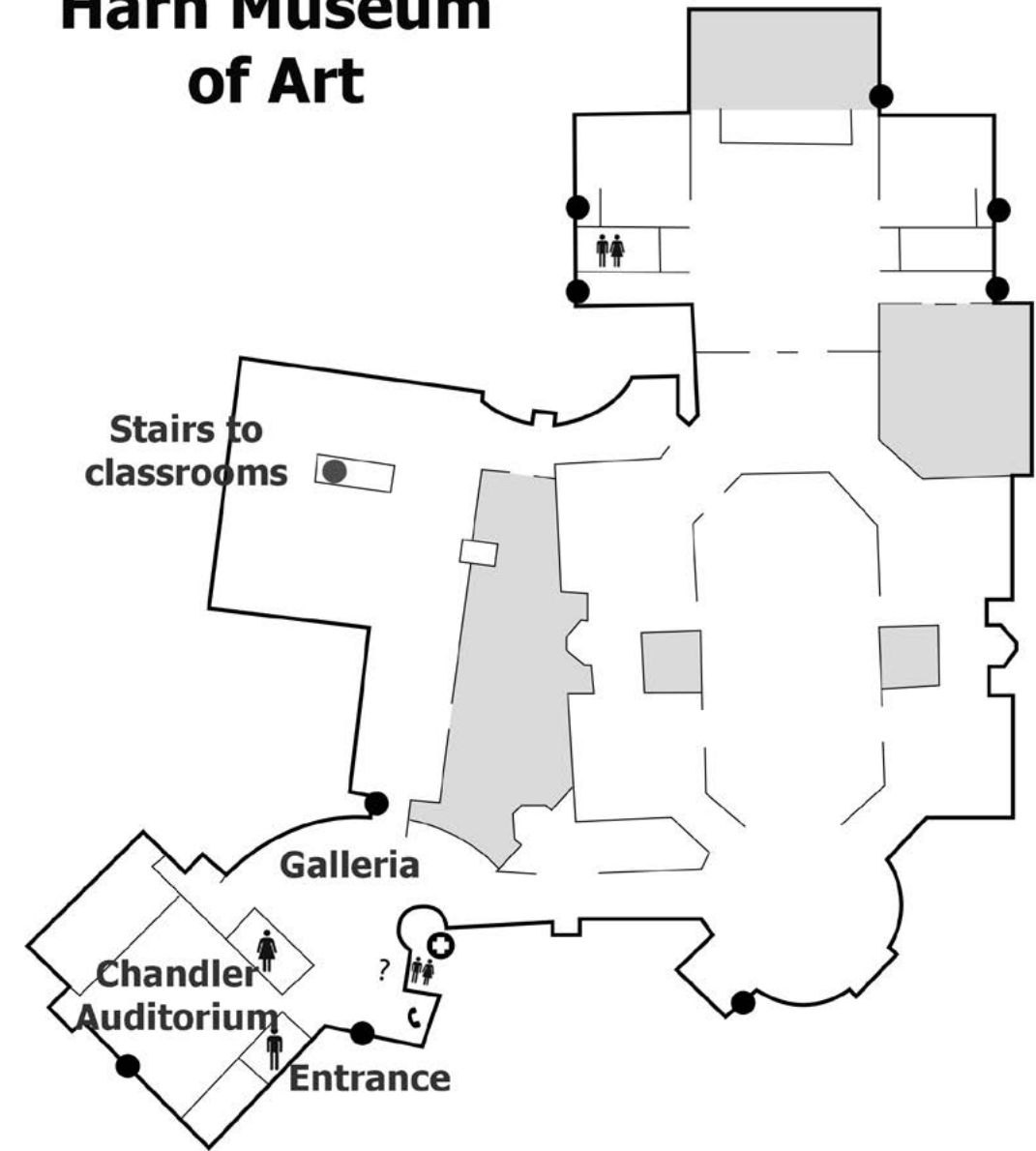
Uber (<https://www.uber.com/cities/gainesville/>) and Lyft (<https://www.lyft.com/cities/gainesville-fl>) are also available in the Gainesville area.

Luxury Cab Service LLC is a highly-rated local taxi service and be may be reached at 352.682.4019.

The Hilton has a shuttle service. If you need assistance getting from the Hilton to the Cultural Plaza, please contact the Hilton front desk at 352.371.3600. The Hilton will provide shuttle service to and from the airport if arranged in advance.



## Harn Museum of Art

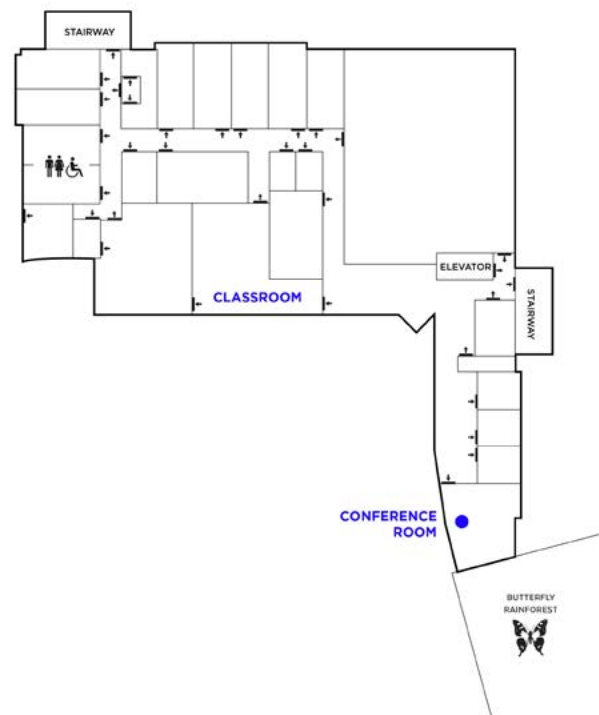




# Powell Hall



# McGuire Center 2nd Floor



Note: Access to the McGuire 2nd floor is restricted. To access, please go to the front desk of Powell Hall or seek assistance from iDigBio staff.

## Wednesday, November 1, 2017

Time	Powell Classroom	McGuire Classroom	McGuire Conference Room
8:00 - 10:00		<b>iDigBio-GBIF Whiteboarding Session on Worldwide Collections-Level Data</b> (closed session)	<b>Open Meeting Space</b>
10:00 - 10:30		Set up	
10:30 - 12:00		<b>Orientation - Welcome to ADBC</b>  Join us for an iDigBio and ADBC orientation session where we will present information-fit-for-use about the following:  <ul style="list-style-type: none"> <li>• What ADBC and iDigBio are about, the acronyms, the scope</li> <li>• How you can fire up your involvement by participating in interest and working groups, community surveys, and useful website content</li> <li>• How to get specimen data to us, the first time and with every update</li> <li>• Ways to interact with us - listservs, meet the staff</li> <li>• Forum for suggestions to make all of this better</li> </ul> Everyone is welcome! Come to learn, to refresh, to meet your fellow digitizers!	
12:00 - 1:00	<b>Lunch on your own</b>		
12:30 - 1:00		Setup	Setup
1:00 - 5:00		<b>oVert TCN Kickoff Meeting</b>	<b>iDigBio External Advisory Board</b> (closed session)
6:30 - 9:30	<b>Informal welcome and meet &amp; greet with iDigBio staff in the No Name Lounge inside the Hilton</b>		
Evening	<b>Dinner on your own</b>		





Thursday November 2, 2017 - Summit Day 1

Time	Harn Galleria	Harn Auditorium	Harn Classroom 1
8:00 - 9:00			
9:00 - 9:30	Check-in Coffee Networking		
9:30 - 9:45		<b>Opening &amp; Welcome</b> - Larry Page	
9:45 - 9:55		<b>Logistics</b> - David Jennings	
9:55 - 10:10		<b>ADBC Program Update</b> - Reed Beaman	
10:10 - 10:20		<b>2017 TCNs</b>	
10:20 - 10:35		<b>2016 TCNS</b>	
10:35 - 10:55	Morning Break	<b>Open Meeting Space</b> (No food allowed)	
10:55 - 11:05		<b>2015 TCNs</b>	
11:05 - 11:20		<b>2014 TCNs</b>	
11:20 - 11:35		<b>2013 TCNs</b>	
11:35 - 11:55		<b>2012 TCNs</b>	
11:55 - 12:10		<b>2011 TCNs</b>	
12:10 - 1:15		<b>Open Meeting Space</b> (No food allowed)	<b>Box lunch provided</b>
1:15 - 2:30		<b>Group Discussion: Data Integration, attribution and interoperability</b> Andy Bentley, Robert Gropp	
2:30 - 3:00		<b>Open Meeting Space</b> (No food allowed)	<b>Afternoon break</b>
3:00 - 4:15		<b>Meeting of the Symbiota Working Group</b> Neil Cobb, Andy Miller	<b>WeDigBio Planning Meeting</b> Austin Mast
4:15 - 4:30		Transition	
4:30 - 5:00		<b>Day 1 Wrap-up</b> - Shari Ellis	
5:00 - 6:30			
6:30 - 9:30	<b>Reception at the Florida Museum</b> Heavy hors d'oeuvres, cash bar Welcome by Roland Roberts, NSF Program Director and BIO Centers Science Advisor Presentation on the museum's 100th Anniversary by David Reed, Chair of the Florida Museum Department of Natural History Museum exhibits open for your enjoyment		



Harn Classroom 2	Powell Classroom	McGuire Classroom	McGuire Conference Room	Time
		<b>Review of iDigBio in Supporting Thematic Collections Networks</b> Neil Cobb		8:00 - 9:00
<b>Box lunch provided</b>			<b>Open Meeting Space</b>	12:10 - 1:15
<b>Afternoon break</b>				2:30 - 3:00
<b>Legal Issues with Collections</b> Linda S. Ford	<b>oVert/MorphoSource Working Group</b> David Blackburn	<b>Meeting of the iDigBio Student Group</b> Adania Flemming	<b>Open Meeting Space</b>	3:00 - 4:15
			<b>iDigBio meeting with NSF</b> (Closed meeting)	5:00 - 6:30



Friday, November 3, 2017 - Summit Day 2

Time	Harn Galleria	Harn Auditorium	Harn Classroom 1
9:00 - 9:20	Check-in Coffee Networking		
9:20 - 9:30	Logistics		
9:30 - 10:10		<b>Demo Camp</b> GUODA/iDigBio JupyterHub Matt Collins	
10:10 - 10:25	Morning Break	<b>Open Meeting Space</b> (No food allowed)	
11:025 - 12:30		<b>Demo Camp continued</b> MorphoSource - Julie Winchester Taxon Works - Matt Yoder OntoPilot - Brian Stucky Index Herbariorum - Barbara Thiers	
12:30 - 1:30		<b>Open Meeting Space</b> (No food allowed)	<b>Box lunch provided</b>
1:30 - 3:15		<b>Building a Local Carpentries Community</b> Matt Collins, Deborah Paul	<b>Broadening Participation &amp; Biodiversity Literacy in Undergraduate Education (BLUE)</b> Anna Monfils, Molly Phillips, Libby Ellwood
3:15 - 3:30		Transition to auditorium for wrap-up	
3:30 - 4:00		<b>Summit Wrap-up</b> Gil Nelson	
4:00 - 5:45	<b>Natural History Seminar at the Harn Chandler Auditorium</b>  "The Digital Atlas of Ancient Life" presented by Jonathan Hendricks Paleontological Research Institution (Ithaca, NY)  Co-sponsored by the FOSSIL Project/myFOSSIL, Paleontological Society, iDigBio, and the Florida Museum's Department of Natural History		



Harn Classroom 2	Powell Classroom	McGuire Classroom	McGuire Conference Room	Time
	<b>Workshop on Collections Data in Ecological and Conservation Research</b> Libby Ellwood, Chrissy Alba...	<b>Changes/ Improvements to the iDigBio portal</b> Richard Garand, Joanna McCaffrey, Shari Ellis	<b>Rapid digitization of in- coming insect material</b> Neil Cobb, Crystal Maier, Jen Zaspel	9:30 - 10:10
	Morning Break	Morning Break	<b>Open meeting space</b>	10:10 - 10:25
	<b>Workshop continued &amp; Deborah Paul, Anna Monfils, Larry Page</b>	<b>iDigPaleo Meeting</b> Talia Karim		10:25 - 12:30
<b>Box lunch provided</b>	<b>Open meeting space</b>	<b>Open meeting space</b>		12:30 - 1:30
<b>iDigBio Office "Hour"</b> Shari Ellis	<b>Specify Meeting</b> Andy Bentley	<b>Open meeting space</b>		1:30 - 3:15
				3:15 - 4:00
				4:00 - 5:45



## Wednesday, November 1, 2017

### Pre-Summit Meetings

Morning		Breakfast (on your own)	
8:00am - 10:00am	<b>DigBio-GBIF Whiteboarding Session on Worldwide Collections-Level Data</b> (closed session)	McGuire Center Classroom	
10:30am - 12:00am	<b>Orientation - Welcome to ADBC by the iDigBio Core Team</b>	McGuireCenter Classroom	
	<p>Join us for an iDigBio and ADBC orientation session where we will present information-fit-for-use about the following:</p> <ul style="list-style-type: none"> <li>• What ADBC and iDigBio are about, the acronyms, the scope</li> <li>• How you can fire up your involvement by participating in interest and working groups, community surveys, and useful website content</li> <li>• How to get specimen data to us, the first time and with every update</li> <li>• Ways to interact with us - listservs, meet the staff</li> <li>• Forum for suggestions to make all of this better</li> </ul> <p>Everyone is welcome! Come to learn, to refresh, to meet your fellow digitizers!</p>		
11:00am - 12:00pm	<b>External Advisory Board Pre-meeting</b> (closed session)	McGuireCenter Conference Room	
12:00am - 1:00 am		Lunch (on your own)	
1:00pm - 5:00pm	<b>oVert TCN Kickoff Meeting</b>	McGuire Classroom and Powell Classroom (for breakouts)	
	<p>oVert PIs and associated team members will discuss short-term and long-term goals related to standardized methods for CT-scanning and data deposition and interactions with both research and educational communities. We will also have breakout groups focused on selection of specimens and taxa, mechanisms for reporting and tracking, methods development, and community outreach and training.</p>		
	<b><u><a href="#">iDigBio External Advisory Board Meeting</a></u></b> (closed session)	McGuir Center Conference Room	
2:00pm - 5:00pm	<b>Collection Tours</b> Information: <a href="https://www.floridamuseum.ufl.edu/collections/">https://www.floridamuseum.ufl.edu/collections/</a> Contact <a href="#">Adania Flemming</a>	Dickinson Hall on the UF Campus	
Evening		Dinner (on your own)	
6:30 - 9:30	<b>Informal meet and greet with iDigBio Staff</b>	Hilton No Name Lounge	



## Thursday, November 2, 2017

### Summit Day 1

Morning		Breakfast (on your own)	
8:00am - 9:00am	<b>Review of iDigBio in Supporting Thematic Collection Networks</b> - Neil Cobb	McGuire Classroom	
	<p>Since 2011, the NSF-ADBC program has funded 20 Thematic Collection Networks (TCNs) and 24 Partners to Existing Networks (PENs). The role of TCNs is to mobilize a community of museums and herbaria to provide specimen related data and media to iDigBio. Additionally, they collaborate with each other and iDigBio to promote the use of digitization products for research and education. As part of its role in advising iDigBio, the iDigBio External Advisory Board (EAB) wants to better understand the relationship between iDigBio and the TCNs in order to assess how iDigBio is meeting community needs.</p> <p>Every year the EAB meets with iDigBio and NSF at the ADBC Summit. For the upcoming 2017 meeting in Gainesville, the EAB would like to meet with TCN leaders to discuss the role of iDigBio in supporting TCN activities. Visit the front desk at Powell Hall or text Neil Cobb at 928-607-4075 for access.</p> <p>Session Notes: <a href="https://goo.gl/mn5z8P">https://goo.gl/mn5z8P</a></p>		
9:00am - 9:30 am		Check-in and coffee	
	<i>Please note: Food and beverages are not permitted in the Chandler auditorium</i>	Harn Galleria	
9:30am - 9:45am	Opening & Welcome	Larry Page	
9:45am - 9:55am	Logistics	David Jennings	
9:55am - 10:10am	ADBC Program Update	Reed Beaman	
10:10am - 10:20am	<b>2017 TCNs</b>		
	<p><u><a href="#">Open Vertebrate (oVert)</a></u> <u><a href="#">Using Herbarium Data to Document Plant Niches in the High Peaks and High Plains of the Southern Rockies (SoRo)</a></u></p>	David Blackburn	
10:20am - 10:35am	<b>2016 TCNs</b> <u><a href="#">Cretaceous World</a></u> <u><a href="#">LepNet</a></u> <u><a href="#">Mid-Atlantic Megalopolis (MAM)</a></u>	Bruce Lieberman Neil Cobb Anne Barber	





## Thursday continued

10:35am - 10:55am	Morning break		Harn Galleria
10:55am - 12:10pm	<b>2015 TCNs - Lightning Talks</b> <a href="#">Microfungi [MiCC]</a> <a href="#">Fossil Marine Invertebrates [EPICC]</a>	Andy Miller Erica Clites	Harn Auditorium
	<b>2014 TCNs</b> <a href="#">Great Lakes Aquatic Invasives [GLI]</a> <a href="#">InvertEBase</a> <a href="#">Key to the Cabinets [SERNEC]</a>	Rich Rabeler Petra Sierwald Michael Denslow	
	<b>2013 TCNs</b> <a href="#">Fossil Insect Collaborative [FIC]</a> <a href="#">Vouchered Animal Communication Signals [VACS]</a> <a href="#">Macroalgal Herbarium Consortium</a>	Talia Karim Mike Webster	
	<b>2012 TCNs</b> <a href="#">New England Vascular Plants [NEVP]</a> <a href="#">Paleoniches</a> <a href="#">Macrofungi Collection Consortium [MaCC]</a> <a href="#">Symbiota Collections of Arthropods Network [SCAN]</a>	Patrick Sweeney Bruce Lieberman Barbara Thiers Neil Cobb	
	<b>2011 TCNs</b> <a href="#">InvertNet</a> Tri-Trophic Associations [TTD] <a href="#">North American Lichens and Bryophytes [LBCC]</a>	Jen Zaspel Tom Nash	
12:10pm - 1:15	Lunch Box lunches provided <i>Please note: No food or beverages are permitted in the auditorium</i>		Harn Classrooms (downstairs)
1:15pm - 2:30pm	<b>Group Discussion: Data Integration, Attribution and Interoperability</b> Andy Bentley, Robert Gropp		Harn Auditorium
	Collections, aggregators, data re-packagers, publishers, researchers, and external user groups form a complex web of data connections and pipelines. This forms the natural history infrastructure essential for collections use by an ever increasing and diverse external user community. We have made great strides in developing the individual actors within this system and we are now well poised to utilize these capabilities to address big picture questions. We need to continue work on the individual aspects, but the focus now needs to be on integration of the functionality provided by the actors involved in the pipeline to facilitate the transfer of data between them with as few human interventions as possible. In order for the system to function efficiently and to the benefit of all parties, information, data, and resources need not only to be integrated efficiently but flow in the reverse direction (attribution) to facilitate collections advocacy and sustainability. For instance, there are benefits to collections from inclusion into aggregators and subsequent use by researchers and publishers that are not being realized. The Biodiversity Collections Network (BCoN) is planning a program of workshops in conjunction with other groups to perform a needs assessment to identify gaps and problems in the data pipeline and explore future steps in coordinating efforts, providing solutions and standardizing tools and methods. This talk will explore this landscape and highlight BCoN's efforts in this regard while soliciting participation from actors in the pipeline and the community at large.		
	Session Notes: <a href="https://goo.gl/zPMfV9">https://goo.gl/zPMfV9</a>		
2:30pm - 3:00pm	Afternoon break <i>Please note: No food or beverages are permitted in the Chandler auditorium</i>		Harn Classrooms (downstairs)

## Thursday continued

3:15pm - 4:15pm	<b>Meeting of the Symbiota Working Group</b> (Neil Cobb, Andy Miller)		Harn Auditorium
	1. The role of Symbiota in the ecosystem of biodiversity informatics platforms (Neil Cobb)		
	2. Symbiota Tools & Restructuring:		
	<ul style="list-style-type: none"> <li>Genetic Linking and new GenBank Sequence Submission Tool (Andy Miller)</li> <li>NfN loader (Herrick Brown &amp; Michael Denslow)</li> <li>CoGe plugin (Herrick Brown and Michael Denslow)</li> <li>iPlant Image Processor (Herrick Brown and Michael Denslow)</li> <li>Skeletal Data Entry (Herrick Brown and Michael Denslow)</li> <li>Symbiota2 – (Ben Brandt)</li> <li>Spatial Module (Ben Brandt) Phenology Tracker (Will Pearse and Ben Brandt)</li> <li>Phylogenetics Module (Will Pearse and Ben Brandt)</li> </ul>		
	3. Extending the functions of Symbiota - Examples:		
	<ul style="list-style-type: none"> <li>FieldGuide Computer Vision– LepSnap, CVBatch &amp; CVWidget (Andre Poremski)</li> <li>Oregon Flora Project – focus on regional management &amp; conservation (Ben Brandt with Linda Hardison virtual)</li> <li>Documenting the Ethnobiology of Mexico and Central America (DEMCA) (Jonathan or Ben Brandt)</li> <li>Education &amp; Outreach (Anne Basham)</li> <li>SeedTrack – From seed to seed: tracking seed types in restoration treatments (Neil Cobb)</li> <li>Education &amp; Outreach (Anne Basham)</li> </ul>		
	4. Areas in Symbiota that need attention (Neil Cobb & Ben Brandt)		
	<ul style="list-style-type: none"> <li>Data entry form, Data search fields</li> <li>Best practices for sharing needs and providing solutions (Neil Cobb)</li> </ul>		
	5. Open Discussion Time permitting		
	Session Notes: <a href="https://goo.gl/wbj7km">https://goo.gl/wbj7km</a>		
	<b>WeDigBio Planning Meeting</b> (Austin Mast and Libby Ellwood)		Harn Classroom 1
	After a brief introduction to the annual Worldwide Engagement for Digitizing Biocollections (WeDigBio) event, participants will brainstorm new innovations for WeDigBio 2018, including the development of a virtual science festival (e.g., on the Sococo platform) and virtual reality collections tours and field experiences.		
	Session Notes: <a href="https://goo.gl/oyhDMW">https://goo.gl/oyhDMW</a>		
	<b>Legal Issues with Collections</b> (Linda S. Ford)		Harn Classroom 2
	As biodiversity collections are increasingly available online, they will be under increasing scrutiny. The Nagoya Protocol – a supplementary agreement to the Convention on Biological Diversity – has important implications for the conduct of U.S. biological collections, especially those whose data are available digitally. Knowledge of the protocol is not widespread among researchers or institutions. This session will discuss legal concerns associated with digitized collections and mitigating these issues using digital means. Compliance with the Nagoya Protocol will be a test case to evaluate how institutions must respond to requirements for increased transparency and digital tracking.		
	Session Notes: <a href="https://goo.gl/B9V6od">https://goo.gl/B9V6od</a>		





**oVert/MorphoSource Working Group** (David Blackburn)

Powell Classroom

Hands-on demonstration of issues related to DOIs, iDigBio integration, etc.

Session Notes: <https://goo.gl/oJZsfB>

**Meeting of the iDigBio student group** (open to all students)

McGuire Classroom

The iDigBio student group plans to write a review paper about use cases of natural history collection data, which will simultaneously summarize resources for using the iDigBio database. We hope to address some of the roadblocks that prevent digital data use and create a repository of codes/methods etc. that can be used and referenced to overcome these issues. In the process of creating the review paper we will in situ highlight the work that iDigBio students, researchers and other users have done thus far, and can do in the future with this rich database. Join us to discuss the process for creating the review paper (including formalizing the iDigBio student group, a discussion of individual responsibilities and deadlines etc.).

**Ad hoc meeting**

McGuire Conference Room

4:15pm - 4:30pm Transition to Harn Auditorium

4:30pm - 5:00 **Day 1 Wrap-up**

Harn Auditorium

5:00pm - 6:30pm **iDigBio/NSF Meeting**  
(closed session)

6:30pm - 9:30pm

**Reception at the Florida Museum**

Powell Hall

Welcome by Roland Roberts,  
NSF Program Director and BIO Centers Science Advisor

Presentation about the [Florida Museum's 100-year Anniversary](#)  
by David Reed,  
Florida Museum Natural History Department Chair

Museum exhibits open for your enjoyment

Heavy hors d'oeuvres, cash bar



Morning	Breakfast (on your own)	
8:00am - 9:00am	Ad hoc meeting	McGuire Conference Room
9:00am - 9:20am	<b>Check-in and coffee</b>	Harn Galleria
9:20am - 9:30am	<b>Logistics</b>	
9:30am - 10:10am	<b>Demo Camp</b> GUODA/iDigBio JupyterHub - Matt Collins	Harn Auditorium
	Session Notes: <a href="https://goo.gl/gQcw1p">https://goo.gl/gQcw1p</a>	
	<b>Workshop on Collections Data in Ecological and Conservation Research</b> (Libby Ellwood, Chrissy Alba, Deborah Paul, Anna Monfils, Larry Page)	Powell Classroom
	The ICER Working Group (Integrating Collections and Ecological Research), along with BCoN, will present a half-day workshop centered around ecologists who incorporate collections data in their scientific research and sharing a potential model program for integrating collections data in conservation efforts. Speakers invited will give talks representing community examples of museum specimen data integrated with other biodiversity data to enhance and inform efforts to address key ecological questions and support conservation efforts.	
	Introduction to ICER (TBD) Predicting phenology, demography and extinction risk due to climate change from ecophysiology and museum records - Barry Sinervo TBD (Jenny McGuire) Questions and Discussion	
	Session Notes: <a href="https://goo.gl/D4oK8Z">https://goo.gl/D4oK8Z</a>	
	<a href="#">ICER Workshop Wiki</a>	
	<b>Changes/Improvements to the iDigBio Portal</b> Richard Garand, Joanna McCaffrey, Shari Ellis	McGuire Classroom
	Overview of the iDigBio Portal with emphasis on use cases, features introduced since last presentation and NSF survey results.	
	Session Notes: <a href="https://goo.gl/hVThKY">https://goo.gl/hVThKY</a>	
	<b>Three Insect Projects</b> (Neil Cobb, Crystal Maier, Jen Zaspel, Catherine Hulshof, Akito Kawahra, Caitlin Chapman)	McGuire Conference Room
	Agenda	
	1. Database Before You Label Protocol 2. Inselect and insect soups (Jen and Neil) 3. Puerto Rico Hurricane support: Developing a reference base for a re-survey of butterflies (Catherine)	



## Friday continued

**Database Before You Label Protocol:** Finalize workflow(s) for rapidly digitizing material from “collecting events”, especially where a large amount of material is brought into the collection from inventories. The workflow is database neutral [Arctos [Derek Sikes], EMu [Crystal Maier], institutional [Chris Marshall], Specify [AndrewShort], Symbiota [Neil Cobb]], it will be scalable from small to large institutions, and it will be cross-phylo functional (e.g., plants/herbaria, insects/museums). Develop strategy to ensure all museums adopt workflow.

**Inselect:** With the newer DSLR cameras that have 50 megapixel capacity it is possible that many museums might be able to use Inselect <https://vimeo.com/160792078> can be used more widely.

**Puerto Rico:** Catherine Hulshof (U. of Puerto Rico) will discuss a Puerto Rican-Caribbean Lepidoptera project to study butterfly (maybe some moths) recovery/recolonization of areas destroyed. We will develop a strategy to have museums digitize their holdings of Puerto Rican/Caribbean butterflies as a good reference data set.

McGuire  
Conference  
Room

10:10am - 10:25am Morning break

Harn  
Auditorium &  
Powell  
Classroom

10:25am - 12:30pm **Demo camp continued**

MorphoSource - Julie Winchester  
Taxon Works - Matt Yoder  
OntoPilot - Brian Stucky  
Index Herbariorum - Barbara Thiers

Harn  
Auditorium

Session Notes: <https://goo.gl/g0cw1p>

**Workshop continued**

Research and management applications of online collection data: a case study of prairie fen biodiversity - Anna Monfils  
The NEON Biorepository: Vision and Status - Dave Tazik  
Preliminary Results on Survey about Reuse of Species Occurrence Data and Use of Web-based Information Systems by Professionals - Elizabeth Martin  
Discussion and Break-out groups

Powell  
Classroom

Session Notes: <https://goo.gl/D4oK8Z>

**iDigPaleo Meeting** - Talia Karim

This session will focus on current and future developments for iDigPaleo and how you can utilize the portal for your education and outreach needs. iDigPaleo was build as a proof of concept E&O portal for the Fossil Insect Collaborative. It currently hosts data for the FIC-TCN and the CW-TCN, with several other projects to be added this fall. Bring your ideas for the future of this portal (including any ideas you might have for a new name!).

Session Notes: <https://goo.gl/JTN4j4>

**Ad hoc meeting**

McGuire  
Conference  
Room

## Friday continued

12:30pm - 1:30pm Lunch Box lunch provided]

Harn  
Classrooms  
(downstairs)

**Building a Local Carpentries Community** - Matt Collins, Deborah Paul

Harn  
Auditorium

The capacity to manage, manipulate, and analyze data is important to modern research programs. Ensuring research staff and students have access to the education and learning opportunities to maintain their development is the role of PIs, program heads, and institutional directors. Peer teaching and learning communities provide a learner-lead environment that is easy to foster and support in parallel with formal structures like academic curricula and professional development. We will describe our experiences at UF and FSU developing a community centered around the Data and Software Carpentry organizations to advance the informatics capacity of our organizations.

Session Notes: <https://goo.gl/XhiGrs>

**Broadening Participation & Biodiversity Literacy in Undergraduate Education** (BLUE) - Anna Monfils, Molly Phillips, Libby Ellwood

Harn  
Classroom

This session is an introduction and invitation to participate in two new initiatives related to biodiversity education: Biodiversity Literacy in Undergraduate Education (BLUE) a newly funded RCN-UBE, and the Broadening Participation in Biodiversity Sciences Working Group. Following a brief presentation on the two project's upcoming activities and opportunities, facilitators will lead participants in a discussion focusing on the following: 1) What core data skills do all undergraduate biology students need to access and interpret data from digital natural history collection archives? 2) What resources are currently available for introductory biology instructors wanting to use collections based digital data in the classroom? and 3) What resources are available to biodiversity scientists seeking to broaden participation of underrepresented groups in the biodiversity sciences.

Session Notes: <https://goo.gl/PBJyWS>

**DigBio Office “Hour”** - Shari Ellis

Harn  
Classroom 2

This session is an open forum to interact with iDigBio staff. Come ask questions and/or brainstorm about other topics related to iDigBio's interaction among ADBC.

Session Notes: <https://goo.gl/6Gnauo>

**Specify Meeting** - Andy Bentley

Powell  
Classroom

Specify software manages species and specimen data for biological research collections with a full suite of software: desktop, web, and iPad applications, as well as cloud-based hosting. With new versions of Specify 6 and 7 having just been released with additional features to support the GGBN data model as well as data publishing, this session will be a drop in session that will include a short status update of Specify, a quick overview of key features, and discussion of our future vision. There will be time for Q & A and help desk problem solving/support and an opportunity to discuss TCN issues with Specify.

Session Notes: <https://goo.gl/QRVrwb>





Friday continued

Ad hoc Meeting		McGuire Classroom
Ad Hoc Meeting		McGuire Conference Room
3:15pm - 3:30pm	Transition to Harn Auditorium	
3:30pm - 4:00pm	Summit Wrap Up - Gil Nelson	Harn Auditorium
	Breakout Summaries: <a href="https://goo.gl/rCgN54">https://goo.gl/rCgN54</a>	
4:00pm - 5:45pm	<p><b>Natural History Seminar</b></p> <p>“The Digital Atlas of Ancient Life” presented by <a href="#">Jonathan Hendricks</a> Paleontological Research Institution (Ithaca, NY)</p> <p>Co-sponsored by the FOSSIL Project/<a href="#">myFOSSIL</a>, Paleontological Society, iDigBio, and the Florida Museum’s Department of Natural History</p>	Harn Chandler Auditorium
Evening	Dinner (on your own)	



[Biodiversity Collections Network \(BCoN\)](#)



[Natural Science Collections Alliance](#)



[Integrated Digitized Biocollections](#)



[oVert TCN: Open Exploration of Vertebrate Diversity in 3D](#)



[SoRo: Using Herbarium Data to Document Plant Niches in the High Peaks and High Plains of the Southern Rockies - Past, Present, and Future](#)



[The Cretaceous World: Digitizing Fossils to Reconstruct Evolving Ecosystems in the Western Interior Seaway](#)



[Lepidoptera of North America Network: Documenting Diversity in the Largest Clade of Herbivores](#)



[The Mid-Atlantic Megalopolis: Achieving A Greater Scientific Understanding of Our Urban World](#)



[The Microfungi Collections Consortium: A Networked Approach to Digitizing Small Fungi with Large Impacts on the Function and Health of Ecosystems](#)



[Documenting Fossil Marine Invertebrate Communities of the Eastern Pacific - Faunal Responses to Environmental Change over the last 66 million years](#)



[Documenting the Occurrence through Space and Time of Aquatic Non-indigenous Fish, Mollusks, Algae, and Plants Threatening North America’s Great Lakes](#)





[InvertEBase: Reaching Back to See the Future: Species-rich Invertebrate Faunas Document Causes and Consequences of Biodiversity Shifts](#)



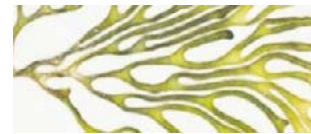
[The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot](#)



[Fossil Insect Collaborative: A Deep-Time Approach to Studying Diversification and Response to Environmental Change](#)



[Developing a Centralized Digital Archive of Vouchered Animal Communication Signals](#)



[The Macroalgal Herbarium Consortium: Accessing 150 Years of Specimen Data to Understand Changes in the Marine/Aquatic Environment](#)



[Mobilizing New England Vascular Plant Specimen Data](#)

[Digital Atlas of Ancient Life](#)

[Digitizing Fossils to Enable New Syntheses in Biogeography - Creating a PALEONICHES](#)



[The Macrofungi Collection Consortium: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs](#)



[Symbiota Collections of Arthropods Network \[SCAN\]: A Model for Collections Digitization to Promote Taxonomic and Ecological Research](#)



[InvertNet: An Integrative Platform for Research on Environmental Change, Species Discovery and Identification](#)



[Plants, Herbivores, and Parasitoids: A Model System for the Study of Tri-trophic Associations](#)

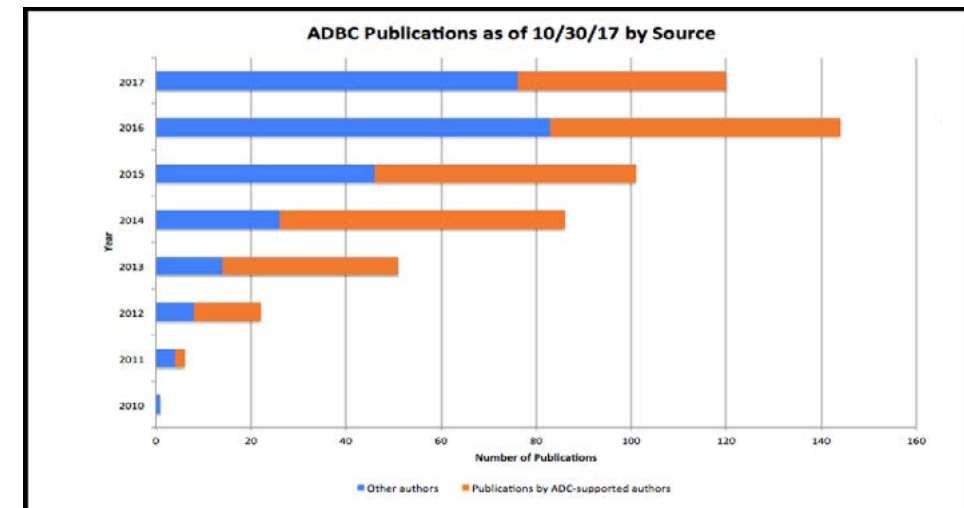
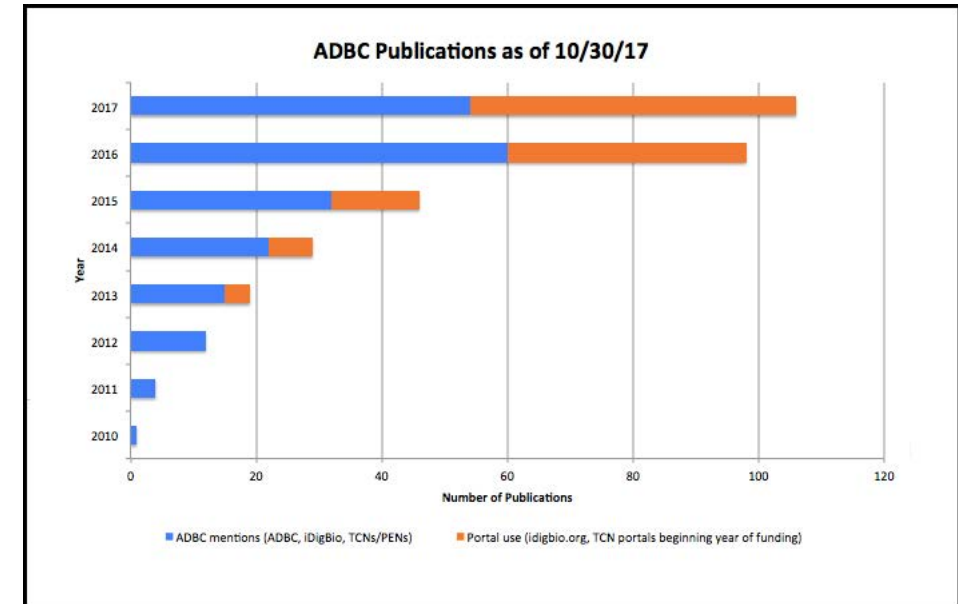


[North American Lichens and Bryophytes - Sensitive Indicators of Environmental Quality and Change](#)



### Publications Resulting from iDigBio Data Use

iDigBio tracks the citation of ADBC, iDigBio and TCNs and the use of data and other resources shared available on the iDigBio portal (idigbio.org) and TCN portals. From 2010 through October 2017, more than 500 publications have resulted from NSF's ADBC program, with 200 publications mentioning the ADBC program, iDigBio, or Thematic Collection Networks, and an additional 100 papers using data or other resources from the portals. The number of publications increases with each year of the ADBC program, and this trend is expected to continue into the next 4 years of NSF-ADBC funding.





## Publications 2016 - 2017

Each of the publications below either mentions ADBC, iDigBio, or one or more TCNs, uses data or resources found on idigbio.org or a TCN portal, or was supported by ADBC funds as indicated by presence of the NSF grant number in the publication and/or was listed on the grantees' NSF award page.

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Abbasi, M., & Aime, M.C. (2016). Records of rust caused by *Tranzschelia mexicana* on black cherry (*Prunus serotina*) in the United States. *Plant Disease*, 100, 523.

Abbasi, M., & Aime, M.C. (2016). Two new *Puccinia* species on *Melica* (Poaceae) from USA. *Mycotaxon*, 131, 247-253.

Abbasi, M., Klimek, J.F., & Aime, M.C. (2016). First report of rust disease caused by *Puccinia liliacearum* on *Ornithogalum umbellatum* from Indiana and Maryland with notes on the spread of the rust fungus in USA, *Plant Disease*, 100, 2169.

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# iDigBio Glossary of Terms

[https://www.idigbio.org/wiki/index.php/Glossary\\_of\\_Terms](https://www.idigbio.org/wiki/index.php/Glossary_of_Terms)

Abbreviation	Long Name	Tag
<a href="#">ACIS</a>	Advanced Computing and Information Systems Laboratory	organization
<a href="#">ADBC</a>	Advancing Digitization of Biodiversity Collections	project
<a href="#">AIM-UP!</a>	Advancing Integration of Museums into Undergraduate Programs	education
<a href="#">ALA</a>	Atlas of Living Australia	data aggregator
<a href="#">API</a>	Application Programming Interface	protocol, software
<a href="#">ARPHA</a>	Authoring, Reviewing, Publishing, Hosting and Archiving	data repository, publishing
<a href="#">BCoN</a>	Biodiversity Collections Network	community
<a href="#">BHL</a>	Biodiversity Heritage Library	literature
<a href="#">BISON</a>	Biodiversity Information Serving Our Nation	data aggregator
CMS	Collections Management System	data management, hardware, software
<a href="#">CONABIO</a>	Comisión Nacional Para el Conocimiento y Uso de la Biodiversidad	data aggregator
<a href="#">CRIA</a>	Centro de Referência em Informação Ambiental	organization
<a href="#">CSIRO</a>	Commonwealth Scientific and Industrial Research Organisation	organization
DAMS	Digital Asset Management Systems	data management, hardware, software
<a href="#">DOI</a>	Digital Object Identifier	identifier
<a href="#">DwC</a>	Darwin Core	standard
<a href="#">EOL</a>	Encyclopedia of Life	data aggregator
<a href="#">ePandda</a>	Enhancing Paleontological and Neontological Data Discovery API	API
<a href="#">GBIF</a>	Global Biodiversity Information Facility	data aggregator, data repository
<a href="#">GRBio</a>	The Global Registry of Biodiversity Repositories	data repository
<a href="#">GUID</a>	Globally Unique Identifier	identifier



Abbreviation	Long Name	Tag
<a href="#">ICBN</a>	International Code on Botanical Nomenclature	nomenclature
<a href="#">ICZN</a>	International Commission on Zoological Nomenclature	nomenclature
<a href="#">IGSN</a>	International Geo Sample Number	identifier
<a href="#">IPT</a>	GBIF Integrated Publishing Toolkit	software
<a href="#">ITIS</a>	Integrated Taxonomic Information System	nomenclature
<a href="#">IUCN</a>	International Union for Conservation of Nature	data aggregator, organization
<a href="#">NEON</a>	National Ecological Observatory Network	data management, data repository, project
<a href="#">NSC Alliance</a>	Natural Science Collections Alliance	community
<a href="#">NSF</a>	National Science Foundation	Federal Agency
<a href="#">OCR</a>	Optical Character Recognition	software
<a href="#">ORCID</a>	Open Researcher and Contributor ID	identifier
<a href="#">PaleoDb</a>	Paleobiology Database	data aggregator
<a href="#">PEN</a>	Partner to Existing Network	ADBC, TCN
<a href="#">RCN</a>	Research Coordination Network	project
<a href="#">SPNHC</a>	Society for the Preservation of Natural History Collections	organization
<a href="#">SYNTHESYS</a>	Synthesis of Systematics Resources	project
<a href="#">TCN</a>	Thematic Collections Network	project
<a href="#">TDWG</a>	Biodiversity Information Standards Taxonomic Database Working Group	organization
<a href="#">USVH</a>	United States Virtual Herbarium project	community, data aggregator
<a href="#">UUID</a>	Universally Unique Identifier	identifier
<a href="#">VertNet</a>	Vertebrate Network	data aggregator
<a href="#">WeDigBio</a>	Worldwide Engagement for Digitizing Biocollections	citizen science, transcription



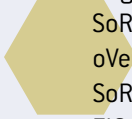
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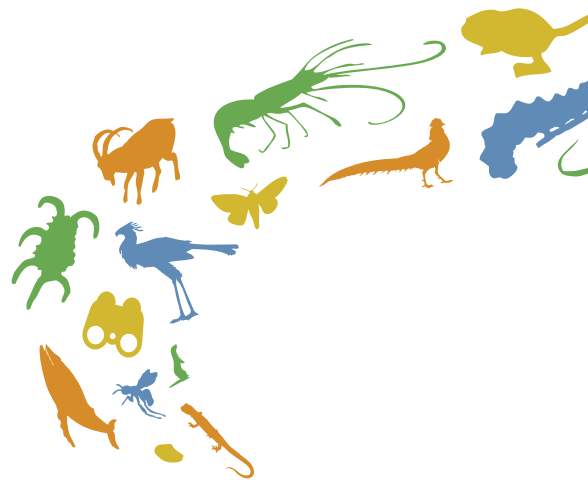
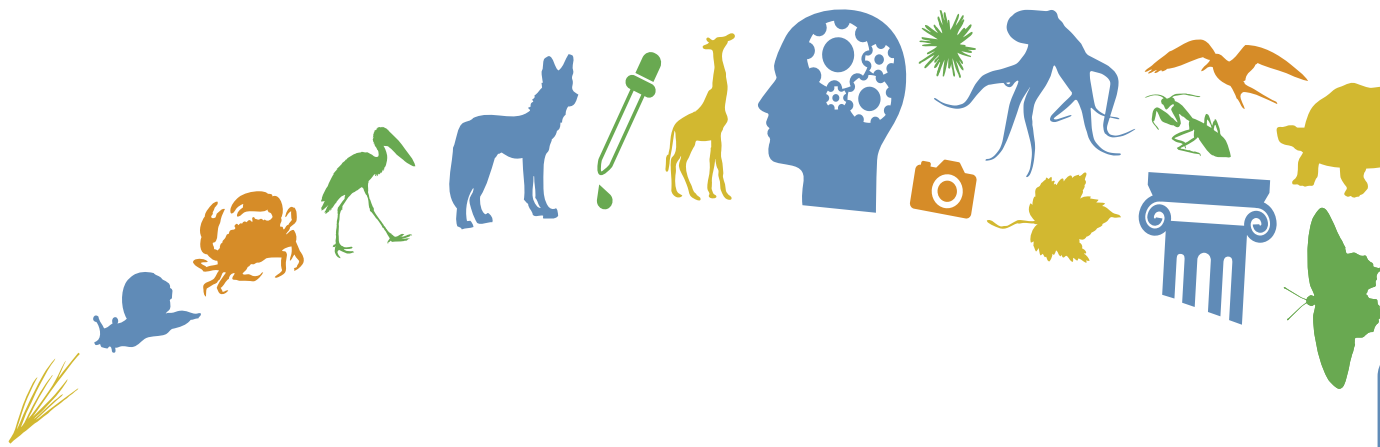
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