Advancing Digitization of
Biodiversity Collections (ADBC)
## *2018 Annual Summit*

*hosted by iDigBio*

Gainesville, Florida
October 1-4, 2018

Dear colleagues,

Welcome to the 8th annual iDigBio-hosted summit for ADBC scientists and students! Again this year, the summit is a large event with an anticipated 140 participants, including those from 21 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 8th year, iDigBio is working with staff in more than 750 collections in 411 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 7 years, iDigBio sponsored attendance of more than 1,200 participants from 325 institutions to 78 workshops and webinars that targeted digitization-related topics. iDigBio has ingested 1,570 recordsets containing 115 million specimen records and 27 million images and other media. 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 345 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, education, and outreach. ADBC-funded initiatives including iDigBio, TCNs, and PENs have been cited in over 300 publications in 2018 alone, and the number is increasing rapidly — see graph at idigbio.org/research.

Education and 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 events such as WeDigBio.

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


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 participants is provided by the University of Florida: https://getonline.ufl.edu

## Summit Wiki

For the most up-to-date information regarding the Summit agenda, session content, participants, logistics, and other items of interest, please visit the event wiki page at: https://www.idigbio.org/wiki/index.php/ADBC_Summit_2018

## Remote Participation

To the extent possible, the Summit sessions will be broadcast and recorded using the University of Florida Mediasite service. If you wish to listen to the meeting remotely, visit the Mediasite catalog here: https://mediasite.video.ufl.edu/Mediasite/Catalog/catalogs/-adbc-summit-2018

## Meals and Other Activities

We will provide lunches October 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 Tuesday from 6:30 - 9:30 pm.

## Florida Museum Reception – Tuesday, October 2, 6:30 - 9:30 pm

Roland Roberts, NSF Program Director and BIO Centers Science Advisor, will welcome guests followed by a presentation about international opportunities for expanding and enhancing our reach by Deborah Paul, Biodiversity Collections Informatics Analyst at iDigBio. Museum exhibits will be open throughout the evening. Heavy hors d'oeuvres and a cash bar will be among the offerings.

## Special Accommodations

Nursing mothers needing accomodations should contact Shari Ellis at sellis@ufl.edu. Individuals who need assistance getting from the Hilton to the Cultural Plaza should contact the Hilton front desk at 352.371.3600.

## Social Media

The hashtag for the event is #ADBCSummit.

## Nearby Restaurants

### Shula's Steakhouse (in the Hilton)
https://www.shulas.com/shulas-steak-house/gainesville/

### Camelia Court Cafe (in the Harn Museum of Art - lunch only; closed Mondays)
http://harn.ufl.edu/visit/cafe

**Metro Dinner (0.3 miles)**
https://metrodiner.com/
2130 SW 34th St.; 352.353.2889

## Ground Transportation

There are bus stops near the Hilton and the museums. Bus routes 20, 21, 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 route 118 is 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 may be reached at 352.682.4019.

The Hilton has a shuttle service and will provide shuttle service to and from the airport if arranged in advance. Please call the Hilton at 352.371.3600.

## Parking Map

**Map of the Hilton and UF Cultural Plaza**

# Powell/McGuire Map



**FLORIDA MUSEUM**™

? Information

♀♂& Restrooms (ADA Accessible)

Baby Changing Station

Water Fountain

S Security Office

$ Front Desk Ticketing

Gift Shop

First Aid

Stairs

N →

RESEARCH FACILITIES
(closed to the public)

VISIBLE COLLECTIONS & LABS

WEST GALLERY

SOUTH FLORIDA PEOPLE & ENVIRONMENTS

FLORIDA FOSSILS EVOLUTION OF LIFE & LAND

**Elevator & stairs to McGuire Classroom & Conference Room**

BUTTERFLY REARING LAB

DISCOVERY ZONE

NORTHWEST FLORIDA WATERWAYS & WILDLIFE

BUTTERFLY RAINFOREST

DESIGN & FABRICATION
(closed to the public)

CHANGING GALLERY 1

DENNY GALLERY

ADMINISTRATION
(closed to the public)

CHILDREN'S

**Powell Classrooms**

COLLECTORS SHOP

COVERED OUTDOOR PICNIC AREA

BICYCLE RACKS

FOSSIL PLANT GARDEN

PLANT SALE

PARKING AREAS

HARN MUSEUM OF ART

MUSEUM ENTRANCE

PHILLIPS CENTER FOR THE PERFORMING ARTS & UF NATURAL AREA TEACHING LABORATORY

CAMELLIA COURT CAFE

BICYCLE RACKS

FLORIDA WILDFLOWER & BUTTERFLY GARDEN

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.

# Harn Museum of Art Map



Water Garden

David A. Cofrin
Asian Art Wing

Korean
Collection

Asian Collection

Lower Level

Elevator

**Classrooms**

Upper Level

Rock
Garden

Contemporary Collection

Asian
Collection

**Stairs to
Classrooms**

Poetic and Political

Modern
Collection

Bishop
Gallery

Elevator

Exhibition
Hall

**Mary Ann Cofrin
Harn Pavillion**

Garden

Emergency
Exits

Photography
Collection

African
Collection

Bishop Study
Center

**Galleria**

Rotunda

**Chandler
Auditorium**

# Monday, October 1, 2018 - Orientation and PreSummit Meetings

| Time | McGuire Classroom | | | |
|------|-------------------|---|---|---|
| 9:00- 11:00 | **Orientation - Welcome to ADBC**<br><br>Join us for an iDigBio and ADBC orientation session where we will present information-fit-for-use about the following:<br><br>• What ADBC and iDigBio are about, the acronyms, the scope<br>• How you can fire up your involvement by participating in interest and working groups, community surveys, and useful website content<br>• How to get specimen data to us, the first time and with every update<br>• Ways to interact with us - listservs, meet the staff<br>• Forum for suggestions to make all of this better<br><br>Everyone is welcome! Come to learn, to refresh, to meet your fellow digitizers!<br><br>To view/dowload the slides, visit https://www.idigbio.org/wiki/index.php/ADBC_Summit_2018 | | | |
| 11:00 - 1:00 | **Lunch on your own** | | | |
| | Powell Classroom Front | Powell Classroom Middle | McGuire Classroom | McGuire Conference Room |
| 1:00 - 3:00 | **Endless Forms TCN Kickoff Meeting** | **Pteridological Collections Consortium TCN Kickoff Meeting** | **California Phenology TCN Kickoff Meeting** | **iDigBio External Advisory Board**<br>**1:00 - 1:30**<br>EAB pre-meeting<br>**1:30 - 3:00**<br>EAB meeting with iDigBio<br>(closed session) |
| 3:00 - 3:30 | **Break (refreshments provided) Powell Classroom** | | | |
| 3:30 - 5:00 | **Endless Forms Kickoff con't.** | **Pteridological Collections Consortium con't.** | **California Phenology con't.** | **EAB Working Time** |
| 6:30 - 9:30 | **Informal welcome and meet and greet with iDigBio staff and other colleagues in the *No Name Lounge* inside the Hilton** | | | |
| Evening | **Dinner on your own** | | | |

## Tuesday, October 2, 2018 - Summit Day 1

Details and slides available on the Summit wiki: https://www.idigbio.org/wiki/index.php/ADBC_Summit_2018

| Time | Harn Galleria | Harn Auditorium |
|---|---|---|
| 8:15 - 9:00 | Check-in Coffee | **Open Meeting Space** *(No drinks/food allowed)* |
| 9:00 - 9:15 | | **Opening & Welcome** - Larry Page |
| 9:15 - 9:30 | | **Logistics** - David Jennings |
| 9:30 - 9:45 | | **ADBC Program Update** - Reed Beaman |
| 9:45 - 10:30 | | **Meet the New TCNs!**<br>• California Phenology - Jenn Yost<br>• Pteridological Collections Consortium - Carl Rothfels<br>• Endless Forms - Matthew Pace |
| 10:30 - 11:00 | Morning Break | **Open Meeting Space** *(No drinks/food allowed)* |
| 11:00 - 12:00 | | **TCN Updates**<br><br>• Creataceous World and Paleoniches - Bruce Lieberman<br>• Fossil Insect Collaborative - Erica Krimmel<br>• SCAN and LepNet - Neil Cobb<br>• Fossil Marine Invertebrates (EPICC) TCN - Pat Holroyd<br>• InvertEBase - Rüdiger Bieler |
| 12:00 - 1:00 | **Group Photo (location TBD weather pending)** **Buffet Luncheon - Powell Hall Classroom** | |
| 1:00 - 2:10 | | **TCN Updates continued**<br><br>• Microfungi Collections Consortium  - Andrew Miller<br>• Macroalgael Collections Consortium  - Chris Neefus<br>• SERNEC - Zack Murrell<br>• Mid-Atlantic Megalopolis (MAM) - Cindy Skema<br>• Southern Rockies (SoRo)  - Erin Tripp<br>• Great Lakes Invasives - Ken Cameron<br>• oVert - David Blackburn |
| 2:10 - 2:40 | | Panel Discussion with Representatives of Retired TCNs - Rich Rabeler Notes |
| 2:40 - 3:10 | Afternoon Break | **Open Meeting Space** *(No drinks/food allowed)* |
| 3:10 - 4:00 | | **Group Discussion** Notes<br>Harnessing Natural History Collections Data for Addressing Form<br>National Challenges - Barbara Thiers |
| 4:00 - 4:30 | | **Day 1 Wrap-up** - Shari Ellis |
| 6:30 - 9:30 | **Reception at the Florida Museum**<br>Heavy hors d'oeuvres, cash bar, museum exhibits open for your enjoyment<br>Welcome by Roland Roberts, NSF Program Director and BIO Centers Science Advisor<br>Presentation on International Opportunities for Expanding & Enhancing Our Reach, Deb Paul | |

# Wednesday, October 3 - Summit Day 2

Session descriptions, slides, and notes available at https://www.idigbio.org/wiki/index.php/ADBC_Summit_2018

| Time | Harn Galleria | Harn Auditorium | Powell Clasroom |
|---|---|---|---|
| 8:15 - 8:45 | **Check-in Coffee** | **Open Meeting Space** *(No drinks/food allowed)* | **Informal Open Session Biotic Associations**<br><br>Notes<br>*The primary purpose of the meeting is to discuss how existing species interaction datasets are structured and how to increase our ability to generate aggregate datasets and examine networks of interactions. The ADBC program has promoted the mobilization of tens of millions of specimen-level data in natural history collections in the United States and many of these datasets contain rich species interaction data. During the first meeting Jorrit Poelen (Global Biotic Interactions, GloBI) and Katja Seltmann (UC Santa Barbara, Parasite Tracker) will present a recent Vampire Moth (Calyptra) interaction data use case, setting the stage for open discussion that will likely carry through the second meeting. We encourage participants to submit interaction datasets before the meeting so that they can be discussed as use cases. You can describe, point to, or share, your datasets by opening a new issue via https://tinyurl.com/shareInteractionData . You can also see how GitHub issues are used to openly discuss how to share specific existing biotic association datasets.* |
| 8:45 - 10: 20 | | **Plenary Session**<br>• Logistics - David Jennings<br>• GBIO, GBIC2, and GBIF - Donald Hobern<br>• Activities at the Atlas of Living Australia - Hamish Holewa<br>• Sustaining the ADBC Initiative - Gil Nelson<br>• UF/FLMNH Commitment to the Sustainability of iDigBio - Doug Jones | |
| 10:20 - 10:45 | **Morning Break** | **Open Meeting Space** *(No drinks/food allowed)* | **Biotic Associations con't.**<br>Notes |

# Wednesday, October 3 - Summit Day 2

Session descriptions, slides, and notes available at

| Time | | Concurrent Sessions I | | | | |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | Harn Galleria | Harn Auditorium | Harn Classroom 1 | Harn Classroom 2 | Powell Classroom | McGuire Classroom |
| 10:45 - 12:00 | | **Demos & Innovations** Matt Collins <br><br> Notes <br><br> *PhyloLink* Joe Miller <br><br> *Light Box Design* Cindy Skema <br><br> *iDigBio API* Richard Garand | **Symbiota2** Neil Cobb <br><br> *This first session will cover upcoming software developments and outreach plans for the Symbiota NSF-ABI project.* <br><br> Notes <br><br> *Symbiota - Part 1* Curtis Dyreson <br><br> *Symbiota - Part 2* Ben Brandt <br><br> *Phylogeny and Phenology Plugin* Will Pearse <br><br> *Mobilizing data in developing countries* Mary Barkworth <br><br> *Technical Support and Outreach* Neil Cobb & Lindsie McCabe <br><br> *Fieldguide* Andre Poremski | **Specify Collections Consortium** Jim Beach Norine Spears <br><br> *The Successful Creation of Specify Collections Consortium (SCC)* <br><br> Notes <br><br> *SCC Vision: Mobilizing Collections Data with Collaborative, Open Source Software SCC as a Sustainable Non-Profit for the Long Run – Organizational Model* <br><br> *Founding Member Perspectives--in Their Own Words* <br><br> *Board of Directors – Members and Roles Research and Technical Committees* <br><br> *Members and Roles Key Roles of Technical Liaisons* <br><br> *SCC Current Technical Collaborations, U.S. and International International Engagement and Recognition* <br><br> *Q&A* | **Communicating Biodiversity Science in Popular and Social Media** Natazsa Fontaine Austin Mast <br><br> Notes <br><br> *Panelists (David Blackburn, Robert Gropp, Barbara Thiers, Erin Tripp, Natalie van Hoose, and Matt von Konrat) will address questions regarding (1) personal goals for communicating biodiversity science in popular and/or social media, (2) metrics with which to measure successful attainment of those goals, (3) community prioritization of this form of science communication, (4) factors (e.g., strategies and partners) critical to success in this area, and (5) impediments to success. Other participants in the breakout will be encouraged to pose follow-up questions or share from their own experience.* | **Building Institutional Synergy** Kevin Love Deborah Paul Larry Page <br><br> Notes <br><br> *Data mobilization doesn't (have to) stop when digitization is complete or grant funds have been exhausted. In this discussion group, we will explore how efforts, like a local digitization committee or leveraging institutional resources and policy, can inspire data mobilization across your collaborators' institutions.* |
| 12:00 - 1:00 | **Box Lunch Provided Harn Classrooms** | | | | | |

# Wednesday, October 3 - Summit Day 2

Session descriptions, slides, and notes available at

| Time | Harn Galleria | Concurrent Sessions II | | | | |
|---|---|---|---|---|---|---|
| | | Harn Auditorium | Harn Classroom 1 | Harn Classroom 2 | Powell Classroom | McGuire Classroom |
| 1:00 - 2:15 | | **Demos & Innovations con't.**<br><br>**Notes**<br><br>*ADBC Education Resources*<br>Molly Phillips<br><br>*WeDigBio*<br>Austin Mast<br><br>*BiotaPhy web platform*<br>Ryan Folk<br><br>*Analytical tools*<br>Anthony Melton<br>Shelly Graynor | **Symbiota2 con't.**<br><br>**Notes**<br><br>*This second session will feature presentations on new efforts to expand TCN portals and the creation of synthetic Symbiota portals. It will also include new developments for projects that integrate with Symbiota (e.g., GeoLocate).*<br><br>*Biotic Associations: GLoBI*<br>Jorrit Poelen<br><br>*PhyloLink*<br>Joe Miller<br><br>*Geolocate*<br>Nelson Rios<br><br>*GenBank linkage*<br>Andrew Miller<br><br>*Creating a multi-phyla Symbiota portal for U of Wisconsin collections*<br>Laura Prado<br><br>*Developing a Global Mycology Portal*<br>Scott Bates | **Specify con't.**<br><br>**Notes**<br><br>*SCC Technology and Services, Near Term Road Map*<br><br>*Specify's Evolving Capabilities, Supporting Collaborative Computing*<br><br>*Future User Requirements-- Discussion and Feedback*<br><br>*Wrap Up and Next Steps for the Consortium* | **Communicating with Administrators**<br>Gil Nelson, David Jennings, Barbara Thiers, Bruce MacFadden<br>**Notes**<br>*Keeping administrators abreast of your collection's activities and its importance to your institution's mission is critical to ensuring long-term support and positive internal relations. Knowing which metrics count and how best to express them as well as how to open and maintain avenues for positive communications with the administrative team is essential. This session will begin with brief opening remarks before transitioning into open discussion and sharing of successful techniques and strategies. We are pleased that Barbara Thiers and Bruce MacFadden, both with deep experience working with administrators at several levels, have agreed to join us as co-moderators.* | **Innovation & Unconference**<br>Deborah Paul<br><br>**Notes**<br><br>*Bring your inspirations from recent experiences, conversations. and presentations at ADBC Summit 8 to this breakout. We will gather ideas and find others with innovative ideas and expertise to share. An unconference gives you the chance to design your own breakout and bring timely topics that are on your mind - to a larger group.* |
| 2:15 - 2:45 | **Afternoon Break** | | | | **Afternoon Break** | |

# Wednesday, October 3 - Summit Day 2

Session descriptions, slides, and notes available at https://www.idigbio.org/wiki/index.php/ADBC_Summit_2018

| Time | | Concurrent Sessions III | | | |
|---|---|---|---|---|---|
| | Harn Galleria | Harn Auditorium | Harn Classroom 1 | Harn Classroom 2 | Powell Classroom |
| 2:45 - 4:00 | | **Broadening Partici-pation**<br><br>Kari Jordan<br>Molly Phillips<br><br>Notes<br><br>*What must be done to make you feel that your work is engaging, and you're part of a community? If you are looking for concrete, evidence-based ap-proaches to community building and broadening participation, this ses-sion is for you. We will cover simple strategies to gather baseline met-rics and assess out-reach and engagement, all for the purposes of recruiting, retaining, and broadening participation of communities under-served in Biology, Muse-um Collection, Geology, IT, Bioinformatics, and other STEM disciplines. You don't want to miss it! metadata.* | **Georeferencing tools and practical considerations from two TCN projects**<br>Andrew Miller<br>Michael Denslow<br>Notes<br>*We will discuss aspects of georeferencing as it relates to TCNs. Topics will include collaborative georeferencing, error rates, and tools for working with georeferenced museumBrief Introduction*<br><br>*Error rates in batch georeferencing: an example from Illinois Andrew Miller*<br><br>*Building collaborative georeferencing communities: an example from Univ. of S.Carolina Herrick Brown An example of "first pass" georeferencing from the SERNEC TCN Nelson Rios*<br><br>*Tools for visualizing georeferenced metadata  Michael Denslow*<br><br>*Discussion* | **Data Quality Feedback**<br>Richard Garand<br>Deborah Paul<br><br>Notes<br>*Quality data is essential as a foundation for analytical, synthetic, and AI research. Anyone providing data to an aggregator or downloading data from an aggregator can make use of the data quality feedback offered. implementation plans. If you use this information, we would like to hear about how you use it (or not) and ways in which all of us can work on improving data quality (dq). From researcher, policy maker, graduate student, collection manager, curator, educator, and museum director, we all have a role to play. We also plan to share some of what we learned from a recent survey and symposium at SPNHC-TDWGNZ -- on this topic. And, we'll share some ideas for possible future changes to dq feedback from iDigBio as well as recent progress from the TDWG Data Quality Interest Group and iDigBio implementation plans.* | **Challenges in Research Use of Data**<br>Bruce Lieberman<br>Matt Collins<br>Pam Soltis<br><br>Notes<br><br>*We now have millions of digitized specimen records available for use in research, education, and other applications. Yet researchers face many challenges as they attempt to use these data. In this session, we will discuss ongoing challenges of data completeness, data quality, and fitness for use and possible solutions. We will also explore novel data types extracted from digitized specimen records – whether text or images – and consider community needs for effective use of these data in research.* |
| 4:00 - 4:10 | | **Transition to Harn Auditorium** | | | |
| | | **Summit Wrap Up**<br>**David Jennings** | | | |

## Thursday, October 4, 2018 -- Optional Post-Summit Activities

### Field Trip to Sweetwater Wetlands Park

iDigBio is hosting a field trip to Sweetwater Wetlands Park. The park, which consists of more than 125 acres of wetlands and ponds, was created to improve the water quality of wetlands in Paynes Prairie and the Floridan Aquifer. Now a thriving habitat, Sweetwater Wetlands Park is filled with vast numbers of plants and animals, including birds, butterflies, alligators and Florida cracker horses.

At the park, you can walk more than 3.5 miles of crushed gravel trails and boardwalks, experience the lush landscape from viewing platforms, and learn about the habitat through educational signs and tours.

If you are interested and have not yet registered, please contact Cathy Bester at cbester@flmnh.ufl.edu.

Transportation to the park will leave from the Hilton Lobby at 8 am, returning 11 am. Ground  transport from the park directly to airport can be arranged as needed.

 http://www.sweetwaterwetlands.org/


### Florida Museum of Natural History Collection Tours

Contact Randy Singer at rsinger@flmnh.ufl.edu if you are interested in visiting the collections.

https://www.floridamuseum.ufl.edu/collections/


### Self-Guided Activities

Florida Museum: https://www.floridamuseum.ufl.edu/
Harn Museum of Art: http://www.harn.ufl.edu/
Natural Area Teaching Laboratory: http://natl.ifas.ufl.edu/
Lake Alice Conservation Area: https://soils.ifas.ufl.edu/campuswaterquality/pdf/Lake-Alice-kiosk_v5.pdf

# we are neutral

iDigBio has taken responsibility for the environmental impact of this conference by offsetting their carbon footprint with We Are Neutral.

If you'd like to know more about your carbon footprint, please email info@weareneutral.com or visit our website at www.weareneutral.com.

**iDigBio**
Integrated Digitized Biocollections

---

# we are neutral

09/25/18
iDigBio ADBC Summit 2018
Gainesville, FL 32611
Attn : Molly Phillips

**Harn Museum of Art**

| | | |
|---|---|---|
| Electricity: | 10,308.43 kWh | = 6.44 tCO2e |
| Water: | 19.19 kGal | = 0.03 tCO2e |
| Waste Water: | 19.19 kGal | = 0.04 tCO2e |
| Chilled Water: | 8.53 kTon | = 5.81 tCO2e |
| Natural Gas: | 1,138.29 Therms | = 6.04 tCO2e |

**Florida Museum of Natural History**

| | | |
|---|---|---|
| Electricity: | 10,270.24 kWh | = 6.42 tCO2e |
| Chilled Water: | 6.96 kTon | = 4.74 tCO2e |
| Natural Gas: | 486.96 Therms | = 2.58 tCO2e |

| | | |
|---|---|---|
| **Travel** | 275,391.62 miles | = 43.58 tCO2e |

---

| | |
|---|---|
| **Total:** | **= 75.68 tCO2e** |

**Annual Carbon Emissions in Tons of CO2e**



Legend:
- Harn Museum of Art
- Florida Museum of Natural History
- Travel

Categories: Electricity, Water, Waste Water, Natural Gas, Chilled Water, Travel
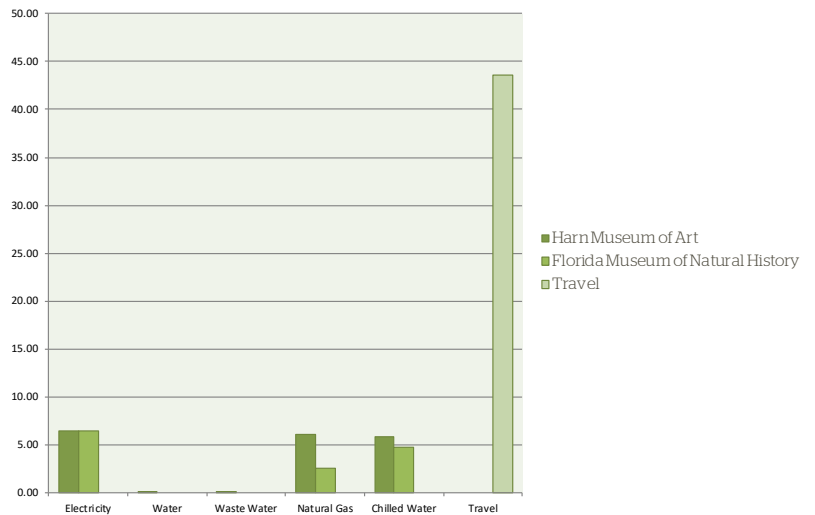
**Offsetting 75.68 tons of CO2e per year is equivalent to:**
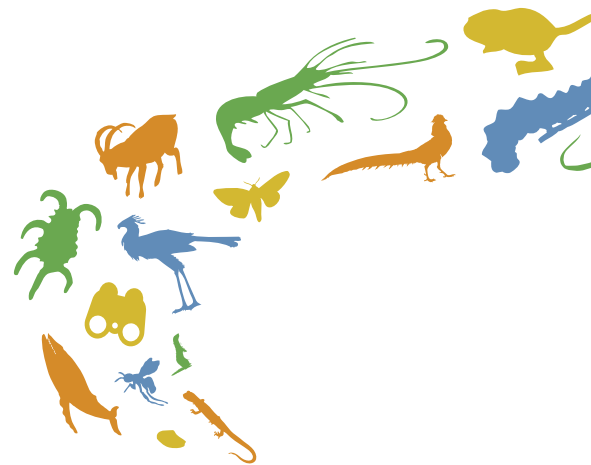
**16.20** vehicles taken off the road

**2,533** incandescents switched to LEDs

**1,961** tree saplings grown for 10 years

*Values sourced from the EPA's Greenhouse Gas Equivalencies Calculator