# iDigBio

## Integrated Digitized Biocollections

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

iDigBio
Integrated Digitized Biocollections

Small Collections Network

Serving, Supporting, Connecting Small Natural History Collections

# Mobilizing Dark Data:
## Raising the Profiles of Small Natural History Collections

**Entomological Collections Network**
**Annual Meeting**
**Portland, Oregon**
**15 November 2014**


**Gil Nelson**
**gnelson@bio.fsu.edu**
**iDigBio**
**Florida State University**

**Christy Bills**
**Invertebrates Collection Manager**
**Natural History Museum of Utah**
**University of Utah**



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

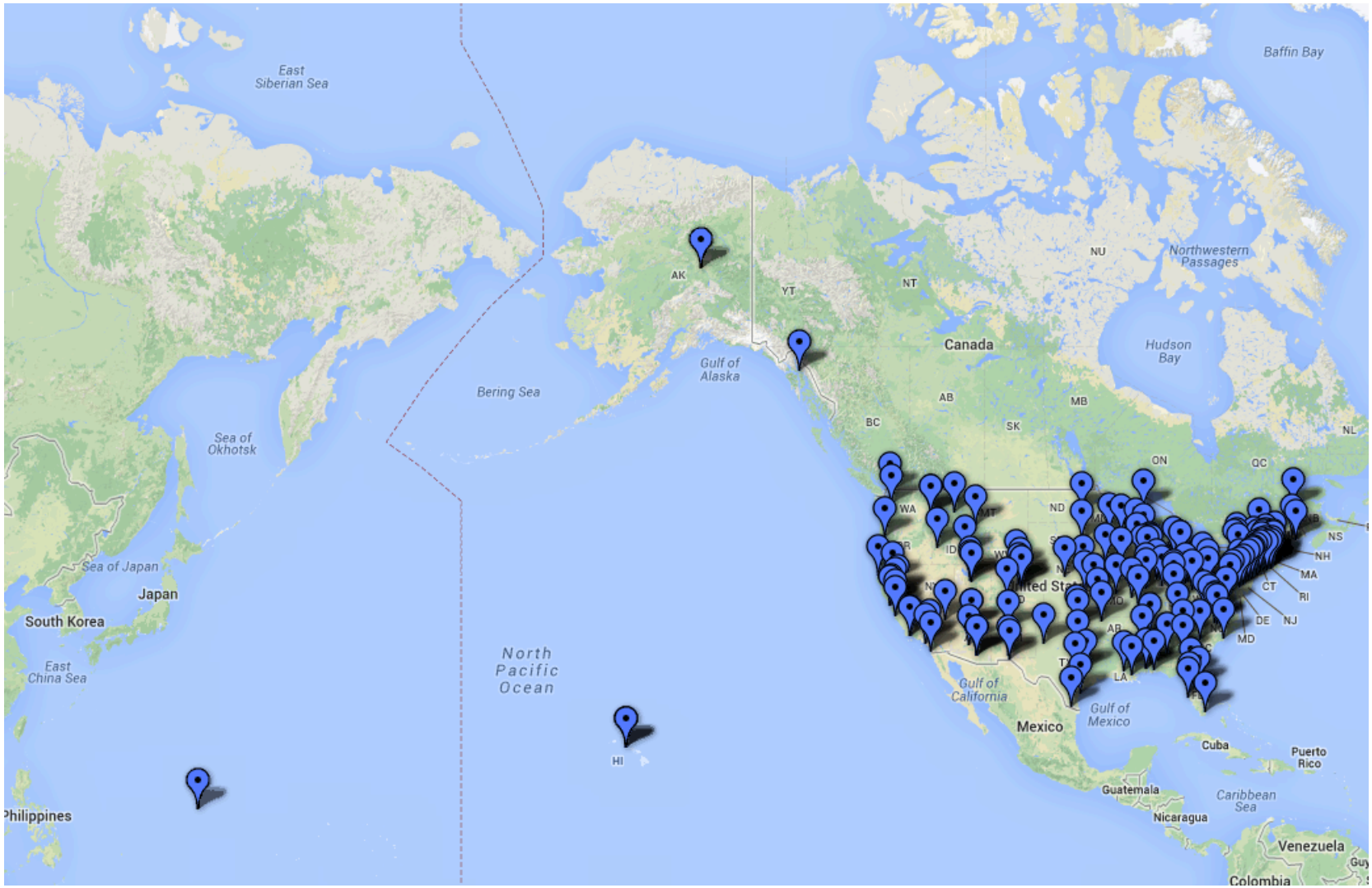
## Advancing the Digitization of Biodiversity Collections

In an effort to make biodiversity collections universally accessible to taxonomists, ecologists, and researchers, and raise their profile for the general public, in 2011 the U.S. National Science Foundation launched the $100 million, 10-year ADBC program and named iDigBio—a collaboration between the University of Florida and Florida State University—as its national coordinating center, with the express purpose of facilitating digitization and data mobilization in public, non-federal U.S. collections.

# Thirteen Thematic Collections Networks (TCNs) plus 10 Partner to Existing Networks (PENs)

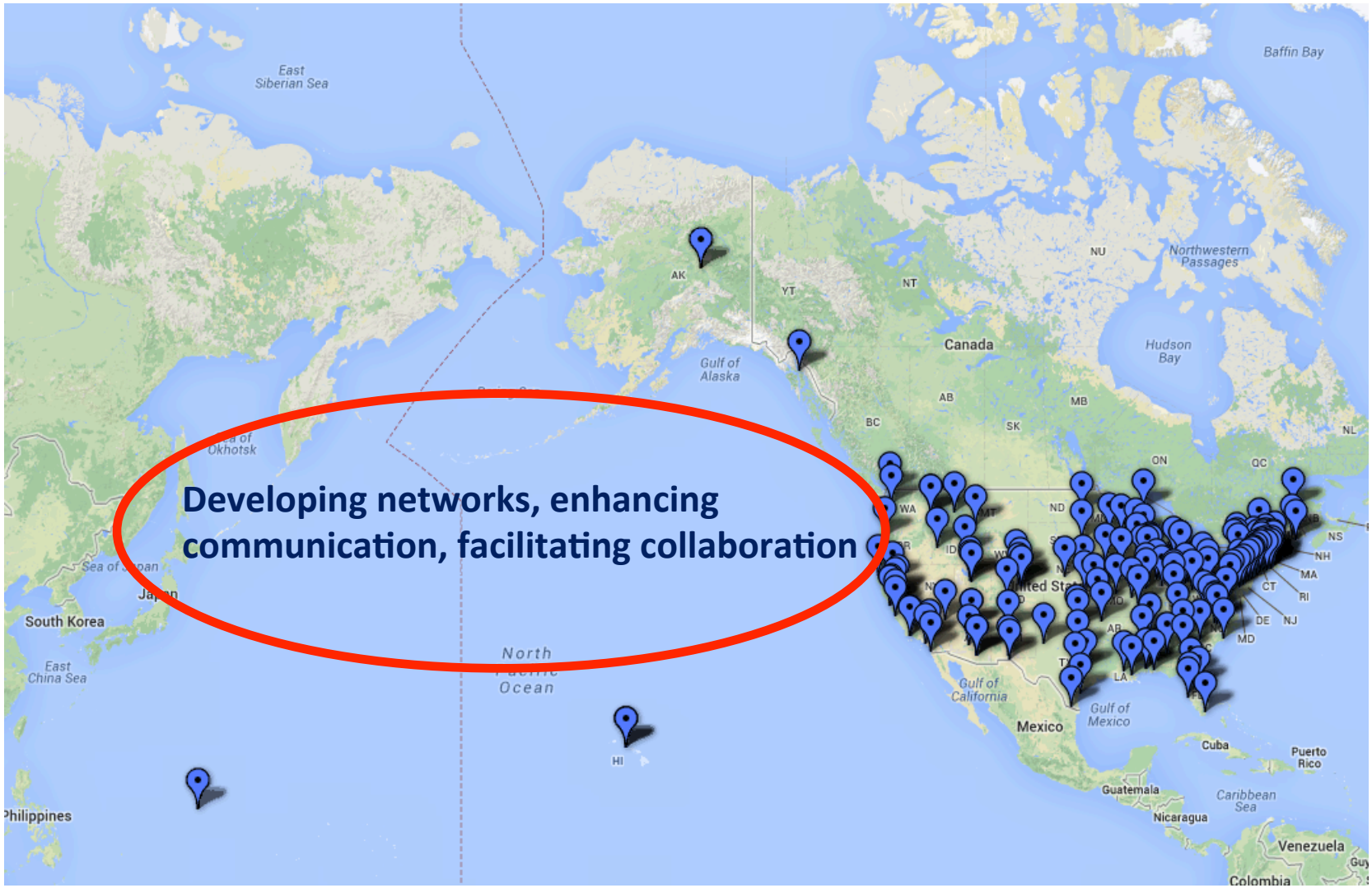
- **InvertNet: An Integrative Platform for Research on Environmental Change, Species Discovery and Identification (*Illinois Natural History Survey, University of Illinois*)**
- **Plants, Herbivores, and Parasitoids: A Model System for the Study of Tri-Trophic Associations (*American Museum of Natural History*)**
- North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change (*University of Wisconsin – Madison*)
- Digitizing Fossils to Enable New Syntheses in Biogeography - Creating a PALEONICHES-TCN (*University of Kansas*)
- The Macrofungi Collection Consortium: Unlocking a Biodiversity Resource for Understanding Biotic Interactions, Nutrient Cycling and Human Affairs (*New York Botanical Garden*)
- Mobilizing New England Vascular Plant Specimen Data to Track Environmental Change (*Yale University*)
- **Southwest Collections of Anthropods Network (SCAN): A Model for Collections Digitization to Promote Taxonomic and Ecological Research (*Northern Arizona University*)**
- **iDigPaleo: 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
- Collaborative: Documenting the Occurrence through Space & Time of Aquatic Non-indigenous Fish, Mollusks, Algae, & Plants Threatening North America's Great Lakes
- Collaborative Research: The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot
- **InvertEBase: reaching back to see the future: species-rich invertebrate faunas document causes and consequences of biodiversity shifts**

# Advancing Digitization of Biodiversity Collections (ADBC)




**To date: 13 TCNs, 10 PENS, 203 unique institutions, 50 states**

# Advancing Digitization of Biodiversity Collections (ADBC)




**To date: 13 TCNs, 10 PENS, 203 unique institutions, 50 states**

# Mobilizing Dark Data

In an early press release announcing the first round of Advancing the Digitization of Biodiversity Collections (ADBC) awards (July 8, 2011), the National Science Foundation (NSF) several times referenced the importance of what it called "**dark data**"—data that are essentially inaccessible to most biologists, policy-makers, and the general public.

**The darkest of these "dark data" may well be locked up in small collections that lack sufficient resources to mobilize them for broad use.**

**Tall Timbers Research Station**
**Lucien Harris**
**Butterflies of Georgia**
**Lepidoptera Collection**


# Small Collections Network

Serving, Supporting, Connecting Small Natural History Collections

Search

## Quick Links

- Add content
- Blogs and News
- Listserv
- Webinar Series
- NANSH Webinars and Meetings
- Webinar Recordings
- Workshops and Symposia
- Working Groups
- Related Wikis and Links
- Relevant Papers & Publications

## Introduction to SCNet's Webinar Series

SCNet and iDigBIo are pleased to announce a series of webinars centered on supporting small collections and establishing SCNet as a collaborative resource for small collections and the professionals who manage them. Each webinar in this series will be held 3:00-4:00 p.m. EST on the dates shown below. Meetings are virtual and accessible online at https://idigbio.adobeconnect.com/scnet. No special software outside of an internet browser is required to access the virtual meeting room.
Read more

## Increasing Capacity for Small Natural History Collections: Developing Protocol for Volunteer-Based Inventorying Programs

**15 January 2015**
**3:00-4:00 p.m Eastern**
**Virtual meeting place: https://idigbio.adobeconnect.com/scnet**
**Increasing Capacity for Small Natural History Collections: Developing Protocol for Volunteer-Based Inventorying Programs.**
**Presenters:** Shana Hawrylchak, Manager of Exhibits and Collections, EcoTarium; Kaleigh Pare, Collections Specialist; EcoTarium; Emma Westling, Collections Consultant.
Read more

## Webinar Recording- Small Entomology Collections: How to Manage

You can access the webinar recording here:

## Follow SCNet on Twitter

Tweets — Follow

**CarmsMuseums** 4 Oct
@CarmsMuseums
Relevance of museum collections: many speakers at #ORS2014Brecon use museum specimens in fossil research @GeolAssoc #welshmuseumsfest
Retweeted by Gil Nelson
Expand

**Thomas R. Holtz, Jr.** 4 Oct
@TomHoltzPaleo
17 Maps Of Australia That Will Make Your Mind Boggle buzzfeed.com/simoncrerar/mi... via @simoncrerar @buzzfeed
Retweeted by Gil Nelson
Show Summary

**Gil Nelson** 30 Sep
@iDigGilNelson
#idigbio #FluidArthroImagingWG Webinar: Rapid thruughput scanning of microscopic slides 15 Oct 2014 tinyurl.com/ovvjb8u
Expand

**Gil Nelson** 29 Sep
@iDigGilNelson
#idigbio @NYBG Excellent article.

Tweet to @iDigGilNelson


SPNHC
ADVANCING COLLECTIONS CARE


iDigBio
Integrated Digitized Biocollections


FLORIDA
MUSEUM
OF NATURAL HISTORY


FLORIDA STATE UNIVERSITY
VIRES
ARTES
MORES
1851


UF
UNIVERSITY of
FLORIDA


CMU
CENTRAL MICHIGAN
UNIVERSITY


ECN
Entomological
Collections
Network


NSF

# Importance of Small Collections

- Repositories of unique and potentially valuable but unexposed data sets.
- Potentially taxonomically and/or geographically focused.
- Often represent the work of relatively few collectors; unduplicated elsewhere.
- Potential for augmenting and adding richness to existing data sets and geographic regions.
- Potential for exposing data currently inaccessible to the scientific community.
- Accessible to students in ways that provide opportunities for broad-scope training in collections curation.
- Opportunities for outreach and volunteer involvement.


## Goal

Empower small collections by:

- Reaching out and incorporating them into the collections community,
- Making digitization doable for small collections,
- Mobilizing and incorporating the “dark data” held in small collections into major data repositories (GBIF, iDigBio, BISON, etc.) and available to science,
- Encouraging large collections to assist with ensuring the sustainability of small collections,
- Providing formal and informal networks that provide forums for and training in small collections issues,
- Resurrecting or otherwise saving orphaned collections from being lost to science.


## Assumptions

**The success and sustainability of small collections is indicative of our success as a collections community.**

**Ensuring that all collections succeed is a professional responsibility.**

**Altruistic and selfish!**

# Defining Small

## Collections that ARE small
## Collections that FEEL small

**Number of specimens/lots/collection objects**

**Variable by collection type**

**Institutional visibility**

**Number of staff**

**Budget adequacy**

**Integral to someone's appointment**

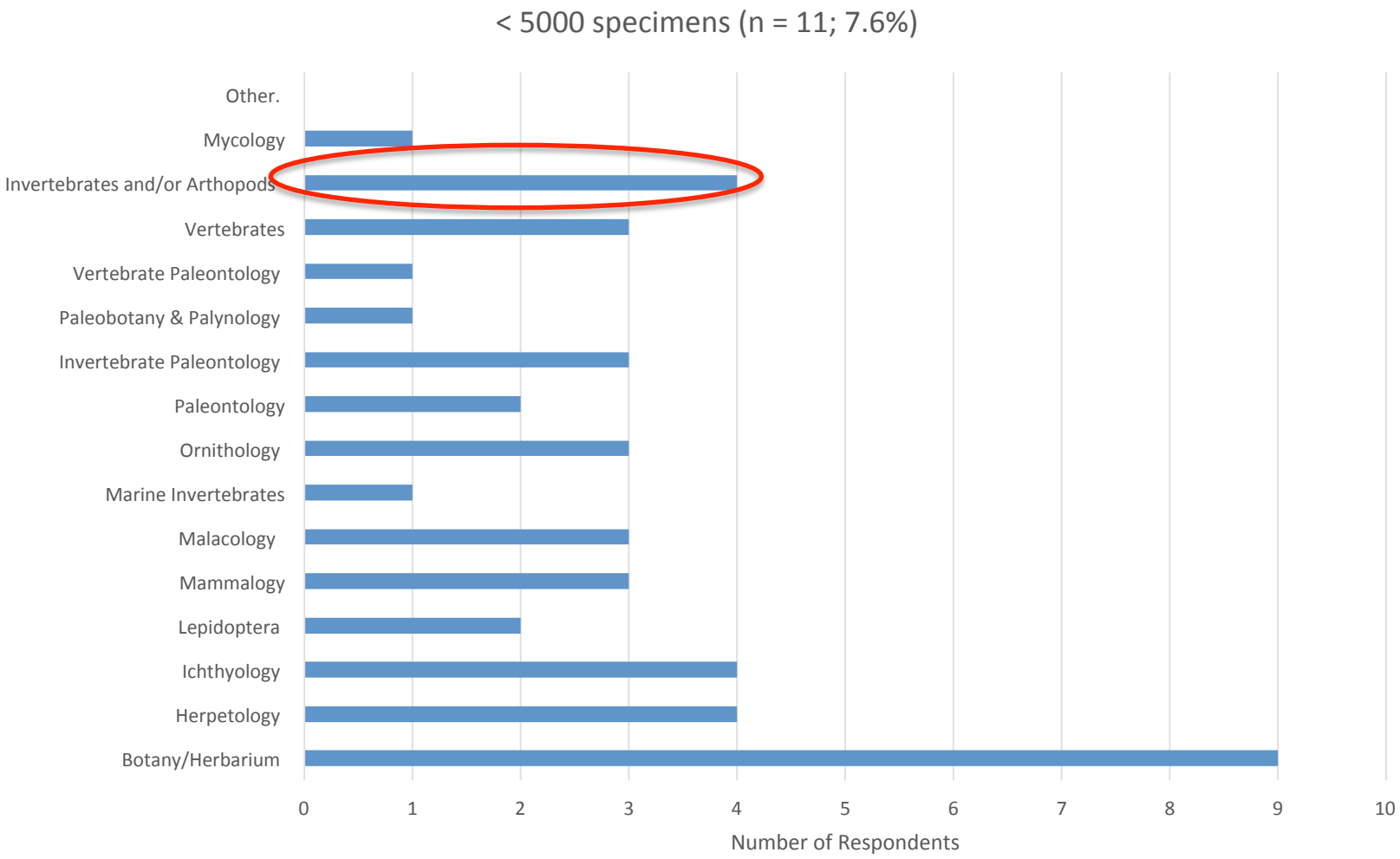
**Is management confounded by teaching load/committee assignments**

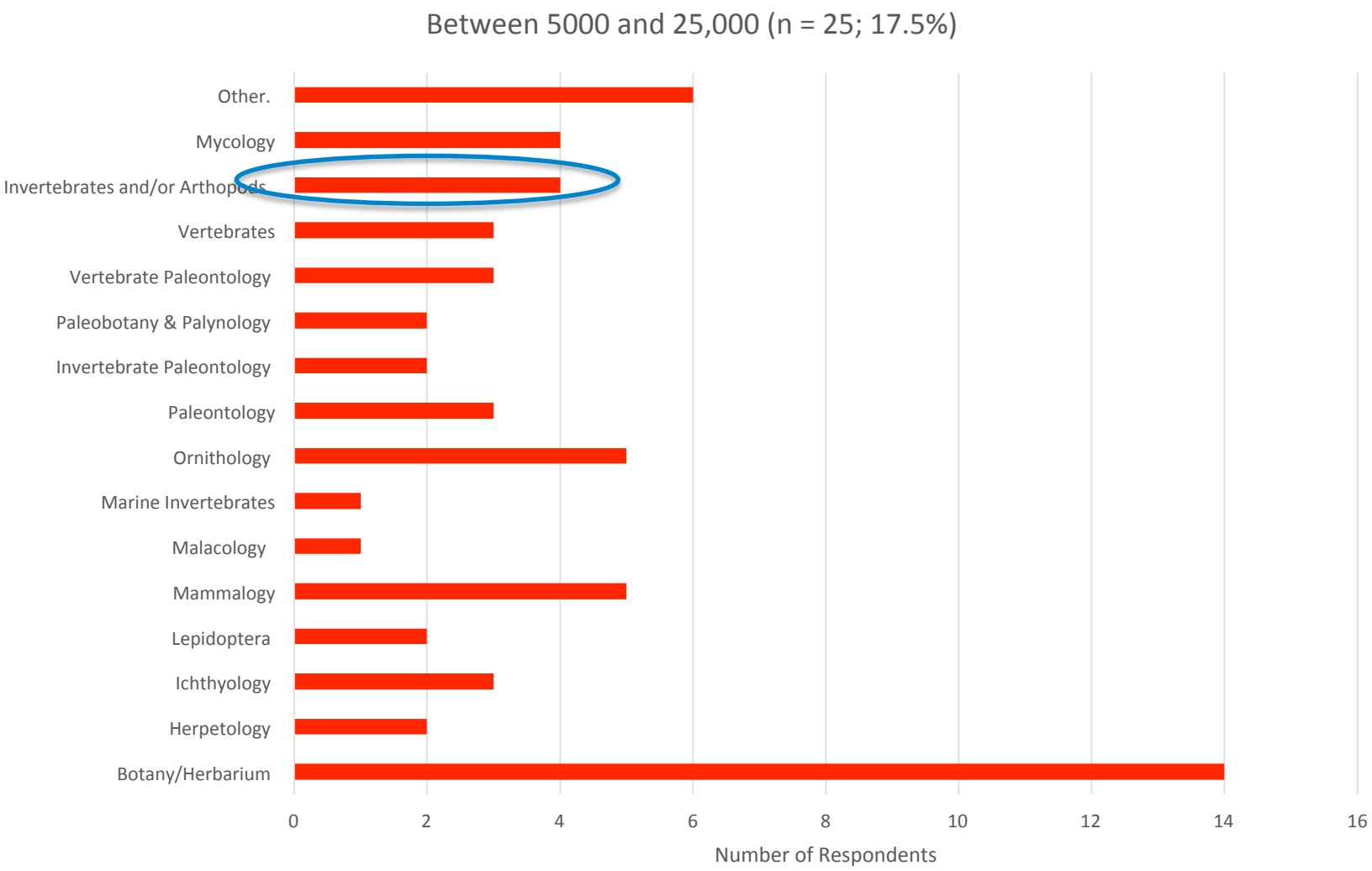
**Part of the professional focus**

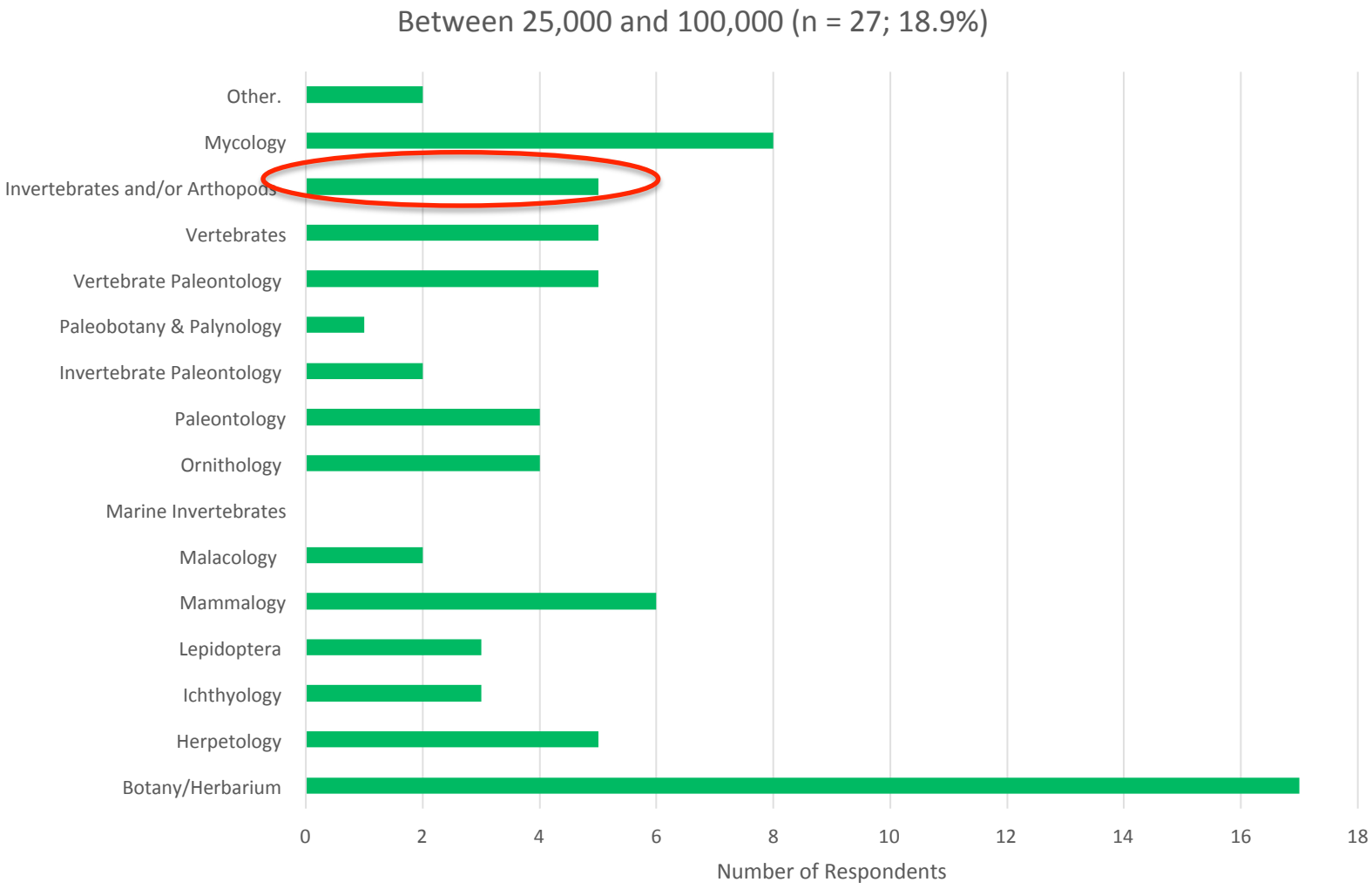
# Gathering Data

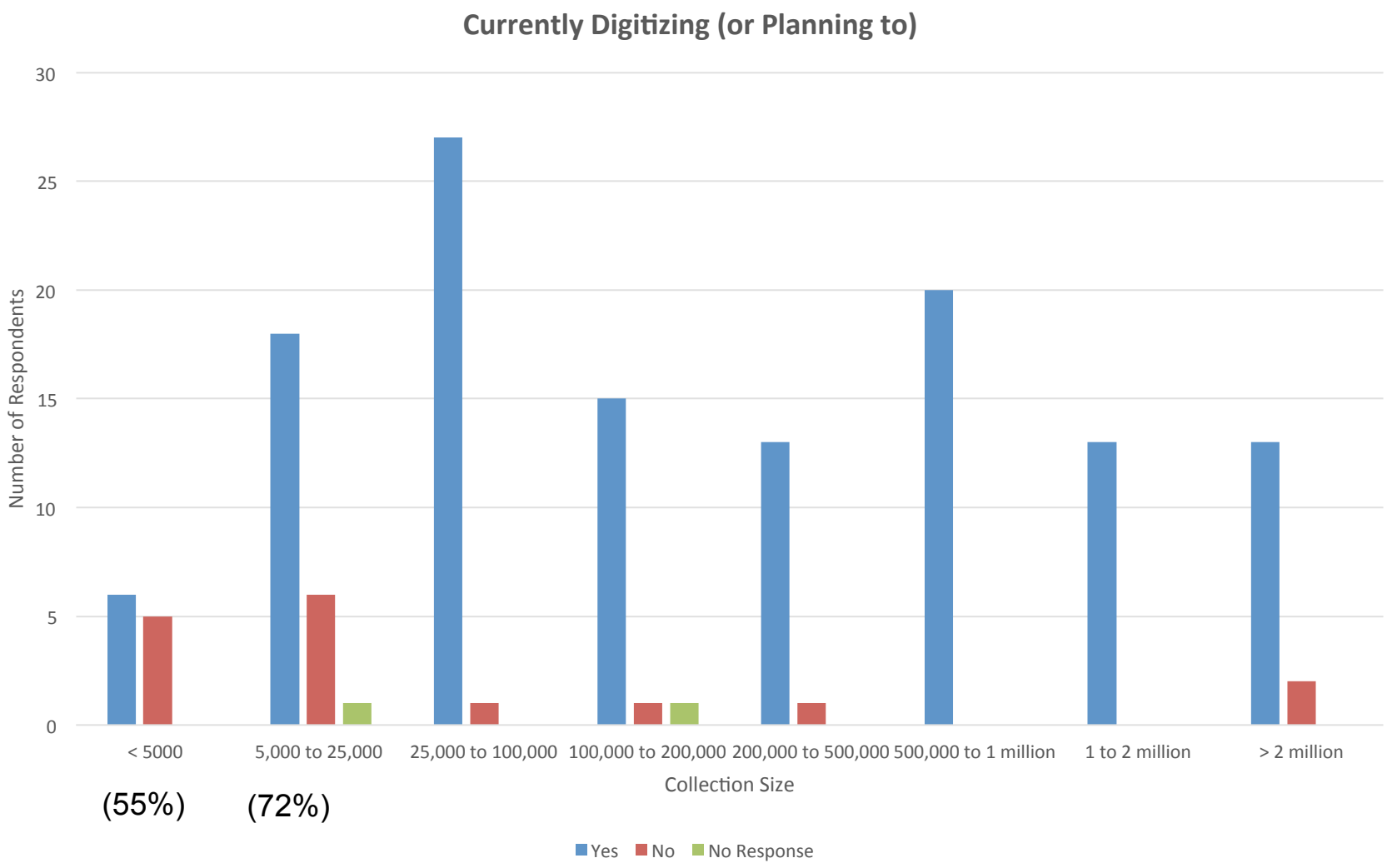
In a recent survey (n=143) targeted to small collections and those interested in small collections, 57% across all domains reported collections of fewer than 200,000 specimens, 45% with collections of fewer than 100,000 specimens.

| | | | | |
|---|---|---|---|---|
| 1 | fewer than 5000 specimens |  | 11 | 8% |
| 2 | between 5000 and 25,000 specimens |  | 25 | 17% |
| 3 | between 25,000 and 100,000 specimens |  | 28 | 20% |
| 4 | between 100,000 and 200,000 specimens |  | 17 | 12% |


< 5000 specimens (n = 11; 7.6%)
Other.
Mycology
Invertebrates and/or Arthopods
Vertebrates
Vertebrate Paleontology
Paleobotany & Palynology
Invertebrate Paleontology
Paleontology
Ornithology
Marine Invertebrates
Malacology
Mammalogy
Lepidoptera
Ichthyology
Herpetology
Botany/Herbarium
0
1
2
3
4
5
6
7
8
9
10
Number of Respondents


Between 5000 and 25,000 (n = 25; 17.5%)
Other.
Mycology
Invertebrates and/or Arthropods
Vertebrates
Vertebrate Paleontology
Paleobotany & Palynology
Invertebrate Paleontology
Paleontology
Ornithology
Marine Invertebrates
Malacology
Mammalogy
Lepidoptera
Ichthyology
Herpetology
Botany/Herbarium
0
2
4
6
8
10
12
14
16
Number of Respondents


Between 25,000 and 100,000 (n = 27; 18.9%)
Other.
Mycology
Invertebrates and/or Arthopods
Vertebrates
Vertebrate Paleontology
Paleobotany & Palynology
Invertebrate Paleontology
Paleontology
Ornithology
Marine Invertebrates
Malacology
Mammalogy
Lepidoptera
Ichthyology
Herpetology
Botany/Herbarium
0
2
4
6
8
10
12
14
16
18
Number of Respondents


Currently Digitizing (or Planning to)
Number of Respondents
30
25
20
15
10
5
0
< 5000
5,000 to 25,000
25,000 to 100,000
100,000 to 200,000
200,000 to 500,000
500,000 to 1 million
1 to 2 million
> 2 million
Collection Size
(55%)
(72%)
Yes
No
No Response

# Why Institutions (n=16; 69% of which are small) Choose Not to Digitize*

**24. Which of the following factors have contributed to the decision at your institution to not digitize the collections? Please check all that apply.**

| Answer | Response | % |
|---|---|---|
| Inadequate funding | 15 | 94% |
| Lack of time | 13 | 81% |
| Limited expertise | 7 | 44% |
| Lack of institutional motivation | 12 | 75% |
| Lack of information | 5 | 31% |
| Lack of individual motivation | 2 | 13% |
| Size of task is overwhelming | 5 | 31% |
| Lack of resources | 11 | 69% |
| I am pre-tenure | 0 | 0% |
| Collection not valuable | 0 | 0% |
| Not a good effort/payoff ratio | 3 | 19% |
| No value to reappointment, tenure or promotion at my institution | 1 | 6% |
| Other. Please explain. | 2 | 13% |
| Lack of perceived need (not convinced it is necessary) | 2 | 13% |
| Not sustainable | 1 | 6% |

| Other. Please explain. |
|---|
| We donate the specimens to another institution that has better facilities for digitization. |
| Not wanted by administration |

*These reasons may be especially apropos to small collections

## New Research Survey Underway

Better define what constitutes a small collection by type and discipline.

Assess the priority and esteem with which small collections are held in their institutions.

Assess the percentage of time directors and managers of small collections are afforded to curate their collections.

Assess staffing and use of volunteers in small collections.

Assess the primary challenges to managing small collections.

Further assess the level of digitization (databasing and imaging) occurring in small collections.

# Listserv and Webinar Series

**15 January 2015**
**3:00-4:00 p.m Eastern**
**Virtual meeting place: https://idigbio.adobeconnect.com/scnet**
**Increasing Capacity for Small Natural History Collections: Developing Protocol for Volunteer-Based Inventorying Programs.**
**Presenters:** Shana Hawrylchak, Manager of Exhibits and Collections, EcoTarium; Kaleigh Pare, Collections Specialist; EcoTarium; Emma Westling, Collections Consultant.

**15 December 2014**
**2:00-3:00 p.m. EST**
**Virtual meeting place:** https://idigbio.adobeconnect.com/scnet
**The Value of the Symbiota Portal and Database for Small Collections**
**Presenter:** Ed Gilbert, Arizona State University

**13 November 2014**
**3:00-4:00 p.m Eastern**
**Virtual meeting place: https://idigbio.adobeconnect.com/scnet**
**Small Fish in a Big Pond: Lessons Learned in Digitizing a Small Paleontology Collection**
**Presenter:** Julie Rousseau, Collection Manager, University of Alaska Museum

**16 October 2014**
**2:00-3:00 p.m. Eastern**
**Virtual meeting room:** https://idigbio.adobeconnect.com/scnet
**Small Entomology Collections: How to Manage**
**Presenter:** Christy Bills, Invertebrates Collection Manager, Natural History Museum of Utah


# Thank you!