

Survey results of 36 entomological collections for “Entomological Collections in the Age of Big Data”

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Introduction

The survey of entomological collections, including Arachnida, Hexapoda, and Myriapoda collections, was conducted via surveymonkey.com from 8 January 2016 to 25 April 2016. The majority of the responses were reported by 28 February 2016 with additional follow-up data provided to the authors by e-mail; the results are therefore current as of 30 May 2016.

Of the 60 collections contacted, 36 (60%) provided complete data. Two additional collections provided incomplete data, which were not considered in the final results. The collections that provided complete data span all continents except Antarctica (Africa 1, Asia 1, Australia 4, Europe 12, North America 16, South America 2) and represent 15 countries.

Survey questions

A total of ten survey questions were included (Figs 1–6) ranging from size of the collection (in specimens) to whether data on cryo-preserved, genomic specimens are shared with international networks.

Survey results

The survey results are summarized in a table in MS Excel (.xlsx), Comma-separated text (.csv), and in Portable Document Format (.pdf) format.

Blue column headings signify answers to questions (abbreviated “Q1” *etc.*) and green column headings signify general information and data summaries conducted by the authors. Numbers in orange signify interpretations of answers by the authors. For example, a survey reply for question 2 “thousands” was replaced by “5,000”. A few questions were answered ambiguously by the respondents due in part to the way the question was formulated. For example, question 6 “Over the last five years, what is the average number of insect specimens you have sent on loan to other institutions / individuals?” either included the average number of specimens or the average number of individual loans without a number of how many specimens were included in those loans.

It should be noted that several respondents highlighted the fact that numbers are often estimates, which by the sheer size of entomological collections is not surprising.

Additional data in GBIF and GGBN

Additional data for the 36 responding collections were gathered by the authors from the Global Biodiversity Information Facility (GBIF, www.gbif.org) and the Global Genome Biodiversity Network (GGBN, www.ggbn.org) that were not part of the original survey questions. These results are also current as of 30 May 2016.

Collections-Based Research in the Age of Big Data

Background

1 / 6

17%

We [Corrie Moreau (Field Museum of Natural History), Andrew Short (University of Kansas), and Torsten Dikow (Smithsonian Institution, National Museum of Natural History)] have been invited to submit a manuscript for consideration in the *Annual Review of Entomology* on "Collections-Based Research in the Age of Big Data."

As part of this manuscript, we would like to take a snapshot at how larger natural history collections have confronted issues related to (1) maintaining insect material for the purpose of molecular and genomic use, and (2) efforts to digitized specimen-level data in their insect collections.

If you would be willing to answer the 10 short questions in this survey, we would greatly appreciate it. The survey should not take longer than 10–15 minutes.

We would very much appreciate it if you could conduct the survey by 31 January 2016.

Thank you very much for your feedback!

1. Brief background information

Your institution	<input type="text"/>
Your name	<input type="text"/>
Your title	<input type="text"/>
Your e-mail address	<input type="text"/>

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Figure 1: Question 1.

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Size of collection

2 / 6 33%

2. In your best estimation, how many total specimens are held in your entomological collections at this time?

pinned specimens	<input type="text"/>
vials and/or specimens in fluid	<input type="text"/>
slide-mounted specimens	<input type="text"/>
enveloped specimens (e.g., dragonflies)	<input type="text"/>
cryo-preserved specimens / tissues	<input type="text"/>
other (please specify)	<input type="text"/>
total	<input type="text"/>

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Figure 2: Question 2.

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Specimens for molecular / genomic work

3 / 6 50%

3. Does your entomological collection maintain specimens preserved explicitly for potential molecular work / transcriptomes / genomics?

☐ Yes

☐ No

Other (please specify)

4. If Yes above, how are the specimens preserved (check all that apply; if possible, add number of specimens/samples)?

concentrated Ethanol (95–100%)

-20°C freezer

-80°C ultracold freezer

liquid Nitrogen / cryogenics

RNAlater

other (please specify)

5. Does your institution/collection participate in any multi-institutional genetic / genomic / tissue network? If so which one(s)?

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Figure 3: Questions 3–5.

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Making specimens available to the community

4 / 6 67%

6. Over the last five years, what is the average number of insect specimens you have sent on loan to other institutions / individuals?

7. What proportion (%) of requests of loans are for molecular research / transcriptomes / genomics? (Estimates are okay.)

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Figure 4: Questions 6–7.

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Digitization of specimen data

5 / 6

83%

8. Below, "databased" is defined as data captured and digitized from individual insect specimens or lots.

How many insect specimens are databased?

How many insect records are publicly accessible (e.g., via a web portal)?

9. What software serves as your primary repository for specimen data?

☐ Specify

☐ KE EMu

☐ Symbiota

☐ Arctos

☐ Microsoft Access

☐ FileMaker Pro

Other (please specify)

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Figure 5: Questions 8–9.

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Comments?

6 / 6

100%

10. Do you have any other comments?

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Done

Figure 6: Question 10.