Sustaining Biological Collections Infrastructure

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National Science Foundation

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National Science Foundation
WHERE DISCOVERIES BEGIN

NSF/BIO/Division of Biological Infrastructure

Research Resources

Infrastructure Innovation for Biological Research (IIBR)

- Supports new and innovative research in biological informatics, instrumentation, and multidisciplinary approaches.

Infrastructure Capacity for Biology (ICB)

- Supports the development or implementation of robust biological infrastructure that serves a significant segment of NSF's research community.
- Four program areas:
  - Cyber-Infrastructure for Biological Research (CIBR)
  - Instrument Capacity for Biological Research (ICBR)
  - Collections in Support of Biological Research (CSBR)
  - Improvements to Field Stations and Marine Labs (FSML)

1)Advancing Digitization of Biodiversity Collections (ADBC)

- Supports theme-based digitization of existing vouchered biological collections.

1)Sustained Availability of Biological Infrastructure (SABI)

Human Resources

Research Coordination Networks in Undergraduate Biology Education (RCN-UBE)

- Support to establish collaborative networks that improve undergraduate biology education.

Postdoctoral Research Fellowships in Biology (PRFB)

- Supports individual postdoctoral scholars to pursue their research and training goals.
- Three high priority areas:
  - Broadening Participation of Groups Under-Represented in Biology
  - Rules of Life
  - National Plant Genome Initiative

Research Experiences for Undergraduates (REU)

- Supports active research participation by undergraduate students through summer programs and supplements.

Collections in Support of Biological Research (CSBR)

Priorities

- Enhance, secure, and improve existing research collections
- Improve the accessibility of collection-related data
- Develop capacity for curation and collection management
- Transfer ownership of collections that are significant to the NSF BIO-funded research community.

Types of [non-federal] biological collections supported

- Living stock/culture collections
- Natural history voucher collections
- Jointly-curated ancillary collections such as preserved tissues and libraries of genetic and genomic materials.

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505541

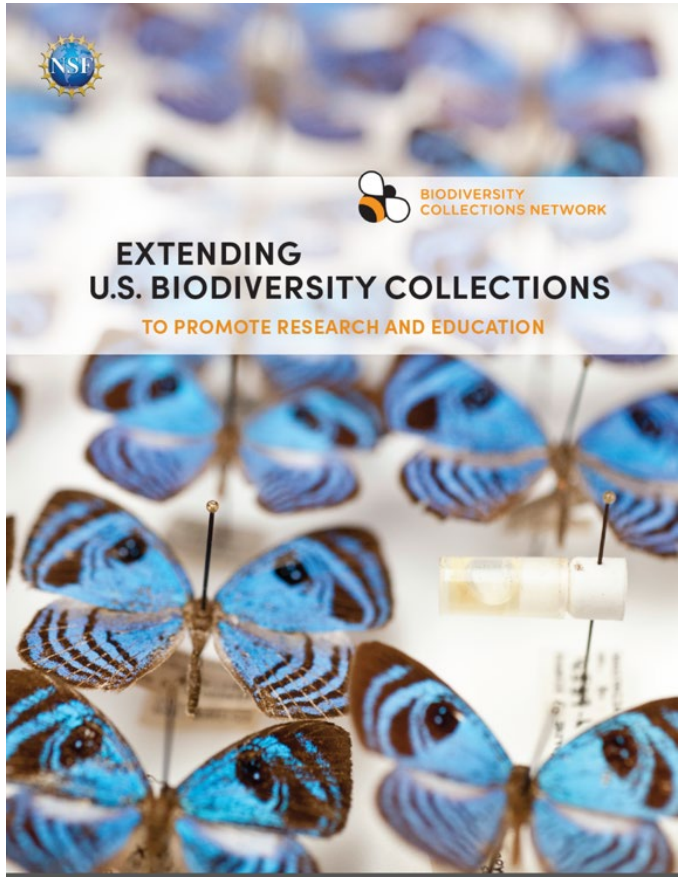
Advancing Digitization of Biodiversity Collections (ADBC)

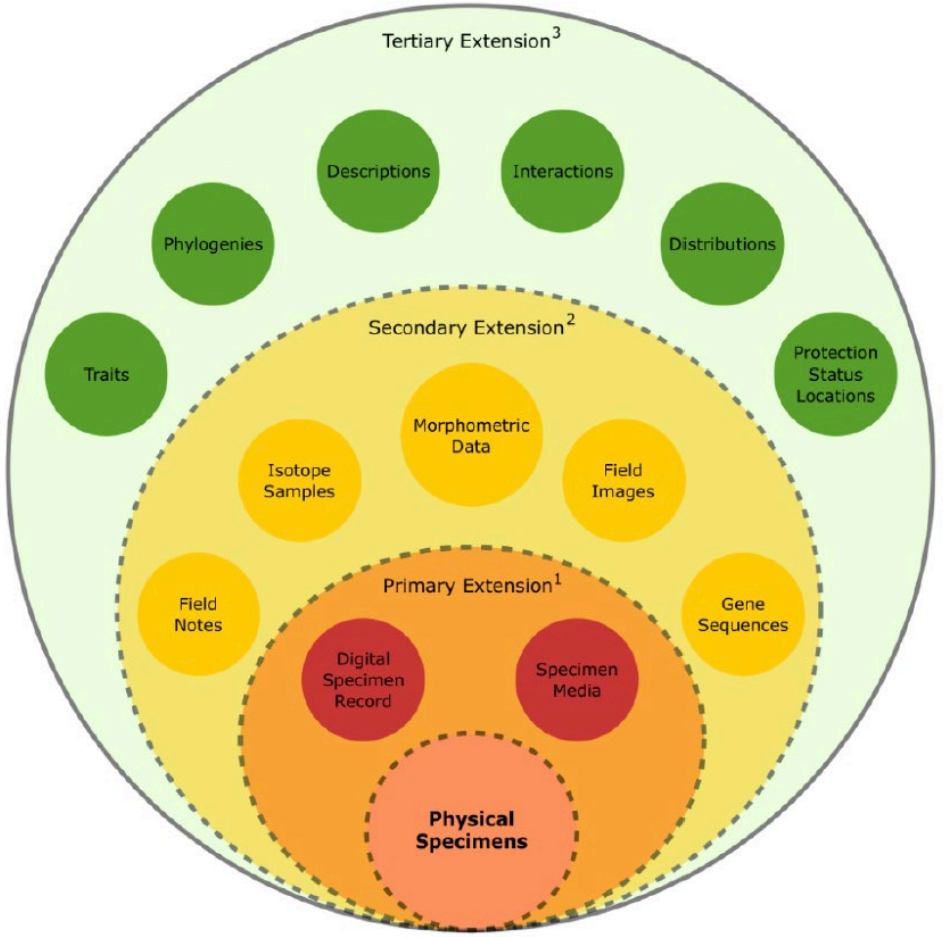
Decade long initiative to digitize and make collections data accessible

- FY 2011 – 2020: $10 million per year
- Results so far: ca. 70 million plus newly digitized records for biospecimens
  - Metadata, media: images, audio, 3D models and CT scans
- Based on science drivers: research themes and questions
- Three tracks
  - Thematic Collection Networks (TCNs)
    - 26 Projects funded throughout US
    - Taxonomically, geographically diverse
  - Partners to Existing Networks (PENs)
  - iDigBio: Coordination, accessibility, training (single award and renewal)

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503559

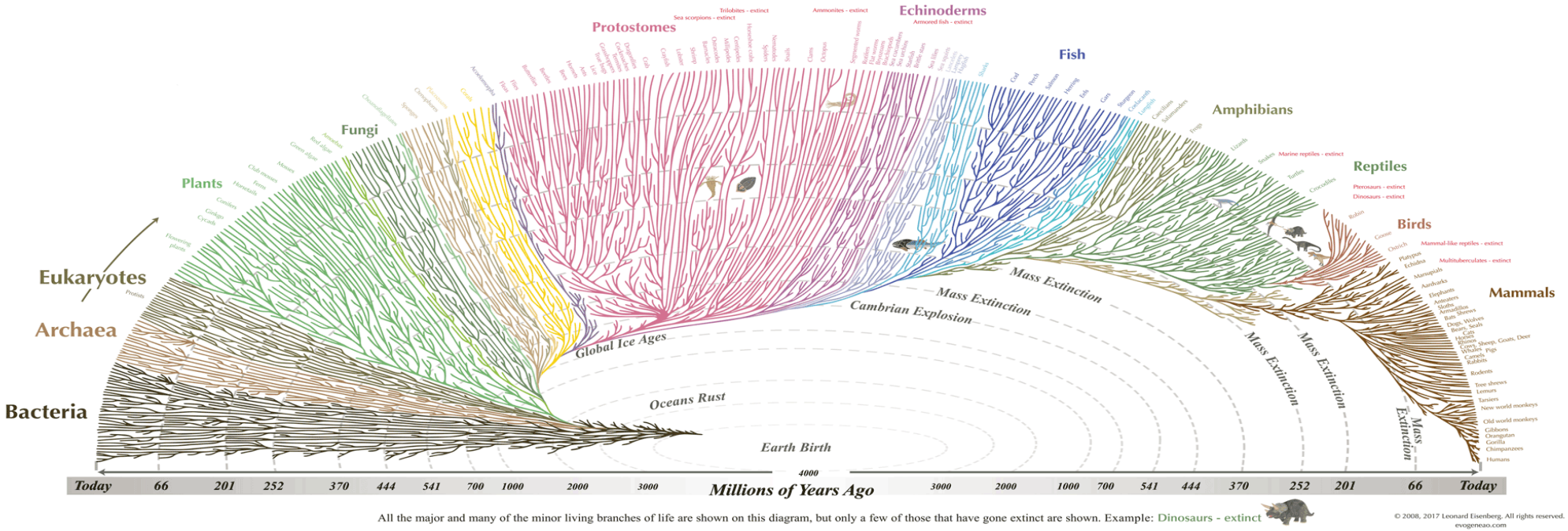
Biodiversity Collections Network (BCON)/ Extended Specimen Network (ESN)





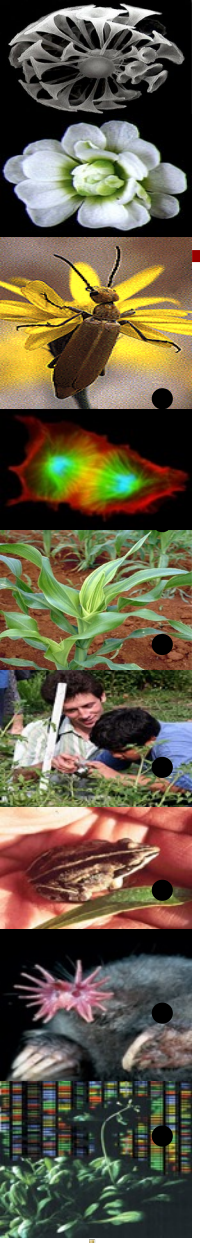
https://bcon.aibs.org/2019/04/04/bcon-report-extending-biodiversity-collections-to-promote-research-and-education/

Life Innovates



Biology Integrates

- Rules of Life
- Biology Integration Institutes



Workshop themes and sustainability

- Trust
- Access
- Tracking
- Integration
- Training
- Roles
- Motivation/vision

DAY ONE PROJECT

Home Our Work Our Team Policy Proposals News Launch Event Day One Accelerator Get Involved

Mass Digitizing Biodiversity Collections of the United States

Nick Pyenson

Summary

Mass digitization of U.S. biodiversity collections would position the nation to achieve massive advances in the life sciences—a leap forward on par with the way that DNA technology transformed genomics at the start of the 21st century. This heritage consists of hundreds of millions of dry, wet, and otherwise preserved specimens in U.S. museums and other collections, including plant germplasm, microbial cultures, non-human biomedical samples (e.g., parasites), fossils, and other plant and animal samples. This proposal presents actions for the administration to take to catalyze this advance to pave the way for a sustained, coordinated effort to mass digitize the physical specimens in U.S. biodiversity collections (and their associated metadata).

DAY ONE

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