

# Advancing Integration of Museums into Undergraduate Programs



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"I wish to emphasize what I believe will ultimately prove to be the greatest value to our museum - and that is that the student of the future will have access to the original record of faunal conditions .... Right now are probably beginning changes to be wrought in the next few years vastly more conspicuous than those that have occurred in ten times that length of time preceding."  
- J. Grinnell (1912)

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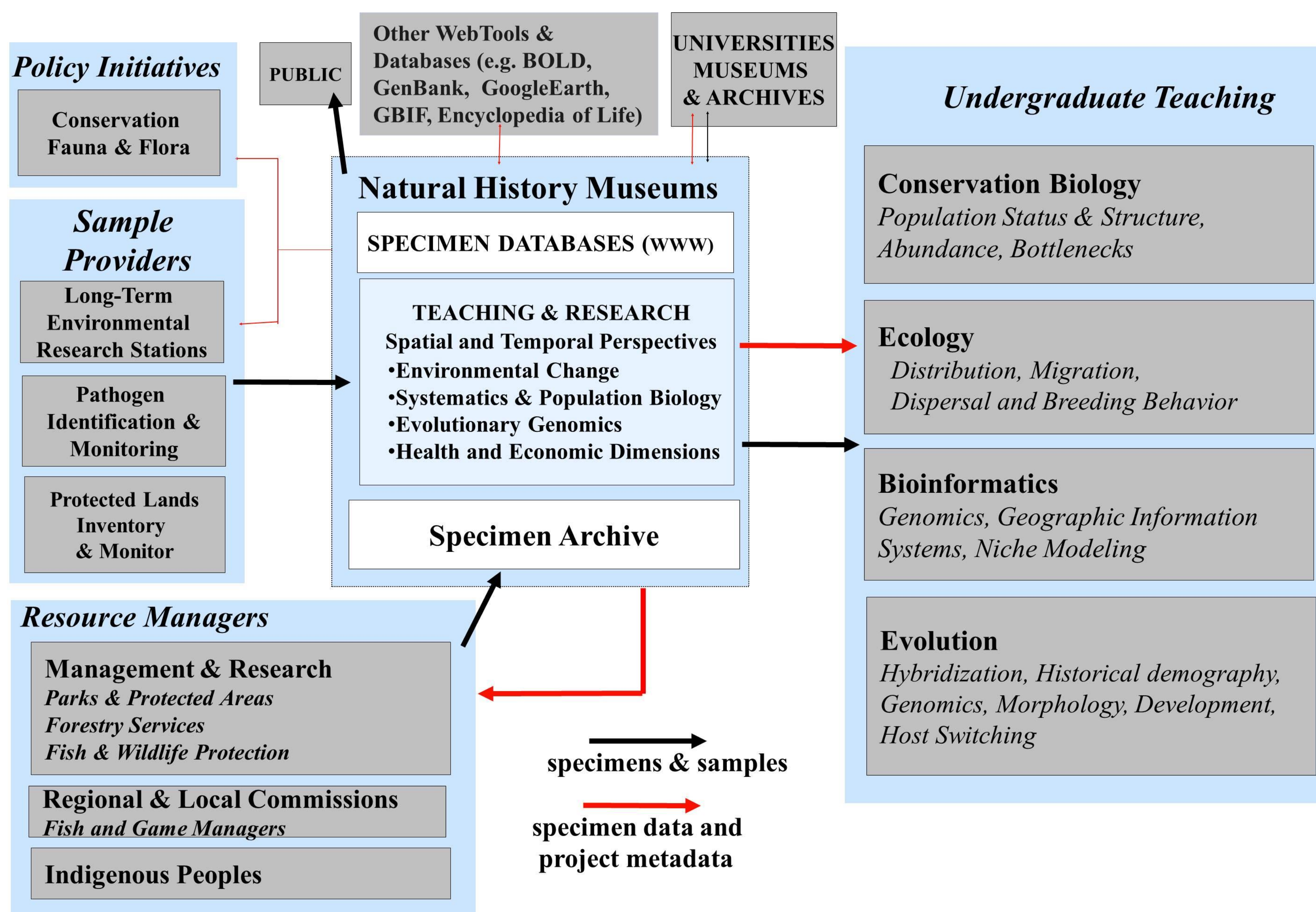
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## Advancing Integration of Museums into Undergraduate Programs

We are an NSF-funded research coordinating network (RCN) that aims to increase the integration of natural history collections into undergraduate education.

Our goals are to:

1. Train undergraduates in specimen-based research
2. Develop instructional tools that use museum specimens and databases
3. Introduce educators to the instructional power of natural history collections
4. Increase public awareness of the importance of natural history collections

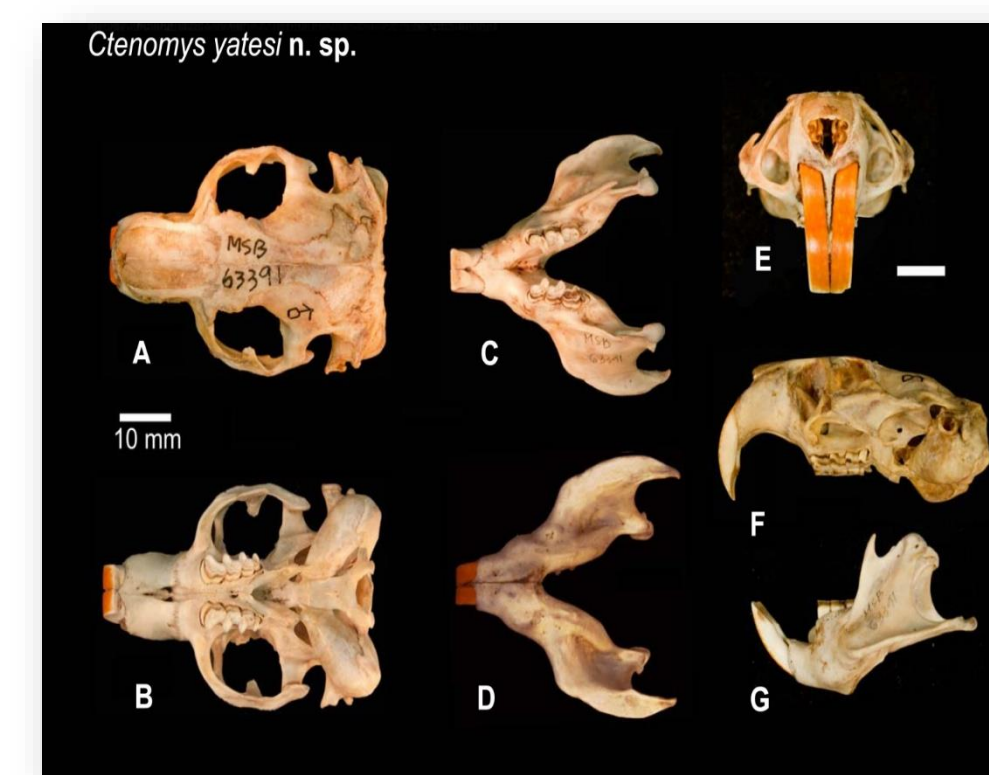


## The Challenge

Educators are mostly unaware of the educational potential of collections and associated databases. This even includes students and instructors at institutions with large museums:

- a survey of ~100 undergraduates at U of California Berkeley revealed that:
  - > 70% unaware of the Museum of Vertebrate Zoology
  - < 10% had visited the museum
- the same survey of ~100 undergraduates at U of New Mexico revealed that:
  - about 50% unaware of Museum of Southwestern Biology
  - only about 15% had visited the museum

Clearly, a significant **challenge** is to **inform students and instructors** about the potential **role of collections** in **undergraduate teaching** and research at universities



## What do collections-based approaches offer undergraduate education?

- Scale
  - time and space
- Integration of Data
  - biotic and abiotic
  - genomic and organismal
- Complexity
- Web-based Discovery-informatics
- Educational Process
  - Experiential versus passive
  - Actual data



## Target Audiences

- Natural history collections (academic and free-standing)
- Educators with or without collections



As archival observatories, museums provide a window on historic conditions by establishing the baselines necessary to assess change and predict future impacts. Their impact depends on training the next generation of scientists to creatively explore, utilize and integrate these vast resources into critical science initiatives.

## Annual Themes

- Year 1 – Integrative Inventories
- Year 2 – Geographic Variation
- Year 3 – Evolutionary Dynamics of Genomes
- Year 4 – Biotic Response to Climate Change
- Year 5 – Co-evolving Communities of Pathogens & Hosts, relating to Emerging Disease



## Example of a cross-disciplinary seminar: CO-EVOLUTION: Art + Biology in the Museum



Spring 2012 Seminar @ Museum of Southwestern Biology, University of New Mexico

Communication between fields is important within science, but also between biologists, artists, and historians as we build collective knowledge. Natural history collections emphasize spatial and temporal variation and are uniquely situated to bridge the gap between traditionally segregated disciplines, as they foster development of creativity, generative thinking, and rigorous inquiry; all required of future leaders. By incorporating art and history into biology, we begin to strengthen ties between the sciences and the humanities within the university's curriculum and research activities. A common interest in place-based research and inquiry-driven learning underpins integrated and experiential approaches to pedagogy.

## Interested?

We are recruiting people to join the network and participate in one of our working groups

- Bioinformatics and Web Presence
- Outreach, Development and Design
- Education
- Network Evaluation

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