



# What are Biological Collections?

Biological collections are curated repositories of preserved and living organisms and their associated data that document life on Earth across time and space. They include over 1,000,000,000 specimens housed in U.S. institutions alone, forming irreplaceable national scientific resources. Biological collections are not static archives. Advances in digitization, imaging, genomics, and data integration have transformed specimens into active research infrastructure used daily by scientists, educators, and decision-makers worldwide.



### Non-Living Collections

Often referred to as natural history collections, these are curated repositories of preserved biological, geological, and paleontological specimens.



### Living Collections

Curated living organisms, such as animals, plants, microbes, and algae, kept in specialized facilities that replicate natural habitats or provide controlled environments for growth.

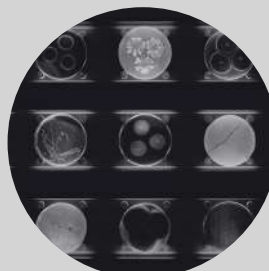


### Digital Collections

Born digital or specimen-derived data, such as genomic and molecular data, stable isotope analysis, in-situ field images, recordings of soundscapes etc., stored in electronic format.

## Where are Collections Housed?

- Museums & Science Centers
- Botanic Gardens & Herbaria
- Zoos & Aquaria
- Universities & Research Institutions
- Government Agencies
- Field Stations
- Digital Repositories





# Why Biological Collections Matter?



**Globally, biodiversity collections hold ~1–2 billion specimens!**

### **Preserve physical evidence of biodiversity**

Each record or specimen within a collection acts as a piece of evidence that can be used to answer societal, economic, and environmental questions. Biological collections contain specimens of extinct or extremely rare species, allowing scientists to understand their growth, behavior and genetic structure without access to the living organism.

### **Enable reproducible and repeatable science**

Voucher specimens and standardized records allow results to be verified, reanalyzed, and repeated across studies. Every species must be documented by a physical specimen that scientists can examine, and associated data must be made publicly available so that other researchers can use them to repeat an analysis, or build upon it to reach new conclusions.

### **Provide historical baselines unavailable elsewhere**

Specimens document past species distributions and conditions, offering reference points for modern comparisons. By studying rare orchids and their pollinators, researchers have found that pollen production and bee activity—once synchronized—are out of step. This shift explains the decline and highlights why collections are vital for conservation.

### **Support discoveries far beyond their original purpose**

Advances in technology allow old specimens to yield new insights. The 1993 outbreak of hantavirus was linked to deer mice through the investigation of preserved specimens. With the vector known, it was possible to lessen the risk to humans by reducing opportunities for disease transmission.

**Collections are  
ESSENTIAL!**

Citations



Additional One-Pagers



BCoN Website

