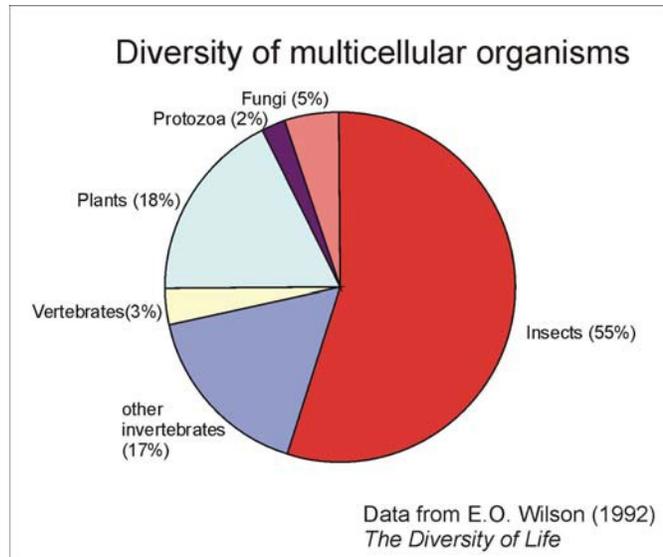


The Cornell University Insect Collection

(<http://cuic.entomology.cornell.edu>)

I. Insect biodiversity

Insects comprise over 750,000 of the approximately 1.2 million described species of multicellular organisms on the planet. They arose over 400 million years ago and were one of the first groups of terrestrial organisms on earth. Insects today occupy virtually all terrestrial and freshwater aquatic habitats. They are a major component of terrestrial biodiversity based on biomass, ecological services, as well as species numbers.



II. Insects and humans

Insects have an enormous impact on our lives. Some species are pests of our crops, livestock, forests, homes, gardens and offices, destroying up to 15% of foodstuffs. Others transmit dangerous and sometimes deadly diseases such as malaria and dengue. On the other hand, insects also provide many beneficial services. Insects are an important source of food in many societies throughout the world, and they provide some important products such as dyes, sweeteners (honey), and waxes. Insects are also the most important native and managed pollinators, and are among the most important consumers and decomposers of both plant and animal matter.

III. Role of the CUIC in basic and applied research

The Cornell University Insect Collection (CUIC) was started in 1871 as specimens curated by the first Cornell Chimes Master and founder of the first Department of Entomology at any university, John Henry Comstock. Currently we house approximately 7 million insect specimens representing about 200,000 species, or roughly 20% of the World's described insect species. Our greatest diversity of species is from North America, but we also have material from Europe, South America, Africa, Asia and Australia. We are the seventh largest insect collection in North America and the largest at a Land-Grant institution.

A. Basic research

Comparative biology is built on a strong understanding of phylogeny and biodiversity. Our collection supports basic research in a number of areas:

- biodiversity, biogeography, phylogeny and evolutionary biology of insects
- phylogeny and evolution of bees, our most important pollinators
- archiving invaluable taxonomic type material as well as research voucher specimens derived from diverse ecological and behavioral studies completed at Cornell.
- providing access to scientific specimens for researchers across the globe.
- examining long-term trends in insect diversity and abundance in New York State and the eastern United States.

B. Agricultural research

The collection provides important material for identification of agricultural pests and beneficial insects such as pollinators and natural enemies that regulate pest populations.

The collection and CUIC staff provide the following support for agricultural research:

- identifications of agricultural and invasive pests
- identifications of possible biological control agents
- identification for important pollinators (bees)
- baseline data on the fauna of New York state and the eastern United States.

C. Detecting invasive insects

Given the world-wide holdings of our collection, we serve as a central clearing-house for insect identifications, especially economically and environmentally important invasive insects. We have recently incorporated the Cornell University Insect Diagnostic Laboratory into the CUIC's mission, with Dr. Jason Dombroskie the coordinator of the Lab. The IDL identifies specimens submitted by the public, and conducts surveys for recently introduced and potentially introduced but not yet detected pest insects that have, or will have significant impacts on the New York State economy.

D. Graduate and undergraduate education

Our collection provides material for graduate and undergraduate student research. The CUIC plays a pivotal role in our ability to train students in insect systematics and biodiversity. Many undergraduate and graduate student publications have arisen from research in our collection. Our systematics Ph.D. holders populate faculties worldwide.

E. Outreach and public education

We provide resources and specimen-based exhibit material for the Cooperative Extension Service (adult and 4-H programs), the Naturalist Outreach course, which are used at the State Fair and for school visits, and at Insectapalooza (Entomology's Open House). Cornell courses ranging from Evolutionary Biology to Russian Literature to Graphic Arts also use our resources. Taxonomic training is conducted for federal and state regulatory personnel involved in agricultural and forest pest survey.

Current staff and students:

James K. Liebherr (Curator & Professor)

Jason Dombroskie (Collection Manager)

Bryan N. Danforth (Professor & Associate Curator for Hymenoptera)

Jason Gibbs (Post-doc)