

Collection Policy: ENTOMOLOGY

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1.0 TEACHING, RESEARCH AND EXTENSION PROGRAMS

1.1 Mission and emphases of the department

In 1874 John Henry Comstock founded Cornell's Department of Entomology, the first department of its kind in the United States. Comstock assembled a group of fine scholars including Bradley, Forbes, Johannsen, Elatheson, Needham, and Slingerland. Their influence is still evident in the department's Comstock Memorial Library, which is among America's foremost collections of entomological literature, and in the department's insect collection, which houses approximately six million specimens including many designated as types.

Cornell's Department of Entomology at Ithaca has responsibility in the areas of teaching, research and extension. It is a unit of the New York State College of Agriculture and Life Sciences and the Cornell University Agricultural Experiment Station. Among entomology departments in the U.S., the department is unique in that it is a part of a University that is both an endowed and land-grant institution. It is also unusual in that it has equal strengths in basic and applied aspects of entomology.

The department has the responsibility to increase the knowledge of insects and to apply this knowledge to benefit society. There are currently 18 faculty, including a newly hired apiculturist. There are three joint appointees and 5 adjunct professors. The major research areas with the department are in morphology and systematics, pest management (especially of forage, greenhouse, vegetable and livestock insects), biological control, ecology, evolutionary biology and behavior, medical and veterinary entomology, pathology, apiculture, toxicology and physiology.

The department's teaching program offers training for undergraduate and graduate students. The program has 36 graduate students and consistently ranks as one of the strongest graduate programs in the U.S. There are 16 undergraduate majors. An insect biology program within the Division of Biological Sciences is being planned to attract more undergraduates to the study of insects.

The reserach program includes both basic and applied studies. Insects offer unique opportunities for studying biological principles and, as pests of major importance to food, fiber, human and animal health, they continue to challenge our ingenuity and inventiveness.

The extension program applies the results of reserach to alleviate insect problems in New York State and through the Northeast. This effort reflects the ever-changing needs of the State's agricultural industry, its recreational resources, and its urban dwellers. Much of the extension program is conducted through

Cooperative Extension. In addition to the domestic programs, the department contributes to the College's program in International Agriculture.

Professors	Total FTEs	Percent Effort
Teaching	5	28
Research	10	57
Extension	3	15
TOTAL	18	100%

1.2 Faculty research

The faculty of the Department of Entomology currently consists of 18 professors, 8 research and extension associates, 3 joint appointees, 5 adjunct professors, and 9 professors emeritus.

Research faculty/areas include:

Calderone, Nicholas (Apiculture)
Danforth, Brian (Morphology and Systematics)
Davis, Paula (IPM-Field/Forage Crops)
Gilbert, Cole (Physiology)
Hajek, Ann (Insect Pathology)
Hoffmann, Michael (IPM-Vegetable Crops)
Liebherr, James K. (Systematics of Coleoptera)
Patrican, Lisa (Medical Entomology)
Peckarsky, Barbara L. (Freshwater Ecology)
Pimentel, David (Ecology)
Rutz, Donald A. (Veterinary Entomology)
Sanderson, John P. (IPM-Floriculture)
Scott, Jeffrey G. (Toxicology)
Shields, Elson J. (IPM-Field Crops)
Tauber, Maurice J. (Biological Control & Behavior)
Tingey, Ward M. (IPM-Potatoes)
Via, Sara (Genetics & Evolution)
Wheeler, Quentin D. (Systematics of Coleoptera)

1.3 Graduate program

The graduate program is unparalleled among U. S. universities in breadth and quality of research and training opportunities. The Field of Entomology currently has 35 students, representing many countries and subdisciplines of entomology. The majority of students are U.S. citizens. Also represented are students from Canada, Mexico, Central America, South America, Africa, Asia and Europe. Areas of study represented among current students are Apiculture and Social Insect Biology, Biological Control,

Ecology, Evolutionary Biology, Insect Behavior, Integrated Pest Management, Medical Entomology, Pathology, Physiology, Molecular Biology/Toxicology, and Systematics. From 1970 to 1996, entering students have completed their PhD degrees in a median time of 5.3 years.

1.4 Undergraduate program

A very diverse group of students enroll in entomology courses from across the campus, although the number of undergraduate majors in entomology is small, ranging from 7-15. This reflects the necessity for a broad, general background in biology and related sciences for a career in entomology, a specialty generally pursued in graduate studies. A diverse curriculum is offered, with many courses open to undergraduates from entomology and related fields in the biological and agricultural sciences.

1.5 Extension activity

Insects are a conspicuous component of all terrestrial and freshwater ecosystems. They are among the primary pests facing agricultural and forestry production as well as product storage, and one of the most diverse and abundant groups of living things. Accurate identification of insects, and credible information about them, are critical to the day to day production of crops, the maintenance of homes and grounds, and fundamental environmental research. Extending knowledge about insects and the control of noxious species is a major function of the department that is carried out by faculty and staff. Cornell has special strength in the areas of field crops, vegetable crops, bee-keeping, greenhouse and livestock insects.

1.6 Noteworthy facilities (e.g. unique classrooms, laboratories, farms, etc.)

The department's insect collection houses between 4,000,000 and 5,000,000 specimens of insects; it is second among U.S. university collections and in the top ten research collections in the nation. It includes representation of insects and related arthropods in general, and is worldwide in scope. Special strength exists in the holometabolous orders: Coleoptera, Lepidoptera, Diptera and Hymenoptera. Cornell has a research farm at Freeville, and conducts field research across the state. Greenhouse and growth chamber facilities exist in the insectary complex, and Comstock Hall provides modern laboratory and classroom facilities. With the Department of Plant Pathology, the Department operates a diagnostic laboratory that provides accurate identification of insect pests and plant diseases.

2.0 SUBJECT DESCRIPTION AND GUIDELINES

2.1 Subject definition

Entomology is the study of insects. In its various subdisciplines, entomologists study the kinds and numbers insects, their evolutionary history (at both micro- and macro-levels), geographic distribution, ecological associations, affects on humans, animals, and plants, importance to the environment and society, and pest suppression.

2.2 Subject scope

The Entomology Library collects materials on insects, ticks mites, arachnids and millipedes. Apiculture, exceptionally, is collected by Mann Library. Emphasis is on Coleoptera (beetles, etc.), Diptera (flies), Hymenoptera (wasps, etc.) and Lepidoptera (butterflies).

Included are:

Taxonomy, systematics (described in a separate Systematics policy), and phylogeny;

Morphology;

Evolution;

Genetics, microevolution and development;

Ecology;

Biogeography;

IPM (integrated pest management) and biological control;

Toxicology or insecticides and insecticide resistance;

Pesticides: application, chemistry, environmental effects, policy issues;

Insect pathology;

Physiology and molecular genetics;

Biodiversity;

Medical entomology: the causation and transmission of disease by insects;

Beneficial insects and natural enemies;

Host-plant resistance;

Descriptions of insect collections;

Insects and culture (e.g., art, literature, cookery);

Insects as pets;

Popular works.

Field guides for areas outside New York State are not a high priority. Internet-based descriptions of insect collections outside of Cornell are a low priority.

2.3 Emerging trends in the subject area

A dominant trend in entomology involves increasingly close interaction between basic and applied research. Alternative modes of insect pest management require detailed knowledge about insect biology; basic research documenting diversity among and within the arthropods increasingly finds applications in applied scientific work. Departments, like Cornell's, that have maintained a balance between basic and applied have a competitive advantage in generating and applying such knowledge.

Other trends include increasing public and governmental concern about environmental issues. The biodiversity crisis anticipates the extinction of many extant species during the next thirty years; because of the incomparable diversity of insects, entomologists will be at the forefront in documenting and studying species, as well as genetic and ecological diversity. The impending global climate change, need

for sustainable agricultural practices, and public demands for environmentally sound policies will require greater knowledge about insects and their biology. One aspect of this is the trend away from dependence upon chemical pesticides to control noxious species. Development of alternative pest suppression measures often depends on knowledge of insect physiology, ecology and behavior and the discovery of insect predators, parasites and pathogens. Thus, entomologists will need to explore new directions in integrated pest management (IPM), theory and practice of biological control, and application of basic knowledge about insect ecology, physiology, behavior, phylogeny, and natural enemies (including predators, parasites and pathogens) for the development of ecologically sound management strategies. The role of insects in sustainable natural and agroeco-systems will become increasingly important as a subject of study. There is also a need for knowledge of urban and ornamental insect pests, particularly in relation to shifts in priorities in New York State agriculture.

3.0 SPECIAL INFORMATION NEEDS AND RESOURCES

3.1 Special information needs of those working in this subject area.

Since the Entomology Library contains one of the major entomology collections in the Western Hemisphere, monographs and taxonomic literature on a worldwide basis are essential to the maintenance of Cornell's leadership. Mann collects broadly and deeply in the literature on basic and applied aspects of related disciplines, in addition to entomological literature. Such areas include ecology, ethology, genetics, agriculture, physiology/toxicology/biochemistry, systematic biology, etc. The scope of the collection in systematics is described in the Systematics collection policy.

Bibliographic databases such as BIOSIS Previews, CAB International, AGRICOLA, Zoological Record and the Life Sciences Collection are provided on the Mann Library Gateway.

3.2 Special collections or noteworthy resources in the field

Beekeeping collection in Mann Library.

3.3 Endowment funds or special funding arrangements

- Phillips Beekeeping Fund
- Comstock Fund
- Claasen Fund

4.0 TYPES OF MATERIALS

4.1 Priorities for types of materials

See [Priorities Table](#).

Expensive conference proceedings, laboratory manuals and computerized reference tools are of uneven quality and should be submitted to the faculty liaison for advice.

4.2 Format

4.3 Geographical guidelines

Our research interests and contributions are global in scope, and require access to published information on a worldwide basis. For example, within systematics this is mandated by international laws governing the naming of insects.

4.4 Language guidelines

English, French German, Spanish and Portuguese for systematics literature. Other non- English literature will be submitted to the faculty liaison for advice.

4.5 Chronological guidelines

Current, plus important historical works.

5.0 OTHER RELATED LIBRARY COLLECTIONS

- Mann
- Olin
- Veterinary Med.

6.0 POLICY QUESTIONS, COLLECTION NEEDS, FUNDING PROBLEMS OR OPPORTUNITIES

7.0 PRINCIPAL LC CLASSES

QL 449
QL451-599
SB818-989
SF 459.15
SF 518

8.0 RELATED COLLECTION POLICIES

- [Ecology and Systematics](#)
- Plant Pathology
- Genetics
- Physiology
- Toxicology
- Systematics
- Neurobiology and Behavior

Priorities Table for Entomology

Code	IMPORTANCE/INTENSITY CODES DEFINITIONS
NA	Not applicable to the discipline.
0	Ephemeral; of insufficient value to be provided by library.
1	Of short term interest, but with little or no enduring value; very selectively acquired; retained, uncataloged, for limited duration only, e.g. newsletters in newly emerging, poorly documented areas, and manuals or pamphlets for reserve reading.
2	Limited scholarly interest or utility; collected very selectively, but not of high priority.
3	Important for research and/or instruction; should be well represented, but collected selectively rather than intensively.
4	Very important for faculty and/or students; intensively collected, i.e. every effort is made to provide as deep coverage of this literature as possible.

5	Essential to work in the discipline; the most important type of material for research or instruction purposes. Ensuring the highest possible coverage should be the library's top priority in this discipline.
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Code	SERIALS	Notes
5	Journals, scholarly	-
3?	Journals, technical	-
-	Journals, other (describe)	-
5	Annual reviews, advances in...	-
3	Scientific and technical reports and research bulletins of major academies, learned societies, professional research and educational organizations and government agencies	-
3	Proceedings, of international congresses and symposia	-
2-3	Proceedings, national or local	-
?	Statistical series	-
2?	Trade journals and periodicals	-
1	Popular periodicals, hobby	-
1	Popular periodicals, semi-technical	-
1?	Popular periodicals, farm press	-
1	Newsletters/newspapers	-

?	Proceedings of legislative bodies	-
?	Student publications	-
1?	Administrative publications of major academies, learned societies, professional, research and educational organizations and government agencies	-
NA	Corporate annual reports	-
NA	Yearbooks	-
1	Press releases	-
?	Lists	-
NA	Working papers	-
Code	MONOGRAPHS	Notes
5	Major scholarly monographs	-
4-5	Professional and technical	-
4-5	Subject histories	-
4	Textbooks, upper division, graduate	-
4	Biographies	-
3-4	Popular monographs	-
3	Technical reports	-
3	Government reports	-

2-3	Proceedings, international	-
-	Proceedings, other	-
1-2	Theses and dissertations (outside CU)	-
3	Festschrift	-
NA	Patents	-
NA	Corporate histories	-
5	How-to books & lab manuals	Send to faculty
1-2	Pamphlets	-
-	Ephemera (describe)	-
3	Maps	-
2-3	Technical bulletins/handbooks/compendia	-
Code	ELECTRONIC INFORMATION	Notes
1	Applications programs	-
5	Bibliographic databases	-
?	Bulletin boards	-
?	Fulltext files	-
?	Geographic information systems	-

NA	Numeric/statistical files	-
-	Other (describe, taking as much space a necessary)	-

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