

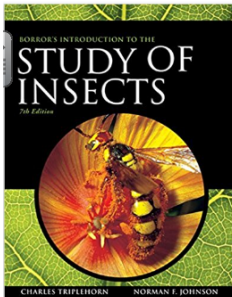
DNA Learning Center BARCODING 101

Taxonomic Resources

Texts - available for rental from the CSHL DNALC for the *Barcode Long Island* research program:

1. **Borror and DeLong's Introduction to the Study of Insects 7th Ed.**

Triplehorn, Charles; Johnson, Norman F. 2005.

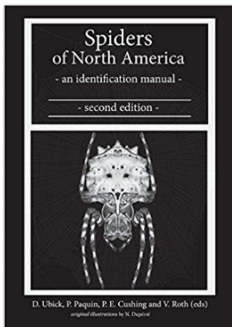


Use: An exhaustive guide containing order and family keys for any of the commonly found adult and nymph insects found throughout the United States

Limitations: Not effective for identifying larval insects or for identifying adults or nymphs to beyond the family taxonomic group. Keys are detailed and may be difficult to navigate.

2. **Spiders of North America: An Identification Manual 2nd Ed.**

Ubick, Darrell; Paquin, Pierre; Cushing, Paula. 2005.

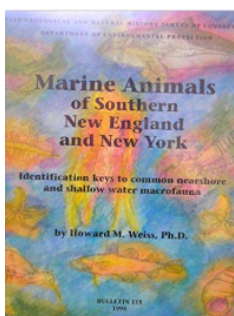


Use: An exhaustive guide for the families, genera, and some species of spiders of North America. Easy to follow.

Limitations: Not ideal for juvenile spiders, and some of the major groups of spiders lack species-specific keys.

3. **Marine Animals of Southern New England and New York: Identification keys to common nearshore and shallow water macrofauna**

Weiss, Howard M. 1995.



Use: Excellent for general identification of common invertebrate (and vertebrate) species found along northeastern shorelines. Easy to Use, especially for those new to taxonomy.

Limitations: Not exhaustive - omits many of the less common but still present species. Overall Useful for generalized identification.

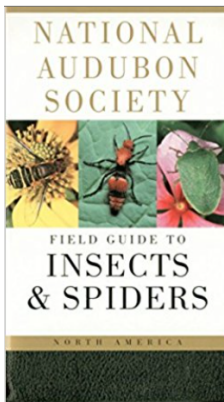
Field Guides - available for rental from the CSHL DNALC for the *Barcode Long Island* research program:

1. National Audubon Society Field Guides

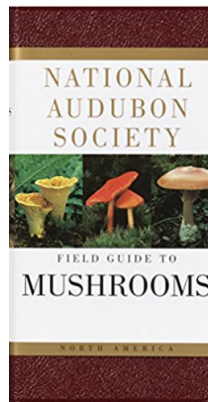
Use: The Audubon Guides are great field references for their respective topics. The guides include color, high-quality photographs of many of the most commonly encountered species of organisms found in North America.

Limitations: Not exhaustive for species diversity across Long Island.

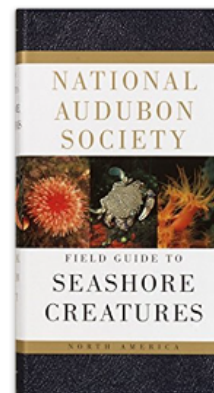
a. Insects and Spiders



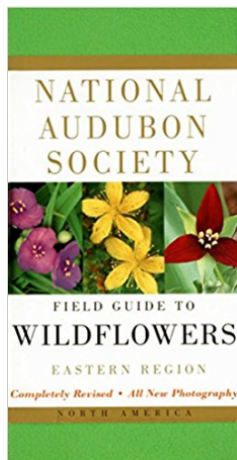
b. Mushrooms



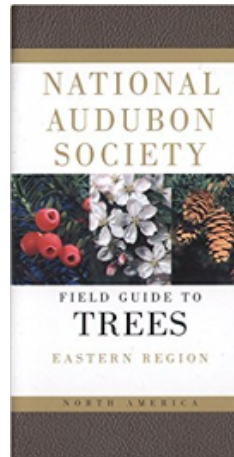
c. Seashore Creatures



d. Wildflowers: Eastern Region



e. Trees: Eastern Region



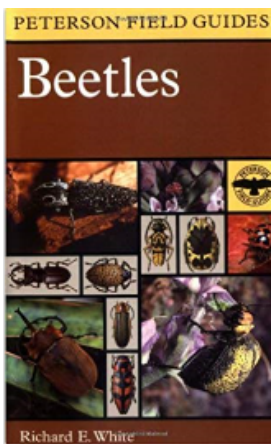
Field Guides (continued) - available for rental from the CSHL DNALC for the *Barcode Long Island* research program:

2. Peterson Field Guides

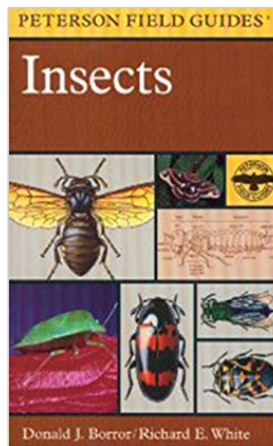
Use: The Peterson Field Guides are great resources for identification within their particular subject matter. They contain more diversity than the Audubon Field Guides, and are more rigorous in taxonomic treatment of different species, often including key notes on how to distinguish similar species from one another along with accompanying illustrations.

Limitations: The illustrations are more difficult to analyze for beginners than actual photographs that other field guides, such as the Audubon Guides, contain. Like other field guides, they are still not exhaustive in their treatment of all species diversity.

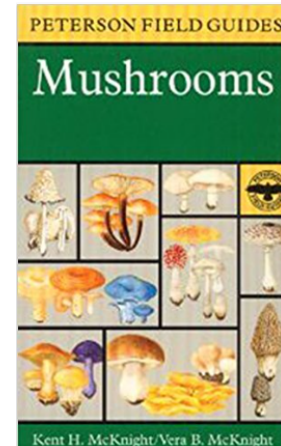
a. Beetles



b. Insects



c. Mushrooms



Electronic Taxonomic Publications:

Use: These electronic documents are useful for advanced taxonomic identification. Publications are organized by major taxonomic group:

Limitations: Advanced and time consuming; may contain taxonomy for organisms outside of the northeast region making accurate identification more difficult.

Note: *If these or other useful publications are inaccessible to participating teams, inquire about availability with BLI staff.*

Arachnids – Mites

Proctor, H. 2006. [Key to Aquatic Mites Known from Alberta.](#)

Crustaceans – Amphipods

Barnard, J. L. and Karaman, G. S. 1991. [The Families and Genera of Marine Gammaridean Amphipoda \(Except Marine Gammaroids\) Part 1.](#) *Records of the Australian Museum. Supp.* 13(1): 1-419.

Barnard, J. L. and Karaman, G. S. 1991. [The Families and Genera of Marine Gammaridean Amphipoda \(Except Marine Gammaroids\) Part 2.](#) *Records of the Australian Museum. Supp.* 13(2): 419-866.

Crustaceans – Barnacles

Zullo, V. A. 1979. [Marine Flora and Fauna of the Northeastern United States \(Arthropoda: Cirripedia\).](#) *NOAA Technical Report NMFS. Circular 425:* 1-26.

Crustaceans – Ostracoda


Cohen, A. C., Peterson, D. E., Maddocks, R. F. 2007. [Ostracoda.](#) In: James T. Carlton, ed., [The Light & Smith Manual: Intertidal Invertebrates from Central California to Oregon.](#) Fourth Edition. Univ. of California Press, Berkeley and Los Angeles. Pp. 417-446.

Insects – Dragonfly Nymphs

Wright, M. and Peterson, A. 1944. [A Key to the Genera of Anisopterous Dragonfly Nymphs of the United States and Canada \(Odonata, Suborder Anisoptera\).](#) *Ohio Journal of Science.* 44(4): 151-166.

Insects – Flies

Army Public Health Center (APHC). 2016. [Mosquito Genera Identification Key: United States and Alaska.](#)



Insects – True Bugs

Smith, R. and Holmes, A. 2002. [Literature-based key to Florida “burrowing bugs” \(Heteroptera: Cydnidae\)](#). University of Florida Entomology and Nematology. ENY 4161/6166 Classification Exercise Fall 2002. Pp. 1-5.

Mollusks – General

Harman, W. 1982. [Pictorial Keys to the Aquatic Mollusks of the Upper Susquehanna](#). Biological Field Station: Cooperstown, New York. Occasional paper No. 9.

Mollusks – Bivalves

Herrington, H. B. 1962. [A Revision of the Sphaeriidae of the North America \(Mollusca: Pelecypoda\)](#). *Misc. Pub. Museum of Zoology*, Univ. of Michigan. 118: 1-81.

Mollusks – Snails/Slugs

Burch, J. B. 1989. [North American Freshwater Snails](#). *Walkerana*. 2(6): 1-80.

Burch, J. B. and Van Devender, A. S. 1980. [Identification of Eastern North American Land Snails: The Prosobranchia, Opisthobranchia and Pulmonata \(Actophila\)](#). *Walkerana*. 2(1): 33-80.

Getz, L. L., Chichester, L. F., Burch, J. B. 2017. [Land Mollusks of Northeastern United States and Southeastern Canada](#). *Malacological Review*. 45/46: 227-285. 33-80.

Online Taxonomic Tools/Resources:

[Bugguide.net](http://bugguide.net)

Use: Presents a thorough taxonomic organization of many different types of insects found throughout the United States. Each species is organized by updated taxonomic order, family, genus, and species; may offer keys and tips for distinguishing one species from another and is especially useful for insects, arachnids, and some crustaceans. Select the “browse” tab under different groups of organisms to show the database’s collection of species.

Limitations: *This database does not provide images or references to all possible species and genera of insects/spiders/crustaceans.* Additionally, users may *occasionally* submit inaccurate identifications or information.

[Antwiki.org](http://antwiki.org)

Use: An exhaustive and invaluable evaluation of ants throughout the world. Accurate, taxonomically up-to-date, and provides keys and information for how to separate different ant subfamilies, genera, and species.

Limitations: Links may be highly technical, and while the information is generally accurate and reliable for practical purposes, it is community updated.

[Walter Reed Biosystematics Unit \(WRBU\) Northcom](http://wrbu.northcom.edu)

Use: This database contains an electronic key for mosquitoes worldwide where taxonomic characters can be input to generate possible species.

Limitations: May be difficult for beginners as it requires the user to determine the important characters in which to narrow down potential taxa in the database. May be time-consuming to navigate.

[School of Ants](http://schoolofants.org)

Use: A nice key for commonly found urban species of ants. User friendly and intuitive.

Limitations: Not an exhaustive overview of ants, but a good start for urban ant identification.