

## Natural History: Sensing Wonder Through Field Study in the Finger Lakes - CAU Summer 2024

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### Annotated Reading List

*This list is for your reading pleasure and optional further learning. No readings are required in advance or during the course.*

#### Preamble

I think it is more important to observe and try to understand how two or more organisms are interacting, or what is going on in the landscape, than it is to know the names of some number of organisms. Knowing the names does allow you to look up further information about those organisms. But names change or may, in fact, be unknown if the species is undescribed, which is more common in insects and plants than birds or mammals. However, not knowing an organism's name does not invalidate any observations you make on the creatures or the environment. With that philosophy in mind, here are some further resources that you might enjoy perusing. In addition to paper-based field guides to identification, I have also included some great identification web sites that are becoming more prevalent.

#### Book for the class

A Natural History of the Finger Lakes. I have been working on a book that started in 2019 with the first time I taught this course for CAU. I doubt that it will be finished by the time we meet, but I will send you rough drafts of many sections. Stay tuned.

#### General

The Nature Handbook: A guide to observing the great outdoors. Ernest Williams Jr., Oxford University Press, 2005. This is not a guide to identification of species, but a guide with color photographs to aid in interpreting what you see outside when you look closely. Thus, in the section on plants he covers why bark has the patterns you see, the function of certain leaf shapes, etc. In the section on insects, he discusses why certain hilltops or streamside embankments may have large assemblages of butterflies. The reasons are different. There is much more, and it is not restricted to the Finger Lakes, or even North America.

A Sierra Club Naturalist's Guide. This is a series of at least nine guides to different regions of the US. The Southern New England one by Neil Jorgensen is best for the Finger Lakes Region, although it obviously covers some coastal habitats that we lack. These guides do provide some black/white photo and line drawing identification to all manner of creatures in the featured bioregion, but those are a small part in the back of the books. The main focus of these guides is how the bioregion works. What are the climatic regimes that determine which plants can live there, and how the forests, fields, marshes, etc. function? The treatment is more detailed than in the Nature Handbook, but obviously the geographic coverage is much narrower. If you are planning an outdoor trip to part of the US covered by one of these guides, buy a used copy on Amazon. Reading in it will enrich your trip.

#### Geology

Geology of New York: A simplified account. Y.W. Isachsen, et al. 2<sup>nd</sup> Ed. New York State Museum. 2000. For the entire state, this is the best book and is loaded with maps, diagrams, halftone images, etc.

The Finger Lakes Region: Its origin and nature. O.D. von Engel, Cornell University Press, 1961. This remains the most authoritative single book on the post-glacial geology of the area. Unfortunately, it is a bit difficult to read. Not because of its technical nature, but because of von Engel's German background. I can read German and perhaps some of you can as well. If so, that will help you interpret von Engel's long sentences in which for full understanding you must until many lines and discussion of interesting concepts later the predicate await.

Roadside Geology of New York. Bradford B. Van Diver. Mountain Press Publishing Co. 1988. The Roadside Geology series is a very accessible *entré* into the geology of your area as seen from a car window. Pick a route in your state that you want to drive (slowly) and there are explanations of what you are seeing indexed by mile markers, etc. Versions of the book exist for NY, NJ, CT, MA, PA, MD/DE/DC, TN, FL, AZ, and many other states.

The Map that Changed the World: William Smith and the birth of modern geology. Simon Winchester. Harper Collins, 2001. Winchester studied geology at Oxford and is a very engaging non-fiction writer. He has also written about the eruption of the volcano Krakatoa in 1883, which obliterated an Indonesian island, rang church bells in Paris, and likely caused the Norwegian red/yellow sky in Edvard Munch's painting "The Scream". The map referred to in the title of this work was produced by the surveyor/geologist William Smith, who was the first to begin to recognize geological periods, such as the Silurian and Devonian, and that they held representative rock and fossil types that were consistent at the continental scale.

Salt, a world history. Mark Kurlansky. Walker & Co. 2002. If you were intrigued by the brief section on Silurian salt, you may enjoy this book by another great non-fiction writer. He has also written on Cod, and Oysters, both of which I've also read and are amazing. The history of NY City is intimately tied up with oysters. Who knew?

## **Plants**

After the Ice Age: The return of life to glaciated North America. E.C. Pielou, University of Chicago Press, 1991. Evelyn Pielou (died 2016) was a statistical ecologist, who worked for the Canadian Department of Forestry, and was also a good popular writer. In this book, she details how forests returned after the last glaciers receded. The actual data on which she builds her story are more Canadian and Alaskan, where she did a lot of research. Nevertheless, the process and many of the details are similar for the Finger Lakes. As I was researching this topic for the class, I was surprised, and shocked, to realize that no one has put together an accessible account for our region. The data are buried, literally, and are only found in arcane primary research papers. So, I guess that's on my list of articles to try to write in the NY Conservationist. Stay tuned.

The Natural History of Pollination. Michael Proctor, Peter Yeo, Andrew Lack, Timber Press, 1996. Pollination is a hot topic right now with the collapse of many honey bee colonies in the US and Europe. Thus, there are many more recent books with a title that includes the word pollination. Many (most?) of those I have seen have a much narrower focus than this older book, although they obviously report on more modern findings in their purview. Nevertheless, you will find a lot of good information in this book that is unavailable elsewhere.

The Sierra Club Guide to the Ancient Forests of the Northeast. Bruce Kershner and Robert Leverett, 2004. This little handbook provides the location of over 120 old growth forest plots in Pennsylvania,

New York, New Jersey and the New England states, including eight plots in the Finger Lakes region. It gives a short description of the plot, highlights, directions how to get there, and the contact information. Bruce Kershner has authored a book on ancient forests in the New York City vicinity, but I do not know of specific Sierra Club Guides to old growth forests in other parts of the US.

<http://newyork.plantatlas.usf.edu> Not specifically for identification, but nonetheless excellent. This site allows you to search the county distribution of any plant species in New York, or the list of all species occurring in any county (or several at once).

<https://pubs.usgs.gov/pp/p1650-a/> Again, not specifically for identification, but shows for every species a range map of occurrence in North America, as well as the general climatic conditions in which the species occurs.

### **Living with strangers**

Lichens of North America. Irwin Brodo, Sylvia Sharnoff, Stephen Sharnoff, Yale University Press, 2001. This beautifully illustrated guide with full color photos, line drawings, range maps, keys, etc. is **the book**, if you're interested in lichens. It is not field guide – it weighs in at 8 pounds and 12 ounces, which was coincidentally my birth weight. Ouch! Nevertheless, as a book for home it will rival any coffee table tome, but is much more useful and authoritative.

### **Arthropods**

Insects: Their natural history and diversity, with a photographic guide to insects of Eastern North America. Stephen Marshall (2<sup>nd</sup> Edition). Firefly Books, 2017. This book is a spectacular full color photographic survey of insects, with authoritative text. It also contains keys for identification of insect families, many of which are easier to use than those in more technical publications. If you have a bug nerd of any age on your gift list, giving this book would elevate you to the level of superhero.

Introduction to the Study of Insects. Charles Triplehorn & Norman Johnson (7<sup>th</sup> ed). This book has been the gold standard since the 1960s. It has the best keys for identifying almost all North American insects to the family level. It also has lots of insect biology. Unfortunately, it is out of print and slowly the family level taxonomy in the larger orders, beetles, flies, and moths, is getting out of date.

Common Spiders of North America. R.A. Bradley, University of California Press, 2013. This is excellent with color illustrations and good biology, but it is too bulky to take into the field.

The Golden Guide to Spiders and Their Kin. Herb and Lorna Levi, Golden Press, 1968 (and subsequent updates to taxonomy). Herb was the “Dean of Arachnology” for the second half of the 20<sup>th</sup> century. He had a position at the Museum of Comparative Zoology at Harvard and trained many of the top spider folks in leadership positions today. Most of the Golden Guides are very superficial, but this one is an exception, and is excellent at the family level on several continents. It is very easy to use. It also includes scorpions, mites & ticks, millipedes & centipedes, and a variety of weirdos, such as harvestmen (daddy long legs), solpugids, vinegaroons, schizomids, ricinuleids, etc., even terrestrial crustaceans.

### **Vertebrate animals**

Animal skulls: A guide to North American Species. Mark Elbroch, 2006. Stackpole Books. This is the best book for skull identification with many photos and illustrations. It covers the mammals, representatives of many families of birds, even some amphibians and reptiles. For mammals, you can use the key we used for the skullduggery exercise. It only includes species found in the Finger Lakes, but it will get you to many of the families of mammals occurring in the US, then you can go to that section of Elbroch's book.

<https://www.allaboutbirds.org/news/?pid=1189> This is the site from the Cornell Laboratory of Ornithology, affectionately called the Lab of O. The program "Merlin" will help you identify over 10,000 bird species worldwide by providing a few descriptors, such as your location, date, where the bird was (feeder, water, etc), size, and colors. The Lab of O is constantly improving Merlin to add more birds and get more precise. Recently, a sound ID function was added to help identify bird calls. It can currently identify calls of over 1000 species.

<https://www.fws.gov/lab/featheratlas/> This is a great site that allows you to put in the name of a bird and see the feathers. I find the ID function the most useful. You enter a few descriptors of a feather you find, i.e., length, color, pattern, feather type (primary, tail), bird type (raptor, duck, songbird, etc) and it will spit out images of feathers from several birds for you to peruse.

## **Winter - vertebrates**

Tracking and the Art of Seeing. Paul Rezendes, Harper Collins, 1999. There are many books on mammal biology and tracking, including by Elbroch, the Peterson Guide, Stokes Guide, and by Linda Spielman, an Ithaca resident from whom I have learned tracking. I like Rezendes' approach with photos, line drawings, and rich descriptions of the biology of the animal that left the tracks. Linda Spielman's is nice because her drawings highlight the differences of tracks made by the same animal on different substrates, e.g., sand, mud, snow, etc.

A Guide to the Behavior of Common Birds. Vols I, II, III. Donald and Lillian Stokes. Little, Brown, and Co. 1979 – 1989. The Stokes broke into the tough world of field guides with this innovative series, and have now branched into full ID guides for birds, butterflies, tracks, etc., where their books face stiff competition, and are just OK, as evidenced by sales numbers. These three bird behavior books, however, remain refreshing in that they allow you to interpret what the birds are doing. Sure, most people can recognize an American robin, but what is it doing when it stands in your yard and cocks its head? Hint: it is not listening. Or why do I not mow the prickly thistle plants in my back yard until late August? The beautiful yellow and black male American goldfinches know why.

These books illustrate the principle with which I started this reading list. Knowing the bird's name does not get you much, but being able to understand the behavior that even a common bird will show you enriches your time outside, and your life generally, in my humble opinion. These Stokes' behavior guides will lead you into that, and you don't need to go to the wilds of the Amazon or darkest Borneo to see some cool behavior that you didn't know to look for.

Enjoy.