



News from Hudsonia

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Why Natural History is Serious Science

By Erik Kiviat

How many great blue heron rookeries are there along the Hudson River? What is the history of waterchestnut distribution on the Hudson? Which species of small mammals inhabit the freshwater tidal marshes? Which insects eat common reed (*Phragmites australis*)? Where does goldenclub (*Orontium aquaticum*) grow? Where can one find a photograph of mudwort (*Limosella australis*) in flower? Where are the unusual landscapes and rare species that merit protection in nature reserves? Hudsonia receives frequent requests for information like this from ecologists and students, and from decision makers involved in the protection of this region's environment.

At Hudsonia, we are engaged in environmental sciences research in an era of increasing specialization. Serious science, in the minds of many scientists, funders, and citizens, relies on sophisticated technologies for making measurements, modeling complex systems, and analyzing large amounts of data. While appreciating the importance of these endeavors and the opportunities for collaboration, I invite readers to remember the value of basic natural history and field biology.

When I was a child, the American Museum of Natural History in New York City, and its magazine, *Natural History*, were very large in my life. As a teenager I had the pleasure of working for the Museum as a volunteer, collecting specimens in New York,

Massachusetts, and Mexico, and then participating in studies of reptile and amphibian populations at the Museum's former field station on Long Island. Natural history was more than just making a list of species for an area. According to the *de facto* definition used by the American Museum and many other natural history museums, natural history included detailed field study of flora, fauna, geology, and people, as well as collection, identification, preservation, and laboratory study of specimens, and classification of organisms (and, of course, publication of the results). Approaches ranged from observations of particular species by habitat, place, and date, to detailed mark-and-recapture study of animal populations in relation to patterns in their environment. Both field biologists and anthropologists, to some extent, examined interactions between people, other biota, and environment.



American yew (*Taxus canadensis*)

Even now, I consider myself as much a "naturalist," i.e. a practitioner of natural history, as an ecologist, and I do not conceptualize a sharp difference between "natural history" and "ecology." I practice a combination of the more exploratory, qualitative, observational, and serendipitous work that is often considered natural history, and the more hypothesis-driven, quantitative, measurement-oriented, and carefully planned work that is usually called ecology. I tend to see people in relation to the rest of nature, whether it is the numbers of recreationists pursuing different activities in a marsh, the ways that people use common reed in various parts of the world, or how wetlands are affected by land use change. I am concerned with science as an aim in itself and as a means of directly or indirectly solving environmental problems, i.e. guiding decisions about environmental planning and environmental management at various scales.

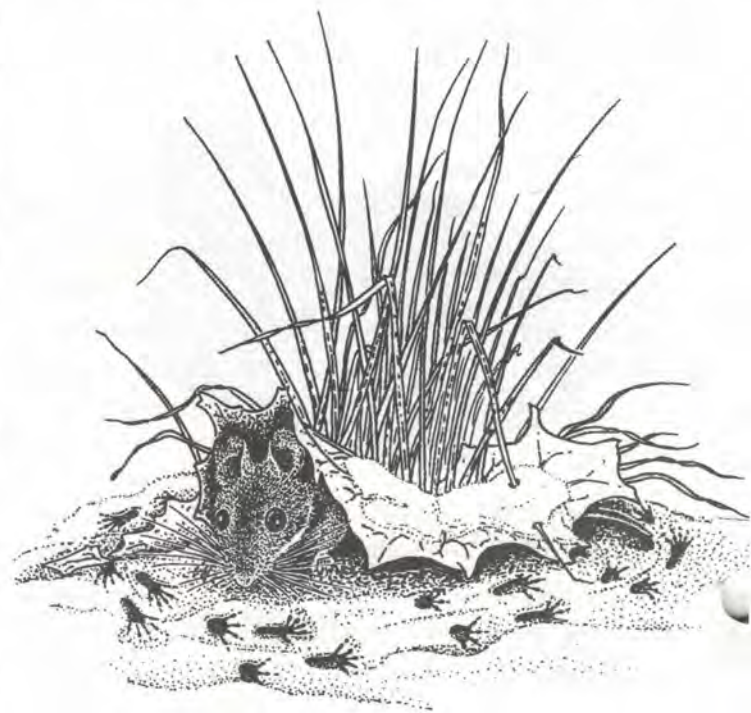
Natural history provides the taxonomic and museum reference for theoretical ecology and conservation science. In the 1940s, Ellsworth Jaeger, a superb California naturalist, made the first observations of a hibernation-like state in a bird (the common poorwill). Scientists and non-scientists can do little to study and protect the biota without basic natural history data: for example, the habitat, geographic distribution, and seasonal behavior of a species. After several decades, researchers and conservationists continue to use classic natural history books such as A.C. Bent's *Life Histories of North American Birds*, and Rogers McVaugh's *Flora of the Columbia County Area, New York*. Some ecologists are themselves good naturalists, and collect their own observational and descriptive data that provide a basis for more quantitative or theoretical work; other ecologists rely on natural history studies conducted by naturalists.

And, of course, natural history intrigues and informs the general public. Rachel Carson's books about the natural history of the oceans and shores were among the many bestsellers in this genre.

In the 1970s (and intermittently since) I was privileged to spend many days observing nature in the Tivoli Bays on the Hudson River and in many other places across the U.S. and occasionally abroad. These

experiences left me with a broad taxonomic and geographic perspective, a lot of experience identifying plants and animals, and a treasure trove of field notes and photographs. I am now "mining" my notes, photos, specimens, and memories for some of my current papers and reports. Three decades of observational study of purple loosestrife (*Lythrum salicaria*) have provided a wealth of detail on how this introduced plant interacts with animals. Hudsonia is developing a new approach to the management of purple loosestrife based on these data and similar information from other naturalists. Likewise, data from 25 years of observation and tagging of Blanding's turtles (*Emydoidea blandingii*) in Dutchess County, New York, in collaboration with numerous assistants and other biologists, allow Hudsonia to describe and predict where this species will occur and how it will behave. These studies of Blanding's turtle natural history also provided much of the background information that allowed Hudsonia to design a state-of-the-art habitat restoration project for this species.

What happens when ecologists do not have the benefit of good natural history information (their own or someone else's)? They may make mistakes. Swamp rose mallow (*Hibiscus moscheutos*) has been misidentified as marsh mallow (*Althaea officinalis*). Bog turtle has been expected in areas of the Hudson Valley that do not have



the requisite geology. Buttonbush (*Cephalanthus occidentalis*) has been assumed an essential component of wetland habitat for the Blanding's turtle. The geographic range of common reed in Canada has been mapped far southward of its true northern limits. Purple loosestrife has been described as lacking value to wildlife. Water-chestnut (*Trapa natans*) has been "controlled" by mowing without removal of the cut material. Many acres of wetlands have been omitted from wetland maps. Thousands of nest boxes for wood duck have been erected in habitats where the females were likely to parasitize each other's nests, harming productivity of young.

Natural history mistakes can be perpetuated for many decades and can lead to erroneous science, loss of biological diversity, and a great waste of time and money. Think about all the missing information: the unidentified larval food plants of common butterflies such as many of the skippers; the unknown pollinators of beautiful, vulnerable wildflowers like trailing arbutus (*Epigaea repens*) and goldenclub; the virtually undocumented herbivores of invasive plants like waterchestnut, black swallowwort (*Cynanchum louiseae*), and purple loosestrife.

What do I wish for? More top-notch naturalists. More support for natural history clubs, nature centers, nonprofit organizations, and academic programs that train naturalists and conduct good natural history studies. More ecologists who spend time helping naturalists develop their skills and publish their findings. More journals like *Canadian Field-Naturalist* and *Northeastern Naturalist* that accommodate a type of natural history writing between the popular articles in *Natural History* and the highly technical and quantitative literature of most scientific journals (maybe a new journal, *Hudson Valley Naturalist*?). I also wish there were more experienced and subsidized laboratory taxonomists who could perform technical identification of specimens for naturalists and ecologists studying amphibian larvae, invertebrates, immature vascular plants, mosses, algae, fungi, and other difficult groups of organisms. Finally, "natural history" deserves real credit for its theoretical and practical contributions -- as an important discipline with dedicated, meticulous professional and amateur practitioners.

COMINGS & GOINGS



Executive Director **Melissa Everett** left *Hudsonia* in mid-December to finish her Ph.D. thesis at the Erasmus University (Rotterdam) Centre for Environmental Studies. Erasmus, which is devoted to excellence in applied research, has recently created an off-campus Ph.D. program in sustainable development for mid-career professionals with interests ranging from pollution prevention to industrial policy. Melissa is studying the job-creation strategies of successful small-to-medium enterprises that measure success in environmental and social, as well as fiscal, terms. Her field work will take her around the U.S. to study green business incubators, environmental restoration programs, youth entrepreneurship projects, and more.

Erik Kiviat, *Hudsonia's* co-founder and Science Director, has resumed the role of Executive Director.

Research Assistant **Laura Heady** has moved on to the staff of the Student Conservation Association's Hudson Valley Program, where her responsibilities include recruitment, training, coordination, and support of AmeriCorps members placed at the New York State Department of Environmental Conservation and at state parks throughout the Hudson Valley.

Tanessa Hartwig, degree candidate in the Bard Graduate School of Environmental Studies, will take Laura's place as Research Assistant, with responsibilities in the Blanding's turtle habitat studies, invasive plant research, and more.

We also welcome AmeriCorps members **Dan Goodfriend** and **Eben Broadbent**, who will assist with Blanding's turtle and biodiversity mapping studies, respectively.

Hudsonia's Board of Directors is delighted to welcome **Janeth Thoron** of Rhinebeck who serves on the Development Committee, and **Bob Williamson** of Milan, who serves on the Executive and Finance Committees. We thank all our board members for their hard work this year.

A Night Out with the Field Team

by Laura T. Heady



The month of May is when brilliant songs and colors of spring warblers fill the forests; wet places become lushly decorated with the green and purple spathes of Jack-in-the-pulpit and the broad leaves of skunk-cabbage; and red-winged blackbirds are busy tending nests. For Hudsonia's field research team, May also marks the time when office chairs and computers are gladly traded in for chest waders and binoculars. The first of May starts the beginning of the Blanding's turtle field season, and our continued monitoring of their activity and habitat use in southern Dutchess County.

Daily Trapping and Turtle Tracking

The year 2000 field season began with the annual trapping of Blanding's turtles at a habitat restoration site designed by Hudsonia, and at an adjacent park. Over 50 live-traps were baited with sardines (purchased in astounding quantities in local supermarkets) and set in a variety of wetland habitats, including shrub

swamps and woodland pools. Later in the season, smaller box traps were set to trap juveniles. The results? We handled 20 adult Blanding's turtles and two juveniles, and also captured a "teenager": a juvenile approaching breeding age, new to the project and an important member of the turtle population. The interesting assortment of "by-catch" found in the traps varied from day to day, and included painted turtles, snapping turtles, bullfrogs, tadpoles, redbreast sunfish, bluegills, pickerel, and a golden shiner.

Before being released back to the wetlands, all captured Blanding's turtles are measured, weighed, and photographed, and a radio transmitter is attached to the carapace of adult turtles. In the following months, we use radiotelemetry to find daily locations for each turtle. We also collect vegetation data and other habitat information wherever the turtles are found. This information will help us understand how Blanding's turtles use the different wetlands and the surrounding uplands in their habitat complex.

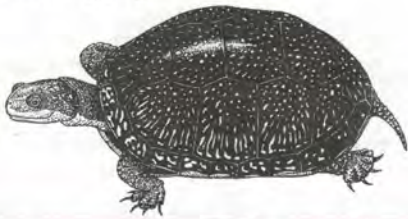
Night-life Abounds on the Nesting Grounds

In early June, when the turtles begin nesting, our field work becomes more nocturnal. Waders and binoculars are replaced by headlamps and hiking boots. With the aid of telemetry and dedicated volunteers, efforts shift to following the female turtles as they leave the water and begin their evening migrations to the nesting grounds. Females sometimes travel over 1 km to nest. They take many hours to dig the nest, deposit eggs, and carefully cover them with soil, rocks, and plant debris. Unfortunately, their camouflage efforts are often futile, as hungry skunks and raccoons are adept at locating and digging up turtle nests. To reduce this predation pressure, we silently wait for the females to complete their nests, while we listen to the choruses of green frogs, bullfrogs, and gray treefrogs, and admire the starry sky. Then, in the early morning hours when the turtles are heading back to the water, we protect each nest with a wire mesh cover.

The 2000 nesting season resulted in 10 protected nests. Three females nested in the habitat restoration area and one at the park. The remaining six nests were constructed in agricultural fields or other areas of human disturbance, including a parking lot and a (dry) stormwater detention basin. The eggs were carefully excavated from these six nests, and relocated to the restoration area and the park. We hope that the vegetation and soil data collected at each nest will shed light on Blanding's turtle nest-site selection and nest success.

(continued on page 5)

In mid-August, we started checking the nests daily for the emergence of hatchlings. In the last three years, over 250 Blanding's turtle hatchlings have emerged from protected nests. We look forward to releasing each year's hatchlings back into the wetlands, and maybe seeing them again one day, basking on a log, swimming through the buttonbush thickets, or perhaps one night under a June moon, digging their own nest.



Blanding's Turtles

Blanding's turtle (Emydoidea blandingii) is a state-listed threatened species in New York and appears to be declining throughout much of its North American range. In 1996 and 1997, Hudsonia designed and oversaw the construction of new habitats for Blanding's turtles in southern Dutchess County. Since then, we have conducted annual monitoring of the population and its new wetland and upland habitats. In collaboration with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP), we've extended this research to include the Blanding's turtle population at a state park. Earlier this year, we used our findings to develop a park-wide management plan for the turtles and their habitats. We hope one day to study the turtles on a county-wide scale, to improve our understanding of the dynamics of these Dutchess County populations, and to better manage and conserve Blanding's turtles and their habitats in this isolated portion of their range.

Hudsonia's Biodiversity Manual to be Published by DEC

Hudsonia's *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* will be published this spring by the New York State Department of Environmental Conservation. And, as communities of the Hudson River Valley struggle with land use options and priorities for protection, we will offer guidance through our new research and educational program, Biodiversity Assessment for Communities in Transition. This program will begin with a pilot biodiversity assessment in southern Dutchess County, thanks to a generous grant of \$50,000 from the Marilyn Milton Simpson Charitable Trusts. Along with the research, Hudsonia will be hiring a Biodiversity Educator to inform community leaders and citizens about Hudson Valley biodiversity and its protection through sound land use. Hudsonia will work cooperatively with the DEC -- funder of this one-year position. The DEC will provide seed

grants of \$1,000 each to communities wishing to pilot the Manual.

Because biodiversity in temperate zones has been rapidly gaining attention as an issue, in conjunction with concern about sprawl and open space protection, this initiative has attracted varied support.

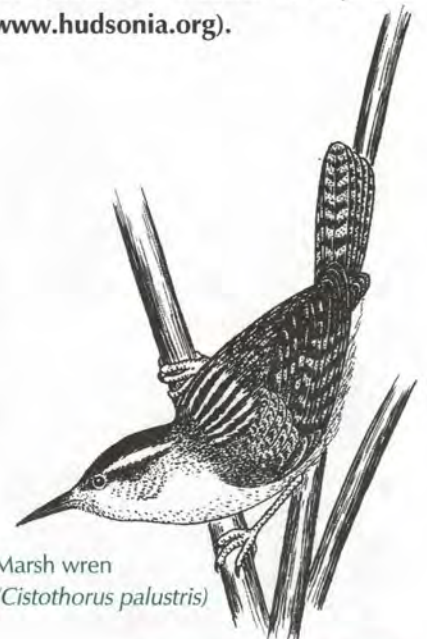
For example:

* IBM Corporation has just donated a ThinkPad computer for use in field data collection and community outreach presentations.

* The New York State Biodiversity Research Institute has donated 150 copies of E.O. Wilson's book, *Biological Diversity: Our Oldest Human Heritage*, to Hudsonia for use in outreach and education. Community groups may borrow these!

* Scott Guerin, a principal in the well known design firm DMCD Inc., has volunteered to develop a portable display on Hudson Valley biodiversity which can be placed in public venues, such as town halls and libraries, where assessments are underway or under consideration.

With financial support from the Norcross Wildlife Foundation, two hundred copies of the Manual will be available free-of-charge for Conservation Advisory Councils, land trusts, and conservation groups. If you have previously called to express interest in the Manual, you can expect a mailing when it is published. You can also check our website for updates (www.hudsonia.org).



Marsh wren
(*Cistothorus palustris*)

Shorts

Reed Ecology Seminar Strengthens Data Exchange with Europe

The Bard College Graduate School of Environmental Studies and Hudsonia jointly sponsored a seminar by European ecologist Sabine Guesewell on 3 August 2000. Sabine spoke about her doctoral research on common reed in Swiss fen meadows. This is a rare wetland type of which only 10% remains. Although reed was perceived as invasive and damaging to conservation interests in these wetlands, reed has been present there at least since the early 1900s and appears to fluctuate rather than invade. Unmown fen meadows usually are dominated by reed, but if meadows are mowed in early and late summer the reed thins out after several years. Low density reed stands allow a high diversity of associated plant species. In Europe, reed is generally considered favorable rather than harmful to biological diversity; a variety of management techniques is used to make reed stands suitable for rare animals and plants as well as the harvest of thatch and other materials. North American practitioners have much to learn from the European experience with reed.

Landowner Stewardship Program Unveiled

Would you like to know more about the plants and animals that live on your land? Are you curious about the ways that land you own might better serve as habitat for wildlife and native plants? Would you enjoy having more insight into local natural history? "Walk with an Ecologist" is a new Hudsonia program to help land owners gain this knowledge in an enjoyable fashion - and support

Hudsonia's research in the process. (Call us for details.)

In the words of our first satisfied participant, a Rhinebeck landowner, "I can testify that you will learn more than you can imagine about your own stomping ground: I found out which aquatic plants live around my boat landing -- wild rice and spatterdock and water-chestnut. I got some guidance on what to do with a stream that's carving out a ravine on the land. And I had the time of my life." The program can be adapted for any expanse of land. Our friend continues: "You don't have to own a front and back 40 to make use of this program; I leaped at the offer for my two-acre hillside. Its a priceless gift to yourself, or to another."

Improved Management of Invasive Plants: Community Volunteer Observers Chart a New Course for Management

This year, Hudsonia has been conducting field studies to develop preliminary management guidelines for the invasive marsh plants common reed and purple loosestrife in New York City and Westchester County. To address the needs for extensive data collection and verification, we are (gratefully!) using a Volunteer Observer Network of amateur and professional naturalists. So far, we have been able to document mudwort (*Limosella australis*), a rare plant, growing in a *Phragmites* margin at Croton Point, and have seen a pipevine

swallowtail (*Battus philenor*) nectaring at purple loosestrife flowers in Flushing-Corona Park. At the edge of Jamaica Bay, we observed a clapper rail visiting a mixed stand of shrubs and reed, and recorded marsh wrens nesting in reed at Marshlands Conservancy. Each new location provides us with important and interesting data -- and each new volunteer expands our reach. Thanks to all our volunteers, and to the Westchester Community Foundation and New York City Environmental Fund for project support.

Positions Available at Hudsonia:

Director of Development Biodiversity Educator

See www.hudsonia.org for full job descriptions, or contact Dwane Decker at (845) 758-7053.

Thanks to the following donors of books and journals:

John Jay Chapman
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In Memoriam



Our deepest sympathies go out to the family and friends of Cortney Rice (Bard 2000) of West Virginia, who passed away in a Rhinecliff house fire in late July. Cortney was a super-temp with Hudsonia this past spring. He showed initiative, enthusiasm, judgement, maturity and wit, pitching in on administrative and logistical tasks with refreshing energy. Although he worked with us for just a few weeks, Cortney left a distinct mark on our hearts and we miss him.

OUR THANKS TO THE FOLLOWING VOLUNTEERS:

Joe Ashley	Jane Dodds	Meredith Hummel	Beth Meccariello	Frank Somers	and
John Balint	Denise Edelson	Lee Holt	Will Nixon	Ernie Schuyler	Aniela, Anna, Cindy,
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CALENDAR OF EVENTS

Field Trip with Spider Barbour

17 March 2001. At Black Creek Preserve, a Scenic Hudson preserve featuring a stream, vernal pools, tidal shores, and woods. Call for information, 845 758-7053

Tivoli Bays Hike with Bill Maple

21 April 2001. Walk from the mouth of the Saw Kill (Bard Campus) North along the Tivoli Bays to Kidd Lane (ca.2 mi.) See streams, bluffs, ravines, a freshwater tidal marsh, and lovely views of the Hudson. Call for information, 845 758-7053

Seminar with Erik Kiviat

Thursday, 3 May 2001. "Purple Loosestrife: Ecology and Management of an Invasive Plant." Scarsdale Audubon Society. Call for information, 914 722-1289



Slimy salamander
(*Plethodon glutinosus*)

A Reminder:

The research programs you have read about in these pages are labor-intensive propositions. Tailor-made research grants are few and far between. To put it plainly, your contributions make it possible.

If you have already contributed to our Annual Fund Appeal, we thank you. If you have yet to respond, we hope you will give generously.

As we enter a new year, we thank our community of supporters for all the ways you make our work easier - the contributions, the volunteer efforts, spreading the word about our volunteer programs. We wish each of you a prosperous new year, and we look forward to seeing you soon.

*With appreciation,
Michael Trimble, Chairman*

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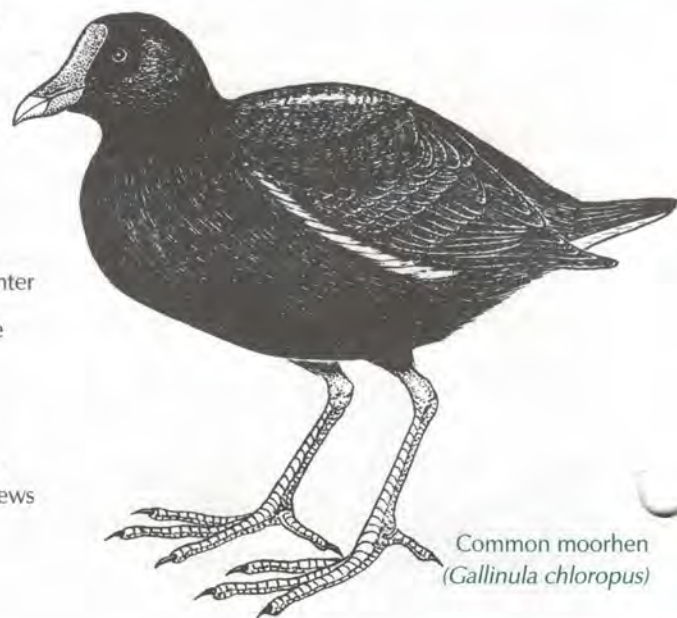
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Common moorhen
(*Gallinula chloropus*)