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News from Hudsonia

Volume 30, Number 2

Fall 2016

Dear Friends of Hudsonia,

The woods, wetlands, and meadows are changing from their fall to their winter colors. Woodpeckers are visiting beetle- and ant-infested trees. When this reaches you, ice will probably be forming on ponds. Muskrats, a few moths, and juncos go about their business despite the cold. Planning Boards and land trust staff are making decisions. Landowners and preserve managers are planning next year's work preserving, restoring, and showcasing habitats, plants, and wildlife. Environmental and research professionals are trying to understand how impending changes in federal agencies will affect priorities in regulation and funding.

Although Hudsonia's field work slows down when there's much snow and ice, we are busy through the winter identifying specimens, analyzing data, cataloguing photographs, writing reports, papers, and proposals, and answering your natural history and environmental questions by phone and email. In this world of ever-intensifying land use and resource extraction, conservation science, like chickadees and meadow voles, can never sleep for long.

Help keep Hudsonia strong with a generous donation! *The Hudson Valley and the northeastern states will need ever more science and conservation in 2017; Hudsonia needs your support to continue our part in this. And please see "Hudsonia moves toward Transition" later in this issue.*

All our best for winter and the world,

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White M hairstreak nectaring on white sweetclover.
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Cover photo: Shrubland in the Taconic Hills.
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SHRUBLAND FOR NORTHEASTERN BIODIVERSITY: A Critique of the Young Forest Initiative

By Erik Kiviat*

Wood turtle (NYS Special Concern) uses perennial streams and nearby upland and wetland habitats. Erik Kiviat © 2016

This article addresses some of the complexities and pitfalls of wildlife habitat restoration, and encourages clarity of thinking about purposes, means, and collateral harms. "At a minimum we should ensure that every habitat type is well enough represented to sustain viable populations of all native species." [5]

Different species of wild organisms have different habitat affinities. For example, certain birds breed in mature forest, others in shrubland or sapling woods, and still others in grassland. Many species need extensive blocks of their appropriate habitat in order to maintain viable populations. Some species use combinations of habitats, even during the breeding season; for example, young individuals of mature forest songbirds may benefit from recently logged habitat in combination with mature forest.[11] Whatever was here centuries ago, in order to conserve species that are declining now, habitat must be managed to create and maintain extensive stands of the three broad types—mature forest, shrubland or sapling woods, and grassland, and in some cases more specific subtypes.

Large patches of shrublands and sapling woods are crucial for supporting New England cottontail (NEC), a rare native rabbit that persists in half a dozen regions of eastern New York and New England and is the subject of intense conservation planning.[16] These habitats are also important for the American woodcock, a bird that has declined rangewide for decades, although woodcocks also use fields and wet meadows in spring for their iconic courtship displays. There are many other animals of conservation concern with shrubland or sapling woods affinities, including ruffed grouse, brown thrasher, eastern towhee, prairie warbler, blue-winged warbler, golden-winged warbler, black racer (a snake), box turtle, and buck moth.

The ecology of rare and vulnerable species is often complex, and biologists do not fully understand the changes in the populations of the NEC, woodcock, ruffed grouse, and other declining species of shrubland or sapling woods. Despite an implication that NEC does best in shrubland without overstory trees,[4] sampling of cottontail habitats in four of the NEC geographic ranges indicated a moderate tree canopy cover (58% on average) where NEC was present, and that the competing eastern cottontail did better where there were fewer overstory trees.[7] It is also noteworthy that NEC selected multiflora rose (*Rosa multiflora*), a nonnative shrub, as cover more than any other plant in a study in southeastern Connecticut.[13] American woodcock populations are affected adversely by hunting as well

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* Erik Kiviat is Hudsonia's executive director.

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Eastern box turtle (NYS Special Concern) forages in woodland edges and meadows. Erik Kiviat © 2016

as habitat loss, at least in some states.[6] Potentially negative factors in the migration stopover areas and winter ranges of migrant shrubland birds are poorly known and may be partly responsible for declines.

The New York State Department of Environmental Conservation (DEC), in cooperation with federal and private agencies, has a "Young Forest Initiative" (YFI) in managing the state's Wildlife Management Areas (and similar initiatives exist in other northeastern and north-central states). The goal is "to establish a minimum of 10% of the forested habitat on each WMA as young forest, which will be maintained in perpetuity" for purposes including "[providing] habitat for key species of conservation interest, including both at-risk and important game species…[and supporting] landscape-level species and habitat conservation…."[1] The 10% young forest goal would be achieved by clearcutting existing forests on portions of many WMAs. Some, perhaps many, of the forests slated for cutting are mature; that is they are dominated by trees 30 cm (12 in) or greater in diameter. Large blocks of mature forest are crucial for many birds, among them barred owl, red-shouldered hawk, wood thrush, and scarlet tanager. Wood thrush has declined notably in our region; there are undoubtedly multiple reasons, but loss of large mature forests in their breeding grounds is an important element. Mature forests are also important habitat for northern long-eared bat, many cavity-using animals, dead-wood-associated invertebrates, spring wildflowers, sedges, mosses, and lichens.

It is true that shrublands, especially the larger patches (e.g., 4-10+ hectares [10-25+ acres]), are in short supply in our region. And there is no question that shrubland species such as the New England cottontail and American woodcock need conservation attention. But do we need to remove mature forest to create shrubland? Although this region has lots of mature forest now, much of it is in small patches, and in many places is affected by clearing for land development, by logging, or by outbreaks of pests and pathogens such as the hemlock woolly adelgid. A shrub or tree sprout stand can be created in a few years by clearcutting forest, but mature forest takes 75 years or longer to re-develop. Although in some cases forest breeding birds may repopulate a regrown forest, the native forest herbs, salamanders, and even the understory forest shrubs may take much longer to recolonize.

I am concerned that the simplistic approach to habitat management in the Young Forest Initiative undermines some of the program's stated purposes. Where habitat is managed for shrubland wildlife, one cutting regime may not benefit every species of concern. Some species benefit from very specific habitat features, such as quaking aspen trees for ruffed grouse,[12] or dense shrub thickets for New England cottontail. Most studies have shown that shrubland birds do better in patch interiors than edges,[15] thus the size thresholds for managed shrubland may be substantially larger than once thought. The "early successional" habitats that develop from clearcutting forests are different from those that develop from oldfields; the latter habitat retains its short stature longer and is suitable for different bird species.[5] While the availability and quality of northeastern shrubland habitats do indeed play an important role in maintaining native biological diversity, current science argues for a cautious approach to implementing forest-to-shrubland conversion on a large scale.

One of the Wildlife Management Areas intended for the creation of young forest from polewood (trees 10-30 cm dbh [4-12 in]) or mature forest is the Tivoli Bays WMA in the Town of Red Hook and Village of Tivoli in Dutchess County. DEC proposes to convert 20 hectares (50 acres) of the approximately 200 ha (500 acres) of upland forest to shrubland - young forest over the next ten years. In 1979, when Central Hudson Gas & Electric agreed to sell the Tivoli Bays property to the DEC, Central Hudson contracted with a company that heavily logged much of the existing upland forest on the mainland. This resulted in the loss of a dense breeding population of the wood thrush, and the colonization of at least one nearly-clearcut area by the weedy nonnative tree-of-heaven. Although conservationists, including a former DEC administrator, argued for not logging a small old-growth forest stand, there was no assessment of the impacts of logging on the steep clay slopes, small tributary streams, and North Bay itself. The loggers drove heavy equipment into the tidal swamp of the Cruger Island Neck, leaving 30 cm (12 in) deep ruts in the wetland soil, and removed twenty-two mature ash trees that were not marked for cutting.

That happened thirty-seven years ago. The Hudson River National Estuarine Research Reserve (HRNERR), which now administers the Tivoli Bays WMA, did not exist. Now New York State's agencies and populace are much more knowledgeable and concerned about biological conservation, and we have a chance to revisit the 1979 decision to strip the forest cover.

Tivoli Bays is not just another WMA; it is an incomparable nature reserve and research site, one of the most important in the region, and one of the few major fresh-tidal wetlands on the Hudson River that is bordered by forested upland. It is an Important Bird Area, part of the HRNERR, and part

Thickets of the nonnative multiflora rose and other shrubs are favored by New England cottontail. Erik Kiviat © 2016

of the DEC-designated Hudson River Estuary and Tidal Wetlands Significant Biodiversity Area. Tivoli North Bay has also been my single most important study area since 1970.

What environmental features of the Tivoli Bays area should be considered in management planning? Magdalen Island is accessible only by boat, so retains some of the ecological advantages of isolation. Cruger Island was formerly accessible by vehicle but improvements to the railroad ca. 1980 cut off access, thus skidding logs would be impossible. Most of the uplands east of North Bay, except for a small area near the Route 9G entrance, are underlain by silty clay loam and fine sandy soils that formed in the basin of former glacial Lake Albany. Many areas have eroded into narrow ridges and deep ravines with very steep slopes and small streams, and the resulting terrain is subject to sheet erosion, slumping, and sliding.[10] Logging on this terrain would result in serious siltation in the streams and the North Bay marsh. The clay bed streams have diverse benthic macroinvertebrate assemblages, and also support wood turtle (Special Concern in New York) and a plant listed as Threatened.

The bluffs fronting on North Bay itself are also very steep and the soils are clayey and prone to slumping and sliding. North Bay supports many rare plants and animals, ranging from Muenscher's naiad and goldenclub to least bittern and king rail, and is important fish and turtle habitat. The entire area is used by bald eagles year-round. Although added sediments are not necessarily a bad thing in tidal wetlands (they help the wetlands keep up with sea level rise), there are many places in North Bay where rapid sediment deposition from logging would harm organisms or their habitats.

New England cottontail requires patches of dry or wet shrubland and sapling woods at least several hectares in size. Shrubland specialist breeding birds require patches of a few hectares or larger, preferably roughly circular in shape, and avoid the edges between shrubland in clearcuts and the surrounding mature forest.[15] Thus, in order to create 20 ha of good shrubland-sapling habitat in a suitable configuration for these species, the clearcutting at Tivoli Bays WMA would have to impinge on the steep clayey slopes.

The DEC Young Forest Initiative Web page (http://www.dec.ny.gov/outdoor/104218.html) states :

> "There are some forested areas not suitable for creating young forest, such as those that are:
>
> - on steep slopes
> - adjacent to environmentally sensitive areas
> - currently used by imperiled species
> - in some sensitive freshwater wetlands."

The Tivoli Bays WMA meets all of these criteria of unsuitability for conversion of polewood or mature forest to shrubland – sapling woods. Although the DEC plan[2] contains lists of WMAs deemed suitable for this conversion, Tivoli Bays is on the "included" list rather than the "will not be included" list. (There may be other "included" sites that should be removed from the list for ecological reasons.)

Instead of using these inappropriate places for the Young Forest Initiative, I recommend identifying those large oldfields and shrublands throughout the historic NEC range where owners are willing to manage for shrubland. Examination of satellite imagery, aerial photos, and Hudsonia habitat maps indicates the existence of large oldfields and shrublands that, with willing landowners, could be managed to create or maintain habitat for shrubland wildlife. Derelict or "vacant" urban lands, such as closed or inactive garbage landfills, may also support breeding woodcock and other shrubland species (personal observations). Large areas of such land, for example, mined areas or brownfields, may with appropriate remediation and restoration provide an environment for shrublands and their wildlife. In Tennessee, reclaimed strip mines, utility rights-of-way, and regenerating clearcuts all had diverse young forest and mature forest birds in the early summer (end of breeding season), and the three habitats had different species abundances.[8] Electric transmission rights-of-way were also found suitable for a number of shrubland bird species in Vermont.[14] Establishing and maintaining shrublands and young forests on disused farmland, rights-of-way, and derelict lands would allow the protection of existing mature forests for their habitat functions and other ecosystem services (carbon sequestration, water quality and quantity, climate moderation, air and soil quality, cultural signifi-

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HUDSONIA PROJECT UPDATES, 2016

Binnen Kill. We are working with Louis Berger U.S., Inc. and the Hudson River National Estuarine Research Reserve on a study of the fish, birds, reptiles, amphibians, and plants at a Hudson River shoreline site owned by Scenic Hudson and New York State along the **Binnen Kill**, a small tidal stream in the towns of Bethlehem and Coeymans (Albany County). The purposes are to better understand the biological communities, identify areas of ecological sensitivity, identify areas that might benefit from restoration efforts (e.g., removal of invasive plants or restoration of tidal flows), and provide other information that will help with land management planning. (Funded by the New York State Department of Environmental Conservation through the New England Interstate Water Pollution Control Commission.)

Blue vervain in a calcareous wet meadow at the Binnen Kill site. Chris Graham © 2016

Biological Assessments. As always, we have been engaged in many biological assessment projects all over the Hudson Valley. For example, we are collaborating with the Hawthorne Valley Farmscape Ecology Program on biological surveys at the Greenport Public Conservation Area, on a large property in the **Town of Ancram** (both in Columbia County), and at the Stone Church property in Dover (Dutchess County). These projects will assist the Columbia Land Conservancy, the Dutchess Land Conservancy, and the Town of Dover as they develop plans for land management and public uses that will take advantage of natural features while protecting the most sensitive areas. We are also studying the plants, animals, and habitats at three agricultural centers in the towns of **Chester** (Orange County), **Ulster** (Ulster County), and **Copake** (Columbia County) belonging to Northeast Farm Access (NEFA). We will provide information and ideas to NEFA and the farmers on how the natural assets of those sites might contribute to farm enterprises, and the kinds of farm practices that might benefit and support the native biological communities.

Biodiversity Education. We collaborated with the Rensselaer Plateau Alliance and the NYSDEC Hudson River Estuary Program to conduct a June workshop for municipal leaders and conservation organizations on **Wildlife, Water Resources, and Landscape Connectivity**, and collaborated with the Estuary Program on a September short course on **Habitat and Water Resource Assessment and Conservation**. We continue to provide **technical assistance** to past participants in our biodiversity education programs to help advance local efforts to identify, assess, and conserve biodiversity and water resources. For example, we assisted the **Town of New Paltz Environmental Conservation Board** with updating Habitat Assessment Guidelines for use by applicants for land development projects, and we helped **City of Newburgh** agencies assess the habitats and plant communities on an open space parcel on the Newburgh waterfront, to inform planning for public uses. (Funded by the NYS Environmental Protection Fund through the NYSDEC Hudson River Estuary Program and the Cornell Department of Natural Resources.)

Greene County Conservation Priorities. We are working with the Greene Land Trust, Cornell Cooperative Extension, and the Greene County Conservation Leaders Alliance to identify, map, and describe important natural resources and conservation priorities throughout the county. In 2015 we prepared a series of natural resource maps that will help us analyze the landscape and identify the areas that may be most important for maintaining water supplies, native biological diversity, scenic and recreational resources, and other features important to Greene County communities. In early 2016 we prepared an interactive **Greene County Natural Resources Map**—now available on the websites of the GLT and the CCE—that allows users to view data layers selectively, including such things as Significant Biodiversity Areas, large forests, flood hazard zones, trout spawning streams, prime farmland soils, protected land, tax parcel boundaries, and much more. The project has been funded to date by a grant from the Land Trust Alliance to the Greene Land Trust. We are seeking funding for the next phase of the project in which we will analyze the data, prepare a county-wide map of conservation priorities, and prepare a report describing important resources, explaining their significance, and providing recommendations for effective conservation measures.

Grass-of-Parnassus, a characteristic plant of Dover fens. Chris Graham © 2016

Habitat Mapping. We have been conducting field work all year to identify and map **ecologically significant habitats** throughout the **Town of Dover** (Dutchess County). We have found several uncommon and rare habi-

Pitch pine-oak-heath barren on a steep ledge at the Stone Church Preserve. Gretchen Stevens © 2016

tats, and many state-listed and regionally rare plant species at previously unknown locations. The final habitat map and report, to be completed in 2017, will help landowners, town agencies, and others better understand how to effectively protect biodiversity, water resources, and the natural systems that support the human community in Dover and beyond. (Funded by an anonymous donor through the Dutchess Land Conservancy.)

Frank's sedge (NYS Threatened) in a meadow near the Binnen Kill. Chris Graham © 2016

New Lebanon Natural Resource Conservation Plan. We are working with the Town of New Lebanon Conservation Advisory Council to prepare a Natural Resource Inventory and Conservation Plan for the town, to be completed in 2017. We have prepared a series of 15 maps of New Lebanon natural features, and the CAC has been visiting as many areas as possible to learn about habitats and water resources throughout the town. (Funded by the NYS Environmental Protection Fund through a grant to the Town of New Lebanon from the NYSDEC Hudson River Estuary Program.)

Invasive Plants. In collaboration with Cornell Cooperative Extension Rockland County, we are preparing fact sheets on **best management practices for selected invasive plants**, focusing on small scale, non-chemical methods. (Funded by the Lower Hudson Partnership in Regional Invasive Species Management.)

Bog Turtle Habitat Management. In collaboration with Jason Tesauro Consulting, we spent three years managing a bog turtle habitat with light cattle grazing to create a lower-stature fen habitat more favorable for the turtles. In the fourth year (2015), a dense low sedge and grass layer developed where the grazing had inhibited tall, dense cattail growth. We have analyzed data from turtle radio-tracking and vegetation monitoring plots, as well as soils data, to understand the outcome of this management regime for the habitat and the turtles, and make recommendations for other bog turtle sites. (Funded by the US Fish and Wildlife Service through NYSDEC.)

Bog Turtle Habitat Connectivity. This project has used Hudsonia's townwide habitat maps to model how bog turtles can most safely and successfully disperse from one core habitat to another. Practitioners are using our results to protect and manage landscapes between selected bog turtle sites. A paper will be submitted for publication soon. (Funded by the Geoffrey C. Hughes Foundation, the Andrew Sabin Family Foundation, and the US Fish and Wildlife Service.)

Veery nest in an Ancram forest. Chris Graham © 2016

Slimy salamander, an amphibian of Dover ledge and talus habitats. Chris Graham © 2016

Other Turtle Studies. Hudsonia completed a second year of radio-tracking painted turtles in Tivoli North Bay (Dutchess County) on the Hudson River. This is an unusual population of a common species that can serve as a surrogate for studying an endangered species. We are also analyzing twenty years of radio-tracking and environmental data from the Blanding's turtle habitat restoration project in southern Dutchess. The turtles use both constructed wetlands and natural wetlands during the late spring and summer, but do not overwinter in the constructed wetlands. Long term monitoring is rarely undertaken, but is essential to understanding what works and doesn't work about habitat restoration. (Supported by the Lillian Goldman Charitable Trust.)

Thompson Pond. Hudsonia has repeated a survey of the flora of this 100-acre circumneutral bog lake that was first studied forty years ago. Preliminary analysis suggests that a few plants of low-nutrient habitats have disappeared, and the open water areas of the pond have become smaller, but the wetland flora is still species-rich, and includes many uncommon species of this uncommon habitat type. (Funded by The Nature Conservancy.)

Saw Kill. Bard College is undertaking studies of the Saw Kill that are focused on two old mill dams, and Hudsonia is surveying vascular plants, mosses, fish, amphibians, reptiles, and birds for the project. The biological data will contribute to decision-making about removing dams to facilitate American eel migration upstream, or installing turbines for micro-hydropower generation. (Funded by the NYSDEC Hudson River Estuary Program, and NYSERDA.)

Teasel in a frosty meadow at the Greenport Public Conservation Area. Chris Graham © 2016

Other Technical Assistance. Hudsonia has also provided technical assistance to landowners regarding wetland management, gas pipeline impacts, and subdivision proposals. ■

Shrubland continued from page 3

cance). In some cases, grassland and shrubland on state-managed sites need maintenance such as rotational mowing or brush-hogging to maintain existing habitats.

Creating shrubland, however, does not necessarily mean that the desired habitat-specialist species will occupy it. Although the uplands at Tivoli North Bay supported "grassland" sparrows in the 1930s (James Hickey unpublished field notes), these species are rare in New York now and would not necessarily repopulate if grassland or shrubland were re-created there. As Hudsonia has discovered in our experimental restoration of habitat for rare turtles, the best planned habitat construction projects are often not completely successful. This leads to the principle that, whenever possible, rare species should be conserved and managed where they already occur. This discussion of shrubland creation is relevant to the proposed Great Thicket National Wildlife Refuge in eastern New York and western Connecticut, the aim of which is also conservation of NEC and other shrubland wildlife.[3]

The Hudson Highlands west of the Hudson River in New York are a stronghold for golden-winged warblers nesting in swamps.[9] It makes sense to manage this species and its habitats in and near Harriman and Sterling Forest state parks, rather than try to create such habitat at locations where there are no golden-wings now. Certain shrubland and young forest species, such as American woodcock and ruffed grouse, were common in our region several decades ago, but the vegetation and climate have changed, and many kinds of plants and animals have appeared and disappeared. The environment is different and attempts to restore declining or extirpated species may be difficult or impossible. This means that restoration efforts, which if done well are expensive, should be planned and executed with the best available science and local information.

In my fifty years of studying nature, I have developed a four-part dictum about management planning for conservation: 1. Understand the local situation; 2. Know the ecology of the species involved; 3. Clarify the goals of management (and the potential conflicts, challenges, and needs for perpetual maintenance); and 4. Monitor in the long term. I recommend that DEC proceed slowly, if at all, with the YFI, concentrate on managing existing oldfields and shrublands instead of cutting mature forests, do small cuts only or cut on a very few sites (WMAs), and sample shrubland and forest wildlife and plant species before and after for many years, as well as monitoring soil erosion and compaction, and colonization or spread of nonnative weeds. These YFI conversions are experiments and should be treated as such, so that the actual benefits or harms to plants and animals of conservation concern can be ascertained. ■

American woodcock (NYS Species of Greatest Conservation Need) uses shrublands, young forests, and swamps for nesting and foraging, and meadows for courtship. Erik Kiviat © 2016

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Julianna Zdunich, for designing our fundraising appeals and managing the Hudsonia website.

WISH LIST

Office copier

Color printer (good quality)

HP plotter, 42-inch

GPS units

Binoculars (lightweight, good quality)

Natural history and conservation science books, periodicals, maps

Lightweight pruning pole

(For technical equipment, we are interested only in items less than 5 years old and in good working condition. For all items, please inquire first)

HUDSONIA MOVES TOWARD TRANSITION – AND WE NEED YOUR HELP!

We are asking you, *News from Hudsonia* readers, to help solve a problem.

I have been executive director of Hudsonia since 1988 except for two years. At the age of 69, I feel the need to pass the leadership position to someone new so that I can focus on finishing research and writing projects I've left hanging because of administrative responsibilities.

Here's our plan. We hope to recruit an experienced scientist-administrator to train for a year or two until everyone is comfortable that we have found the right person. Then she or he would become executive director and I would shift to senior researcher and consultant.

So, how to proceed? We have two challenges: finding the right person, and finding the funds for compensation for a year or two until a new person is able to take on the lead fundraising responsibility. This is where *News from Hudsonia*'s readers come in.

We would like your help identifying strong prospects for Hudsonia's leadership. And connecting us to good funders for this purpose. Hudsonia's capacity to continue producing information and training for informed conservation depends on a broad range of support from our audiences, and a successful leadership transition. Need I say this is more important than ever?

Erik Kiviat

Please direct your thoughts and assistance to me
kiviat@bard.edu
or Hudsonia's Board Chair Philippa Dunne
philippa@panix.com.

FOR SALE TO BENEFIT HUDSONIA

(Inquire for details.)

Original artwork by Ralph Della-Volpe, Kathleen A. Schmidt, Jean Tate

Hasselblad film camera and lenses

HUDSONIA MEMBERS, 2016

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(Listed here are donations received between 1 January and 2 December 2016.)

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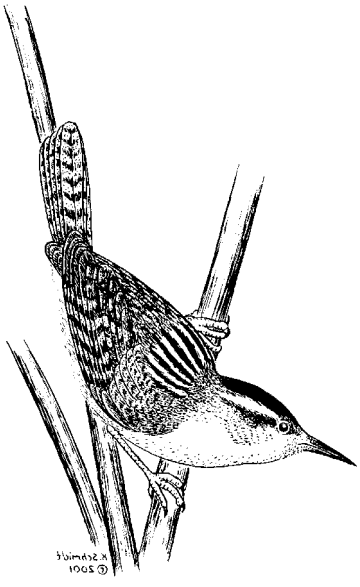

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Remembering Hudsonia in a will or estate plan is a thoughtful way to express a life-long commitment to ecological concerns and protecting our natural heritage. Hudsonia welcomes confidential inquiries at no obligation.

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For further information, please contact Lea Stickle at (845) 758-7053.

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