



a non-profit institute

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News from...

Hudsonia

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THE MILLBROOK MARSH WATERSHED

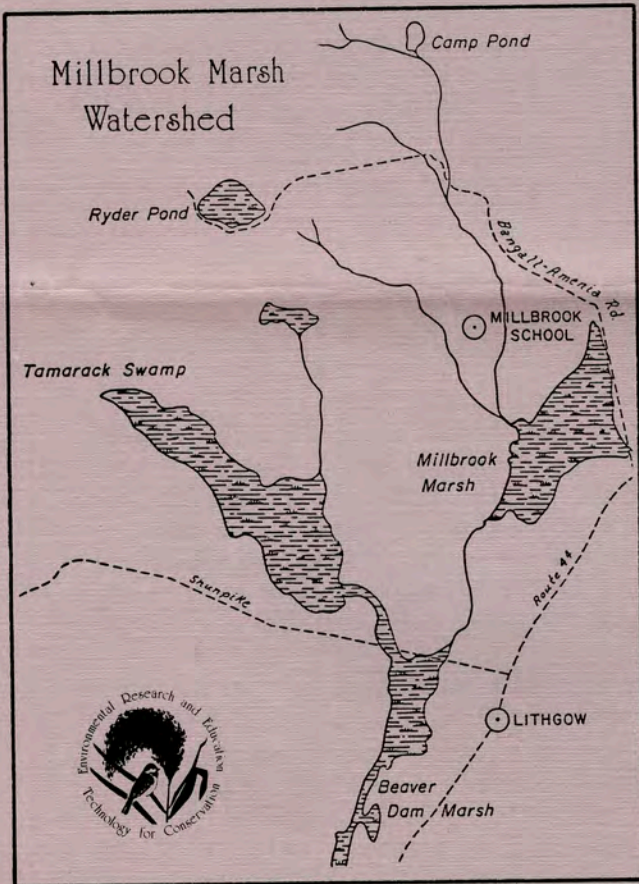
Imagine you are flying in a small plane over a rural area of the Hudson Valley. Beneath you is the natural and cultural landscape with forests, fields, and homes. The primitive wetlands stand out, with many identifiable plant communities: hardwood swamp, standing dead trees, shrub swamp, cattail marsh, purple loosestrife, sedge meadow, water-lilies, floating peat masses. There are beaver ponds, dams, and lodges. Stream courses snake from pond to pond. Large tree crowns are visible in the older forests. Occasional rocky areas have thin plant cover or none. Hedgerows, highways for animals and plants, connect the woodlots. The farms show contour strips, hay rolls, pastures, and conifer plantations. Old railroad grades and drainage ditches imply history.

Hudsonia scientists are conducting research on just such a rural landscape of the Hudson Valley. The Millbrook Marsh Watershed is in the towns of Stanford, Washington and Amenia in Dutchess County, New York, and includes several superb natural areas in a matrix of agricultural and residential lands. The rural character of this landscape - its scenery, historic associations, agricultural resources, and biological diversity - is important to Hudson Valley citizens as an expression of our regional heritage and quality of life. Our project has three objectives: analysis of habitats, documentation of rare species occurrences, and study of geology - soils - land use - water quality relationships. The goal is to make recommendations for harmonizing economic development and biological conservation. Hudsonia's biological research will enhance and complement the work of the Dutchess Land Conservancy and other organizations in preserving this valuable area.

A *watershed* is the land area from which precipitation runoff funnels into a single body of water, in this case the Millbrook Marsh. Surface runoff and streamflow carry soil particles, plant nutrients, organic matter, agricultural chemicals, and living organisms, and thus the Millbrook Marsh is an ecological mirror of its watershed. The Millbrook Marsh watershed and its immediate surroundings (we have included some areas just outside the watershed to gain a more complete picture of the flora and fauna) cover an area of about 26 square kilometers (10 square miles).

The Millbrook Marsh Watershed area contains several important natural areas, including an old-growth forest and a series of large wetlands. The old forest, some 16 hectares (1 hectare = 2.5 acres) on a steep slope overlooking the Millbrook Marsh, contains many red oak, sugar maple, chestnut oak, pignut hickory and other trees in the 30-100 cm diameter-at-breast-height range. The

Millbrook Marsh includes a square kilometer (100 hectares) of tree and shrub swamp, purple loosestrife - sedge - cattail marsh, and wet meadows. Corridors of wetland link the Millbrook Marsh with Beaver Dam Marsh and Hogback Swamp (about 75 hectares), and the Tamarack Swamp complex (about 100 hectares of open water and wetland). Ryder Pond includes 20 hectares of leatherleaf shrub bog, red maple swamp and water-lilies. All of these areas are home to rare fauna and flora. Other smaller natural areas are also significant, including a rocky streamside forest, a temporary pasture pond, and several wet meadows.



Significant Natural Areas and Some Rare Species

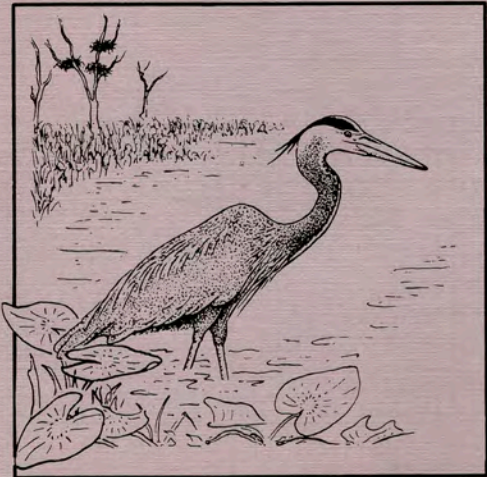
Besides habitat analysis from airphotos, much effort in the Hudsonia study is devoted to identification of flora and fauna. The rarest plants and animals are of special interest. Their survival in a landscape depends largely upon conservation of particular habitats that are in short supply in the Hudson Valley, such as cool unpolluted streams, old-growth forests with large trees, limestone wet meadows, conifer swamps, shrub bogs, cattail marshes, intermittently flooding woodland pools, and rocky hillcrests. Lists of rare plants and animals published by the New York Natural Heritage Program are a yardstick for judging the importance of rare species. The Heritage lists incorporate the State Department of Environmental Conservation's lists of Endangered, Threatened, and Special Concern animals, as well as other rare animals and plants that have not been listed by the DEC.

Bog Turtle

One of the smallest northeastern turtles, the bog turtle is recognized by a bright orange patch on the side of the head. The bog turtle is listed as Endangered in New York and is strictly protected by law. This species lives in springfed wet meadows that are often former beaver ponds, and is believed to spend much of its time burrowing through soft mud. At least one population has been documented in the study area and there may be others nearby. Bog turtles and agriculture are generally compatible, as long as the quality and quantity of water in the habitats are not altered.

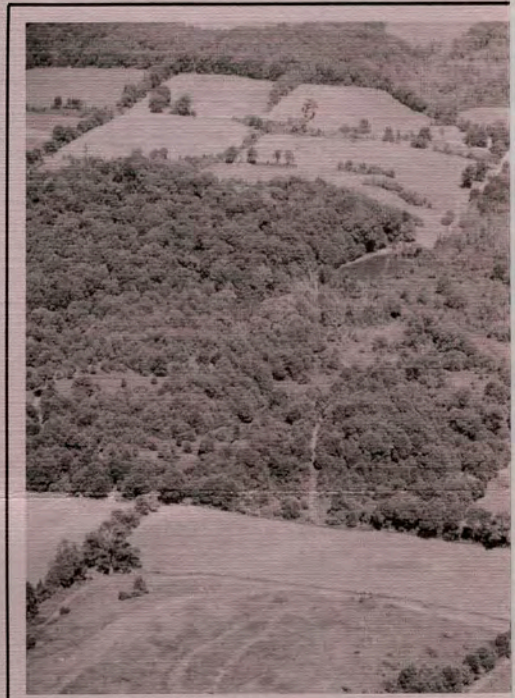
Great Blue Heron

This large waterbird is often seen feeding in ponds and marshes but nesting colonies are quite rare in the Hudson Valley. Great blue herons are very sensitive to human intrusion near their nests. For many years there has been a colony of about 10 nests in the study area. One year a pair of red-tailed hawks nested in one of the same trees supporting active great blue heron nests. The great blue is not listed by the Heritage program, but as a large fish-eating bird it is potentially an indicator of environmental quality.



Great Blue Heron
(115 cm tall)

A commonly seen bird but rare breeder in the Hudson Valley; one of three Dutchess County nesting colonies is in the watershed.



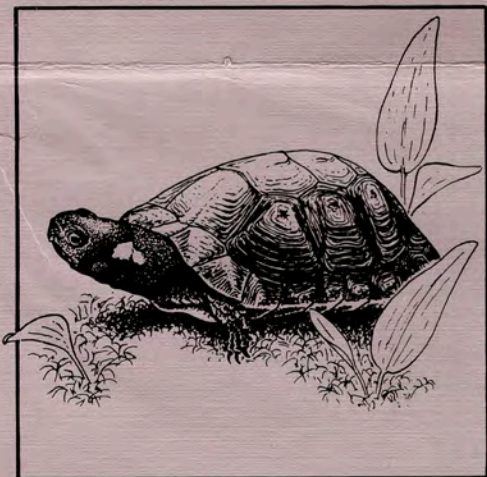
Millbrook Marsh, a square kilometer

Small-flowered Agrimony
(to 120 cm tall)

Listed as rare by New York Natural Heritage Program, currently known from only four localities in the state.



Ryder Pond, a 20 hectare bog



Bog Turtle
(shell 10 cm)

Endangered in New York, one known population in the watershed.

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WATERSHED



meter of limestone wetlands.



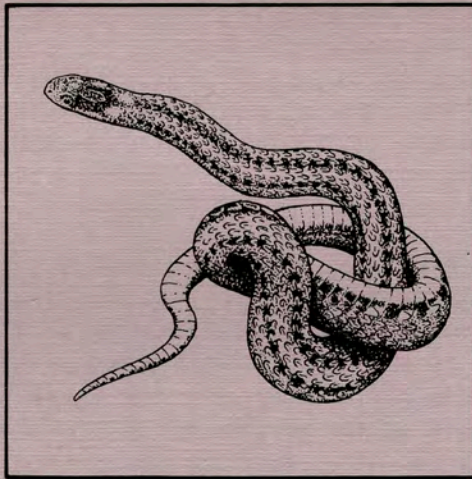
lake surrounded by farmland.

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Station, Annandale NY 12504 USA

Fringed Gentian
(30-80 cm tall)

Regionally rare; reported from three localities in the watershed but current status unknown.

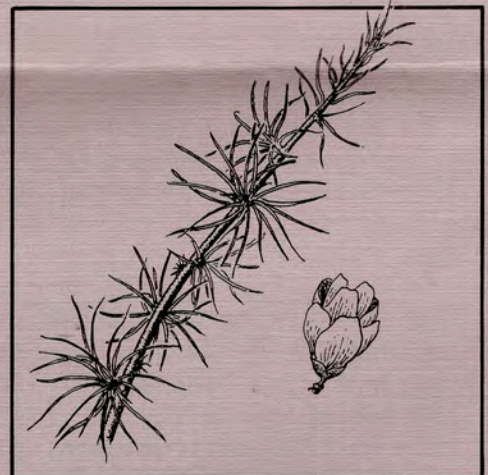


Red-bellied Snake
(30 cm)

Regionally rare species (three verified Dutchess County localities), reported in the watershed.

Tamarack
(tree to 20 m, cone 1.5 cm)

Regionally rare; formerly two stands in the watershed, at Millbrook Marsh and Tamarack Swamp; very few living trees found in 1987.



Millbrook Marsh Watershed Study, a Hudsonia Ltd. Project

Eastern Bluebird

The distinctive plain blue back and the rich brown breast of the male identify this beautiful bird. Formerly a common breeding bird in orchards and around houses, a severe decline in the population occurred due to competition from starlings for nest cavities, the effect of pesticides on the supply of insect prey, and other factors. Recently, carefully managed nest boxes have encouraged a resurgence of the bluebird, which is classified Special Concern in New York. There are scattered pairs of bluebirds in the study area, some nesting in boxes and some in natural cavities which are often in swamp trees killed by beaver flooding.

Vesper Sparrow

More common in Dutchess County early in the century, this species breeds in open, windswept, extensive agricultural areas. Vesper sparrows breed on one farm in the study area and may be found at other localities. The bog turtle and vesper sparrow illustrate the importance of large farms as wildlife habitat.

Tamarack

Tamarack (American larch) may once have been present in many Hudson Valley wetlands. Stands of tamarack at Tamarack Swamp and Millbrook Marsh have died, and only a very few individual trees remain in the study area. There may be potential for re-establishment of tamarack in some local wetlands.

Cattail

Although cattail is not a rare plant per se, stands of cattail exceeding an acre or two are rare in the Hudson Valley. Small patches occur in all the major wetlands of the Millbrook Marsh watershed. The cattail stands in Millbrook Marsh were more extensive 15 years ago and are apparently being replaced by the introduced marsh plant, purple loosestrife. The marsh wrens and least bitterns that occasionally were found in Millbrook Marsh probably depended upon the cattail stands for nesting habitat, whereas other rare birds of this marsh, like the Virginia rail, king rail, and sedge wren, do not have such a close association with cattail stands.

Besides those discussed, other rare animals of special interest that have been found in the study area include the pied-billed grebe, American bittern, Cooper's hawk, northern harrier, red-shouldered hawk, bald eagle, golden eagle, common barn-owl, long-eared owl, short-eared owl, wood turtle, Blanding's turtle, and brook trout. Less is known of rare plants. Further study of these rare species is needed to understand their distribution in the Millbrook Marsh watershed and allow planning for conservation.

Conservation

High-quality natural areas like the Millbrook Marsh exist in the study area because there has not been large-scale conversion of agricultural to residential or industrial land use. The conservation of scenery, agriculture, and biological diversity (rare species and their habitats) can be accomplished with careful environmental planning for the development that is occurring in the Millbrook Marsh watershed and other rural areas of the Hudson Valley. It is necessary to know the distribution of the biologic, scenic, and agricultural amenities, to understand the interactions of geology, soils, waters, vegetation, fauna, and culture, and to design economic activities for compatibility with this landscape.

Many techniques are available to landowners and local governments interested in conserving documented rare habitats and species. These include designation of Critical Environmental Areas by town boards, preparation of conservation easements by landowners, conscientious and explicit use of the State Environmental Quality Review Act (SEQRA) procedures for reviewing development proposals, environmentally thorough master planning and zoning revisions, and the use of modern soil management technology in construction and agriculture. Information and assistance in environmental planning are offered by the Dutchess Land Conservancy, Dutchess County Soil and Water Conservation District, Cooperative Extension, Hudsonia, and other organizations. The purpose of the Millbrook Marsh Watershed Study is to provide scientific information and recommendations to landowners and other decision-makers for use in environmental planning. We think this study will become a model for biological conservation in other rural areas of the Hudson Valley.

Access

The Millbrook Marsh watershed study area, like most rural landscapes in the Hudson Valley, is the private property of a number of individual and institutional landowners. From the road crossings of the Millbrook Marsh (Millbrook School Road), Tamarack Swamp (Shuman Road), and Beaver Dam Marsh (Shunpike) you may see some of the animals and plants mentioned in this newsletter. The Ralph T. Waterman Bird Club of Dutchess County has regular field trips to these areas, and information on the club is available from Mrs. Helen Manson (914-677-5580). There is a marsh boardwalk and nature trail at the Seward T. Highley Wetlands Sanctuary of the Millbrook School which may be used by permission of Mr. Donald Abbott, Headmaster (914-677-8261). Hudsonia requests that visitors to these areas respect the privacy of landowners and the sensitivity of the habitats; please do not enter private property without the landowner's permission. Many of the species of animals and plants mentioned in this newsletter are rare, and some are protected by law. These animals and plants should not be disturbed.

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