



News from....

July 1991

Hudsonia

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HOW BIOLOGISTS ASSESS SPECIAL RESOURCES: ALL ABOUT EVE'S POINT

Open space preservation in the Hudson Valley has emphasized scenery, historic structures and landscapes, farmland, and recreational opportunities, all of great cultural value. Biodiversity, specifically rare habitats, species, and communities (groups of species), deserves equal consideration. Tidal flats, big trees, and tiny snails may be valuable, easily damaged, and difficult or impossible to recreate. This risk of irreversible damage mandates a conservative approach to land management. The small additional expense in site-specific biological assessment and land use planning can broaden the public constituency for conservation while greatly increasing the short- and long-term benefits of saving land. The rarities in and of themselves deserve protection, and will also serve humankind in many ways, for example, as part of an ecologically functional landscape, and as part of the wild "gene bank" for the improvement of crops and pharmaceuticals.

Open Space Institute and Scenic Hudson, Inc. acquired two properties at Eves Point on the Hudson River north of Saugerties. Their goal is to operate these lands as a public park. OSI retained The Saratoga Associates to prepare a master plan for park development, and Saratoga Associates asked Hudsonia to identify biologically sensitive areas, potential for restoration, and interpretive opportunities. This newsletter describes our study of Eves Point as an example of a biodiversity assessment.

Method of Assessment

We first study the US Geological Survey topographic maps, a county soil survey, a state or county map of bedrock geology, federal, state, or local wetland maps, and aerial photographs to familiarize ourselves with the terrain and its natural and cultural features. We also review our experience with nearby areas and similar sites elsewhere. When possible we obtain locality-specific information from regional bird clubs, local naturalists, and sportsmen, and we request a search of the combined files of three programs of the New York State Department of Environmental Conservation (DEC) (Significant Habitat Unit, Endangered Species Unit, and State Natural Heritage Program).



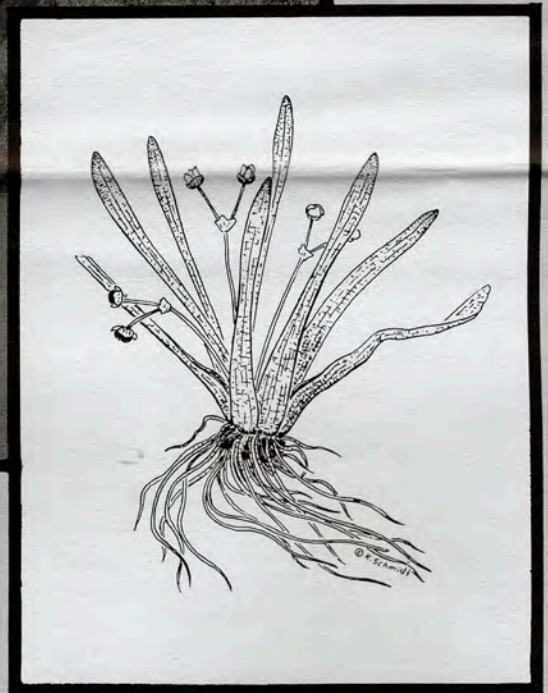
Photo: Esther Kiviat

Hudsonia biologists Gretchen Stevens and Erik Kiviat on the early spring tidal marsh.



Vertical aerial photograph of the Eves Point site, 1990.

Photo: COL-EAST, Inc.



Spongy arrowhead (*Sagittaria calycina*), 9 cm

Information on topography, soils, and vegetation extracted from the maps and airphotos allows provisional identification of habitats. We look for habitat types that are scarce in the region, have the potential to support rare plants or animals, or are otherwise sensitive or valuable; among these are rocky areas, tidal wetlands and mudflats, many types of wetlands, and forests with many large trees (lowland old growth). We then examine these potentially interesting habitats in the field and compare their rock, soil, water, vegetation, and land use characteristics with "profiles" of the habitats of rare species based on published literature and our experience at other sites.

Site surveys are often done at a single season although not all rare species are apparent or identifiable at any one time. (For example, most birds sing and nest in May and June, but the woodcock displays conspicuously March-April, and the sedge wren sings and nests in July or August. Use of habitat for nesting cannot be detected outside the nesting season, except for a few birds that leave persistent and identifiable nests.) Furthermore, on extensive sites like Eves Point, there may not be time to search everything. We therefore concentrate on identifying special habitats, based on "indicator" features of bedrock, soil, surface water, vegetation, and human influence that are readily observed on maps or in the field year-round.

Besides trees and shrubs which are recognizable all year, in winter it might be possible to identify the dried or fragmentary remains of herbaceous plants such as wild germander, or discover recognizable shells of mollusks, feathers of a bird, or the shed skin of a snake. We collect specimens (if an organism is not so rare that collecting might endanger it), take photographs, and make field notes to document our finds and allow verification by more specialized colleagues when appropriate. No scientist can be an expert on all groups of organisms; the trick is in knowing when help is needed. Having identified habitats for rare species or communities, we then recommend further concentrated surveys during appropriate seasons to determine if the rare species themselves are present. Such surveys must be done by field workers familiar with the species and their signs

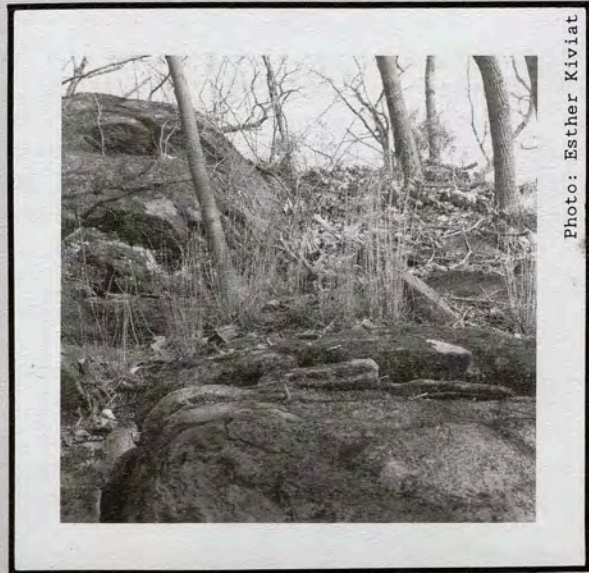


Photo: Esther Kiviat

West-facing, rocky-sandy crest habitat.

and habitats. The drawings show some of the rare species that could be present but have not yet been observed at Eves Point.

Official rare species lists promulgated by the US Fish and Wildlife Service and the DEC (including the State Natural Heritage Program) provide objective criteria for species of concern at the national and state levels. Numbers of recent verified records of species in the region (a county or groups of counties) give us an index to regional rarity.

The Site

In one day of field work on 26 March 1991, botanist Gretchen Stevens and I walked two-thirds of the 55 ha (136 ac) Eves Point property, focusing on the areas we earmarked on the maps and photos. We identified, photographed, and described in field notes these "special" habitats and the biota we could observe at the season and in the time available (see Table). The drawings show some of the rare species that could be present based on our habitat assessments.

We determined from the maps that the Eves Point site is underlain by sandstone and shale bedrock, the common bedrock formation of eastern Ulster County. There is limestone not far to the west and north, thus glacial deposits on-site are likely to be limy. Silty clays (from a large lake formed in the Hudson River corridor during melting of the glaciers) cover most of the site, which is steep in the east below the 30 m (100 ft) contour

Landscape features, identified special habitats of Eves Point, and examples of rare flora and fauna that could occur there. 1=State Endangered or Threatened; 2=State Special Concern or New York Natural Heritage Program-listed as rare statewide; 3=rare in the Mid-Hudson region; 4=declining range-wide, not yet regionally-rare; * = observed at Eves Point during our early-spring field work.

Feature	Habitat	Rare Biota
Rocky point	Rocky shore	Lichens (a), black duck (4) nesting
	Rocky, sandy crest	Wild lupine (3), eastern bluebird* (2)
Fresh-tidal bay	Tidal shallows	Map turtle (3), ducks (b)
	Tidal mudflat	Spongy arrowhead (2), kidneyleaf mud-plantain (2)
	Tidal marsh	Virginia rail (3)
Stream delta	Tidal & supratidal swamp	Wild germander* (3), winged monkeyflower (2), rare mosses
Small stream	Stream bottom	Mollusks (c)
Stream cascade	Wet rocks	Mosses, liverworts (d)
Stream ravine	Large-tree groves	Cavity-using fauna, Appalachian blue (2), winter wren (3)
Rocky ridge	Ledges, large trees	Walking fern (3), hackberry* (3), falcate orange-tip (2)
Abandoned farmland	Grassy-shrubby oldfield	Golden-winged warbler (3), grasshopper sparrow (2)
Inland wetland	Wet woods & shrub swamp	Moss (3,e), Amer. woodcock (4)
	Wet meadow	Bush's sedge (2), Amer. woodcock (4), Henslow's sparrow (2)
Overgrown pond (artificial)	Woodland pool	Wood frog*, spotted salamander (2)
Abandoned mine	Clay & bedrock walls	Stiff gentian (3), slender knotweed (2)
Miscellaneous	Isolated or emergent large trees	Bald eagle & osprey (1), perches, fish crow (2) nesting

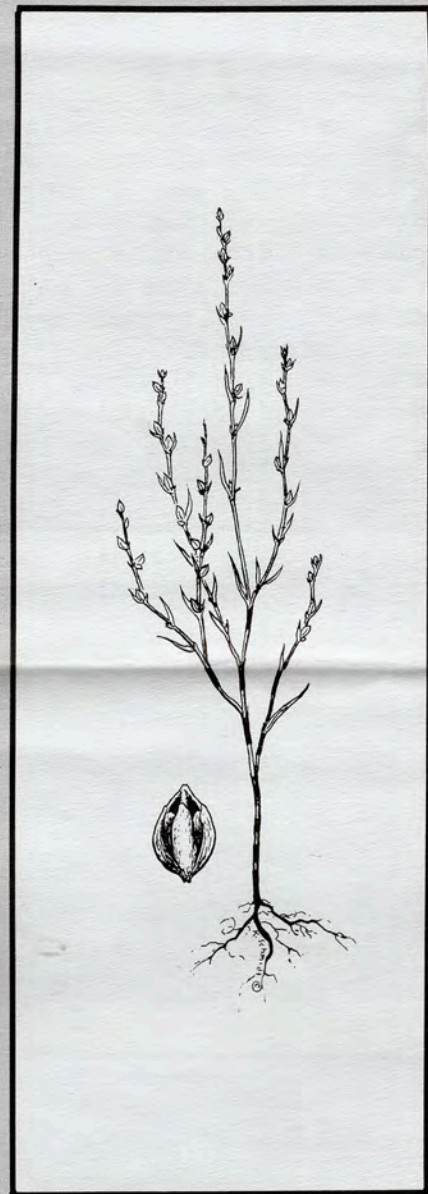


Appalachian blue (*Celastrina neglectamajor*), 2 cm

- Two crustose lichens (*Acarospora subfuscenscens*, *Caloplaca scotoplaca*), new to N. America, found on rocks in Tivoli Bays.
- Black duck (4) and several kinds of diving ducks probably use the bay for foraging and shelter from the wind.
- A snail *Marstonia decepta* (3) and a fingernail clam *Pisidium adamsi* (3) have been found in small streams flowing into Tivoli Bays.
- Perennially-wet, stable, shady rocks could support a diversity of mosses and liverworts, possibly including rare species.
- The moss *Leskea gracilescens* (3).



Spotted salamander (*Ambystoma maculatum*), 17 cm



Slender knotweed (*Polygonum tenue*), 12 cm

and gentle in the west. Narrow clay ridges and ravines, created by small streams, cross the site from west to east and some headwater areas on clay flats contain wetlands. There is a large, abandoned clay mine. Extensive portions of the site are forested, but there are mowed areas and abandoned fields in the north (see air-photo). A flat area of forested dredge spoil fill projects into the river from the southeast part of the property, and a rocky, partly-wooded point (Eves Point) is on the northeast. Inside the point is a shallow, freshwater-tidal bay with areas of tidal wetland. The "west shore" freight railroad crosses the western edge of the site but does not border the river.

Viability

Although many of the habitats valuable for biodiversity are in relatively natural condition, habitats need not be "natural" to support rare species or rare plant communities. Abandoned surface mines and overgrown artificial ponds, with particular conditions, may support rarities. Further study of regional field biology may provide information for experimental creation of some special habitats; meanwhile, we do not advocate casual abandonment of mines, alteration of wetlands, or other potentially destructive practices, any more than we recommend development without site-specific biodiversity studies.



Photo: Esther Kiviat

Fill and river at Eve's Point proper.

Each habitat or species has needs that must be met and tolerances that cannot be exceeded. Rare habitats and rare species tend to be more exacting in these require-

ments than common species. Some parameters can be managed and some are essentially beyond human control. Map turtles need isolated basking sites on rocks or logs, and nesting spots in dry, sunny, untrampled terrestrial soil. Slender knotweed needs sunny, nearly-bare rock. Wood frog and spotted salamander need isolated, fish-less, not-too-acidic, woodland pools holding 30 cm or deeper water from winter into summer (for eggs and larvae), and moist woods (for adults). Woodcock needs moist or wet meadows for display and courtship, wet thickets for nesting, and various non-flooded, wet-soil habitats for foraging. Removal of vegetation, trampling, erosion and siltation, noise, visual disturbance, increases in predator (e.g., raccoon) or grazer (deer) populations, changes in runoff or streamflow, addition or removal of soil, air pollution, fragmentation of habitat, or disappearance of a food plant are impacts that can spell loss of viability for a population of a rare species or its habitat.

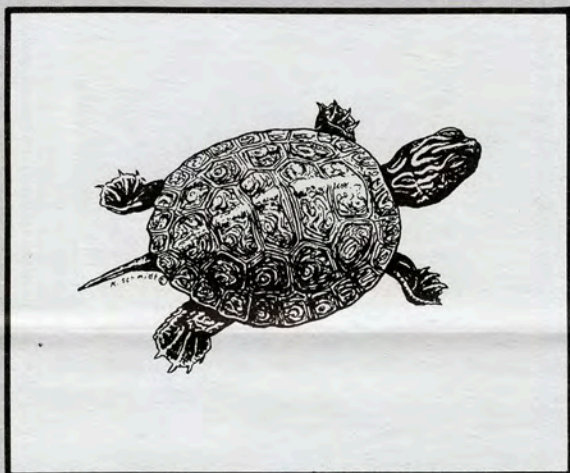
Recommendations for Eves Point

We have recommended that certain follow-up biological surveys be conducted during the appropriate seasons to determine whether predicted rare species are actually present in habitats likely to be affected by park use. At a minimum, a rare plant survey should be done in early and late summer in the tidal habitats and stream mouths, clay pit, rocky ridge, and wet meadows, and a breeding bird survey should be conducted in spring in the wet meadows. The most sensitive areas, namely the natural shoreline, tidal wetlands, stream mouths, bluffs, and any habitats where rare species are discovered, should be left in a natural state without trails or other direct use. Less sensitive areas, including fields near the point, the dredge spoil fill, areas of the clay pit where no rare plants are found, and an existing trail running north from the clay pit, may be used for light to moderate-intensity activities as long as soil erosion is prevented. An area of cut-and-fill in the river at the point is suitable for picnic tables and a landing for non-motorized boats.

Silt and clay eroded from the mine walls, and runoff water have formed a reed marsh on the clay pit floor. The area is heavily used for target shooting. (We

joked that the clay pit was good habitat for clay pigeons!) The pit could be dammed, graded and planted to stabilize the walls, create a permanent pool, and replace the common reed with more valuable marsh plants such as cattail, bulrush, and pickerelweed. An enhanced marsh would

benefit birds, muskrat, amphibians, turtles, and butterflies. A nature trail through the clay mine, narrowgauge railway, and brick dumps could interpret the geologic history of the bedrock and glacial deposits, the ecology of degraded land, and the human history of the brick industry.



Map turtle juvenile (*Graptemys geographica*), 5 cm

In the past year-and-a-half, Hudsonia's site assessment and biological survey activities have ranged from southern New Jersey to eastern Massachusetts, with a concentration between New York City and Albany. We are currently seeking funds to prepare a Manual for the Identification of Special Biological Resources in the Hudson Valley. We will use the manual in workshops to train land trust personnel, Planning Board and Conservation Advisory Council members, consultants, and others to make site assessments. An environmental decision-maker need not be an expert field biologist, but should be able to tell when an expert opinion is needed.

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