Environmental Research and Education
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NEWS FROM...

Hudsonia

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WINTER SOLSTICE

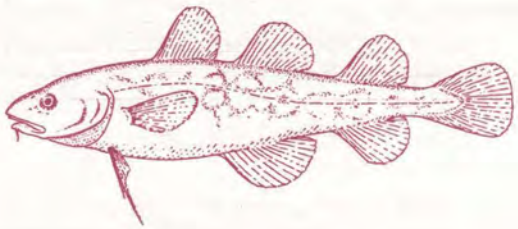
Seasons are nature's way of redecorating with the greens of spring, summer's rainbow of wildflowers, and autumn's reds and golds. Plants and animals undergo their fall changes in response to gradually decreasing temperature and day length. As cold weather sets in, migratory birds fly south, plants set seed, and many animals become dormant. Nature is preparing for the shortest day of the year. On the Winter Solstice, December 21st at 5 PM, the sun will appear farthest to the south (lowest in the noon sky). After this turning point, day length will gradually increase, followed soon by temperature. Subtle internal changes will take place in many plants and animals as nature begins the long process of awakening for spring. Birds will soon begin to sing, buds of shrubs and trees will swell, and organisms will once again be ready to reproduce.

WINTER SLEUTHING

✸ DOWNY WOODPECKERS and Black-capped Chickadees fly out into North Bay and other marshes to search for food. They often eat Cattail Moth caterpillars, which they find in cattail spikes and leaf sheaths. Very few birds are seen in the open marsh in the winter because it is quite exposed and windy.

✸ Try to spot WINTER STONEFLIES, dark, winged insects, as they crawl out of a stream such as the Sawkill near Tivoli South Bay, on sunny days in January through March. Trout fishermen are well aware of the value of these insects as trout food.

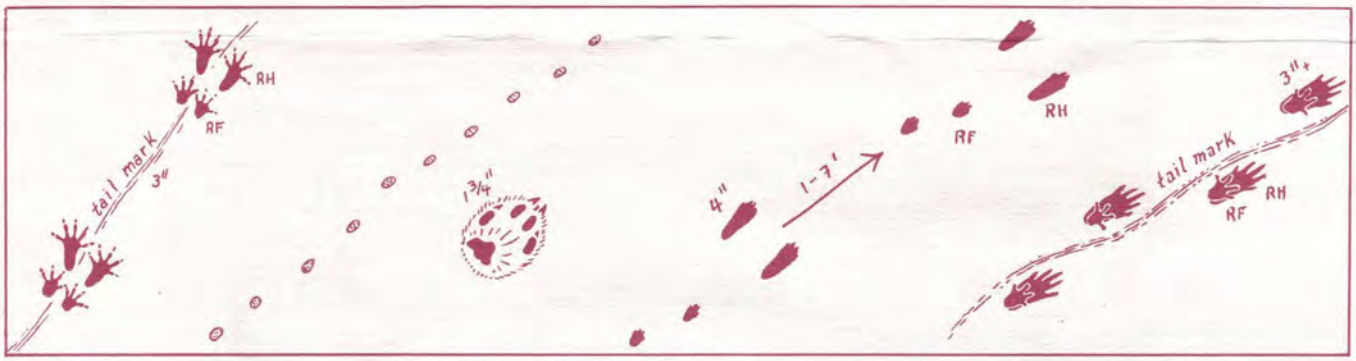
✵ BALD EAGLES can occasionally be seen around open waters in the Hudson as they scavenge for dead or dying fish. Some of these birds are immature with very little white in their plumage. One hundred years ago, bald eagles were a common sight in winter. Naturalists such as Burroughs and Mearns remarked that it was not unusual to see several at one time.



✵ ATLANTIC TOMCOD are eight or ten inch long fish with three dorsal fins, which are very distinctive. They are unusual because they spawn in the winter. They can be found in marshes and stream mouths of the lower Hudson River.

✵ TRACKS of many animals will appear in the snow of the marsh or wooded swamps. As John Burroughs has written so eloquently, " In what bold relief stand out all the walkers of the snow! ...if only a mouse has visited his neighbor, the fact is chronicled." You may be able to find these:

White-footed Mouse *Red Fox* *Eastern Cottontail* *Muskrat*



INTRODUCTION TO THE TIVOLI BAYS

North Bay, South Bay, and Cruger Island are 800 acres of freshwater tidal wetlands and shallows in Dutchess County, N.Y., about 100 miles upriver from New York City. Along with a similar area of uplands, they form the Tivoli Bays Unique Area, which is one of four major wetland complexes of the Hudson River National Estuarine Sanctuary. The Estuarine Sanctuary is a federally sponsored, state owned and managed reserve for research, education, and recreation. The other sites are Stockport Flats (Columbia Co.), and Iona Island Marsh and Piermont Marsh (Rockland Co.). Tivoli Bays is one of the largest and wildest wetlands on the Hudson, and supports special plants and animals such as the osprey, least bittern, marsh wren, map turtle, American brook lamprey, heartleaf plantain, goldenclub, and extensive stands of narrowleaf cattail. Tivoli Bays also contains some of the Hudson's largest wooded tidal swamps, an unusual habitat on the East Coast. Fresh-tidal wetlands have been studied very little, and the Bays, in conjunction with the Bard College Field Station (located on South Bay), offer a special resource for research and education.

HUDSONIA RESEARCH AT TIVOLI BAYS

✵ WATERLILY LEAF BEETLE. This summer Kathy Schmidt studied the population dynamics and food consumption of waterlily leaf beetles in South Bay. She tracked the population of eggs, larvae, and adults from April through October, and also estimated their food consumption. The beetles feed on the invasive European water chestnut and there is a possibility of using them in a program of biological control; they are occasionally abundant enough to kill large patches of the plant. Repeated defoliations in the early summer, however, would be needed to prevent nut formation and beetle populations are not normally dense enough then.

✵ VEGETATION. Erik Kiviat and Bard graduate Erika Beecher are analyzing data collected in 1984. The species composition and biomass of the marsh vegetation resemble those of other freshwater tidal marshes on the East Coast. In North Bay, biomass, litter, and soil organic matter increase with elevation of the ground (decreased time flooded). In South Bay, the introduced water chestnut reaches twice the biomass of the two submerged species (water celery and Eurasian watermilfoil) that it replaces.

✵ FISH. Since June, 1985, Bob Schmidt and students from Simon's Rock of Bard College have been seining the creeks of North Bay to determine the kinds and numbers of fishes present. They have collected 28 different kinds, ranging from tiny shiners to 10-pound carp. Juvenile white perch, spottail shiners, shad, and alewives are seasonally abundant in the marsh. Tivoli Bays and other freshwater tidal marshes serve as nurseries for these important Hudson River fishes.

✵ BUTTERFLIES AND MOTHS. A survey ofthese beautiful and environmentally sensitive insects, the first ever in a freshwater tidal wetland, was conducted by Hudsonia affiliate Spider Barbour. He found that there are more species and more individuals in the wooded swamp than in the open marsh. A special find was the Baltimore butterfly, whose caterpillars when small feed only on the wetland plant turtlehead. Spider is devising ways to use moths and butterflies to monitor environmental quality in the Estuarine Sanctuary.

These four research projects were funded by the Hudson River Estuarine Sanctuary and the Hudson River Foundation. Other Hudsonia work in 1985 included studies of: air pollution from home heating fuels, recycling fruit processing wastes for energy, and the environmental quality of a major Hudson River tributary stream system. Hudsonia also provided technical assistance to citizen's groups and local governments facing decisions about land use and conservation of natural areas.

STUDENT CONTRIBUTIONS TO HUDSONIA

MARY GAUGHAN is a junior literature major at Bard. She has worked for a year as a research assistant on Erik Kiviat's study of the human ecology of wetlands. Mary summarized the ethnographic literature on 35 societies that live in wetland regions of the world, and helped code data for statistical analysis.

TANJA PYLES is a junior at Simon's Rock of Bard College, where she is studying ecology and zoology with Bob Schmidt and Hudsonia affiliate Don Roeder. Tanja received a Bard College Center Junior Fellowship to study Blanding's turtles in James Baird State Park after working as a field assistant to Erik Kiviat in a two-week investigation of the Blanding's turtle at a nearby Nature Conservancy property. Tanja's and Erik's data will help the Nature Conservancy and the New York State Office of Parks, Recreation, and Historic Preservation make land management decisions.

JOSH ROYTE studied ecology at Bard College with Hudsonia Director Bill Maple, and is currently enrolled in the Yale School of Forestry master's program in environmental studies. His Bard Senior Project was a study of Skillpot Island, a large rock in South Bay. With assistance from lichenologists at the New York Botanical Garden, Josh discovered two species of crustose lichens previously known from Europe but new to North America.

KRISTIN WESTAD is a junior anthropology major at Bard. She catalogued and mounted herbarium specimens at the Bard field station as a volunteer and work-study student for a year. This past summer she conducted the field and laboratory work for an annotated flora of the wooded freshwater tidal swamps of the Tivoli Bays, with guidance from Erik Kiviat. Her report will be published by the Hudson River Foundation and the Estuarine Sanctuary. Kristin wants to do research in ethnobotany for her Bard Senior Project.

SEAN SMITH, a sophomore at Simon's Rock, is interested in environmental studies and marine biology. As a field assistant on the Tivoli Bays fish project, Sean helped Bob Schmidt catch and identify fishes and analyze data. His willing and able assistance in good and bad weather and deep mud helped make our project a success.