



News from....

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# Hudsonia

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## REGULATION AND LOSS OF HUDSON VALLEY WETLANDS

Wetlands are arguably more valuable and more vulnerable than many other habitats, and thus are the focus of government regulation and public controversy. Less than half of the pre-colonial wetland acreage on the continent remains. In this newsletter, we examine regulation of nontidal wetlands in New York's Hudson Valley region, weaknesses of regulatory programs, and impacts on fauna and flora.

Wetlands are individually variable but in general they serve several important functions. Wetlands store floodwater and release it slowly; some wetlands improve the water quality of streams and lakes; wetlands provide necessary habitat for many plants and animals that could not survive or thrive in other habitats; some wetland soils are of high quality for agriculture; and much edible fish and other wild and domestic food animals are supported partly or entirely by wetlands. As a consequence of these values to society, the federal government, New York and some other states, and a number of Hudson Valley towns have passed legislation protecting wetlands to some degree.

### Federal Regulation

Because of their influence on the quality and quantity of water supplies, wetlands are protected under the federal Clean Water Act. The Army Corps of Engineers (COE) is authorized to regulate filling of wetlands, with program oversight by the EPA. Federal jurisdictional wetlands are identified by the presence of hydrophytic (wetland) vegetation, hydric



Bush's sedge and

Reed canary-grass

soils, and wetland hydrology. The definition encompasses a diverse array of wetland types, including wet meadows, and wooded and shrub swamps, as well as shallow and deep marshes. A list of wetland plants and a delineation manual are published for guidance.

The Clean Water Act is now up for re-authorization. Several bills are before Congress that would drastically reduce the scope and effectiveness of the federal wetland protection program under the Clean Water Act. The most extreme bill would change the wetland definition to exclude transitional and "dry-end" wetlands, and would thus remove from protection millions of acres of wooded swamps, shrub swamps and wet meadows that have been protected by the federal government since 1982. Perhaps the most far-reaching clause in this bill would require that wetlands be classified according to their perceived ecological and social value, and that permits for filling be granted more liberally for those wetlands considered by this rating scheme to be less valuable. The protection of the most valuable wetlands would be deemed a "taking" of the rights of private property, and thus entitle landowners of those wetlands to seek compensation from the federal government at fair market value. Since there are no public funds to support such compensation, however, this clause would effectively neutralize the federal protection program for those, the most valuable wetlands.

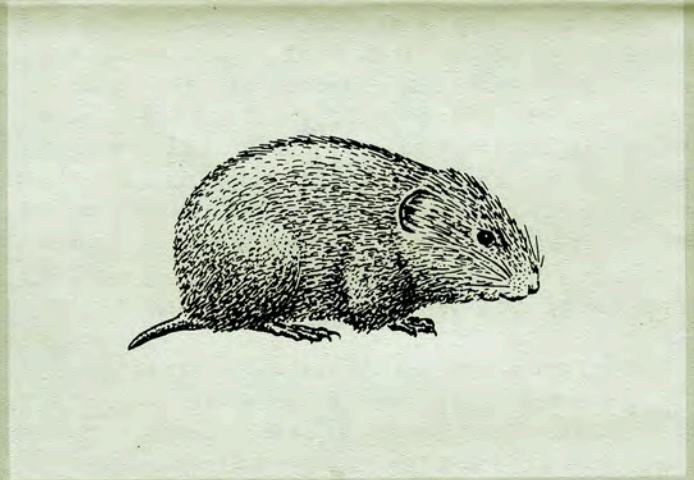
### State Regulation

The New York Freshwater Wetlands Law protects wetlands 5 ha (12.4 acres) or larger, and a 30 m (100 ft) wide upland buffer zone, from filling, damming, drainage, clearing of vegetation, construction, and other alterations without a permit from the Department of Environmental Conservation (DEC). In special cases, e.g., documented presence of an Endangered or Threatened species, wetlands under 5 ha may be regulated, and buffer zones may be enlarged. Under the state law, the wetland boundary is defined by plant communities. The DEC has mapped regulated wetlands from aerial photographs; however, the actual boundaries may differ substantially from those shown on the Freshwater Wetlands Maps. Many permits are issued for alterations of wetlands, and many violations of the law are overlooked; violations in-

volve, for example, filling and clearcutting in wetlands. The law permits drainage of a regulated wetland without a permit if the drainage is performed as part of an active agricultural operation.

### Local Laws

Some Hudson Valley towns have adopted local freshwater wetlands laws. The criteria for boundary delineation are usually modelled on the state law (i.e., plant communities), but the local laws regulate smaller wetlands, e.g., down to 0.2 ha (0.5 ac). The smaller size threshold and closer concern of local regulatory programs may accomplish more conservation than state regulation does.



Southern bog lemming

### Other Issues

Federal and state regulators have versions of a "no net loss of wetlands" policy. For instance, a permit allowing destruction of wetland may require creation or restoration of an equal or greater area of wetland, preferably in the same watershed. Although wetlands can be successfully created for flood storage and duck habitat, many attempts at wetland creation have failed to recreate other functions of great importance. It may be impossible to duplicate some characteristics and functions (e.g., rare species habitat, deep organic soils) that have taken thousands of years to develop. Creation of mitigation wetlands may, therefore, be inadequate compensation for the loss of valuable natural wetlands. In some cases the best policy is "no loss" rather than "no net loss."

Wetlands may be protected from filling or drainage, but construction, agriculture, and even park development can alter and degrade habitat in other ways. Runoff waters from residential subdivisions, farms, mines, and roads are often rich in silt, nutrients (e.g., nitrogen and phosphorus), salt, or pesticides that can funnel into wetlands and eliminate sensitive plants and animals while favoring common, hardy species like reed canary-grass and purple loosestrife. Sometimes these are necessary land uses, and with care they can be designed and managed to reduce or eliminate negative impacts.

#### Values of Dry-End Wetlands

Where wetlands are inaccurately mapped or delineated, the result is usually less, rather than more, protection. "Shallow" or "dry-end" wetlands, wetland edges, and small wetlands are lost. In addition, where there is no local law, small wetlands are inadequately protected because they do not receive automatic state regulation and because the federal program only regulates filling. Large wetlands and interconnected wetland complexes may be fragmented and lost wholly or in part. The biological and ecological impacts of these regulatory failures are poorly understood but in our experience extremely important.



American woodcock

The American woodcock nests in moist or wet shrub thickets, displays in wet meadows, and forages for soil invertebrates in a variety of moist and wet habitats. Conversion of these habitats is a factor in the nearly 3% per year decline of the eastern North American woodcock population. The spotted salamander, Jefferson salamander, marbled salamander, and wood frog depend on isolated, fish-less, intermittently-flooded woodland pools as their principal breeding and nursery habitats. Many, perhaps most, high quality amphibian pools in the Hudson Valley are under 0.1 ha (0.5 ac) in size, and some of the best pools are only a tenth of that! These pools are often overlooked by regulators, and are easily filled, drained, or dredged; they are also used as garbage dumps. Wet meadows, where the soil is seasonally wet but rarely flooded, may occur alone or at the margins of "wetter" wetlands. Wet meadows are commonly overlooked in wetland mapping and delineation because they may be difficult to detect on airphotos, and they may be difficult to recognize if field work is conducted during dry periods. An experienced wetland scientist, however, can identify the soils and plant communities of wet meadows even under drought conditions. Wet meadows in this region, especially where the soil is limy, support many rare species of plants and animals; three statewide rarities that occur in Hudson Valley limy wet meadows are Bush's sedge, small-flowered agrimony, and winged monkeyflower. Where groundwater seeps from limestone bedrock or limy glacial outwash, there may be a special type of wet meadow. These "fens" are influenced by the naturally cool and nutrient-poor groundwater. Fens provide habitat for the endangered bog turtle and many other rarities, but fens are easily damaged by silt and nutrients in runoff. Some shallow wetlands and wetland edges have especially beautiful wildflower concentrations: fringed gentian and grass-of-parnassus in fens, spring beauty in mature wet forest, and cardinal-flower at abandoned beaver ponds. Many deep and densely vegetated, "undersize," non-state-regulated, glacial kettle wetlands are used by black duck and wood duck for brood-rearing, and in Dutchess County some of these support the Threatened Blanding's turtle (see summer 1988 NFH). Some of our beautiful and rare insects, such as the phantom crane fly and the Baltimore butterfly, are associated with small wetlands

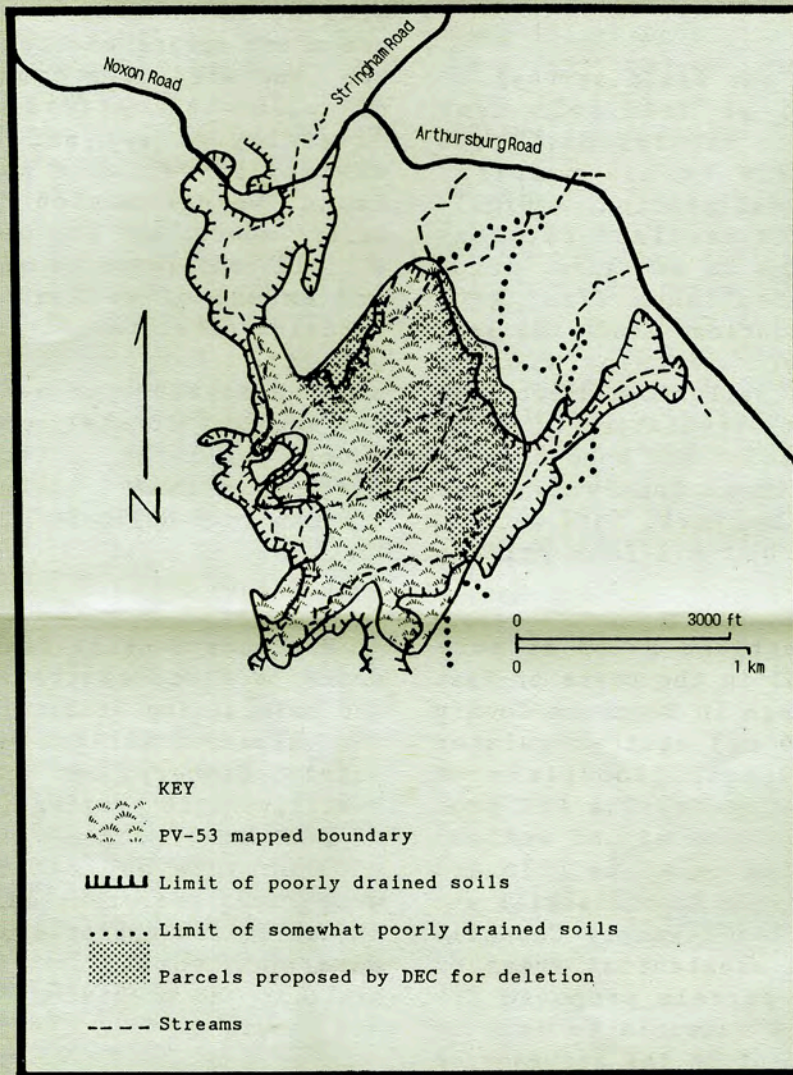


Fig. 1. PV-53 and parcels proposed for deletion.

and wetland edges, as is the southern bog lemming.

**Buffer Zones**

Buffer zones of seminatural soil and vegetation reduce pollution and disturbance to wetlands, streams, and lakes and their biota. Silt, nutrients, disease organisms, and some toxicants in runoff and shallow groundwater are filtered, absorbed, or processed by vegetation and soil. Vegetation, in proportion to its density and height, screens dust, noise, and visual disturbance. A fringe of trees on a wetland margin acts as a windbreak and solar collector, allowing wetlands to warm quickly after cold nights and sheltering wetland organisms from weather

extremes. Because the edge typically has plenty of water and nutrients, is not long-flooded but cannot be easily plowed, many wetland edges have large old trees which provide a unique visual amenity. Big trees also provide nest and roost cavities for many birds, small mammals, snakes, and treefrogs, and fruit, bud, twig, and insect food for wood duck, wild turkey, ruffed grouse, blue jay, raccoon, foxes, whitetail deer, and other animals. Finally, many animals (e.g., spotted salamander, wood turtle, wood duck) require a combination of wetland and upland habitats in proximity. A buffer zone 30 m wide, as specified by state and many local wetlands laws, is better than no buffer zone but does not afford adequate protection to many wetlands and their wildlife.

## A Case History

In the course of our field surveys in the Hudson Valley, we have seen many failures of wetlands regulation. These include problems due to mis-mapping, inaccurate boundary delineation, ambiguities in the laws and regulations, non-permitted alterations to wetlands, legal damage to unregulated "undersize" wetlands, and other situations where the laws simply don't protect certain valuable resources. The worst failure we discovered was the lack of state regulation of 38 ha (93 acres) of wet meadow and wooded swamp on the proposed Dutchess County landfill site in the Town of Red Hook. This wetland was ignored by the DEC and four private consultants!

The odyssey of Wetland PV-53 is more subtle. Wetland PV-53 in the towns of East Fishkill and La Grange in Dutchess County is a ca 120 ha (296 ac) state-regulated wetland on the 100-year floodplain of Jackson and Sprout Creeks. The DEC proposed to delete from the mapped wetland two parcels totalling ca 47 ha (116 ac) (Fig. 1). Members of the East Fishkill and La Grange Conservation Advisory Councils believed there were substantial areas of wetland within the parcels proposed for deletion. They asked Hudsonia to look at those areas and comment on the accuracy of the DEC determination. Topographic maps, aerial photographs, soil maps and National Wetland Inventory maps all indicated a high likelihood of the presence of wetlands in the disputed parcels. The preliminary (unpublished) county soil survey showed poorly drained soils, a strong indicator of wetland conditions, underlying the entire area and extending well beyond the mapped boundary of PV-53 at some locations (Fig. 1).

During field work in the spring of 1991, a Hudsonia scientist found that the land in question was characterized by complex mound and swale topography. Upland vegetation and soils occupied low mounds and ridges; extensive wetlands were in swales, along meandering stream channels, and in isolated depressions. The wetland boundaries were very circuitous - a mapper's nightmare. The entire area supported an extensive, well-developed, lowland hardwood forest with many large trees and a high abundance of wildflowers, including regionally rare species such as green-

dragon, small-flowered agrimony, spring cress and spring beauty. The large, unbroken land area, the complex interspersion of upland and wetland habitats, and the diversity of wetland types provided a variety of valuable habitats for local fauna. We documented our findings in a brief report, and the DEC agreed to attend a field conference to discuss the presence and extent of wetlands in the disputed parcels. After two field meetings the DEC submitted for our review a revised map showing significant wetland areas within the area previously proposed for deletion. We are recommending that they do further field work in yet unstudied areas before the map is finalized.

## Postscript

Wetlands benefit developers and residents by flood control, conserving water and maintaining streamflow, thus improving the values of streams and lakes for water supply, fishery, and scenery. Some of the best livestock grazing is in the wet parts of pastures. Hudson Valley wetlands provide notable habitat for sport fishes, waterfowl, and other game. Historians and archeologists appreciate wetland sediments as "repositories" of information about historic and prehistoric events, cultural and natural.

When you consider a development proposal, you can do the following. See if there are wetlands on or adjacent to the site, even if none is shown on the site plan or on the state Freshwater Wetlands Map. Ask if wetlands have been delineated by a competent, independent field scientist. Request a "second opinion" on the boundary. Notify the U.S. Army Corps of Engineers (Manhattan District, for the Hudson Valley) if a proposed development might involve the intentional or unintentional placement of fill in a wetland, and ask them to arrange a field conference to inspect the site. Look at the stormwater management plan to see if pollutants (road salt, fertilizer, pesticides, silt) might degrade habitat and water quality. Request an expert assessment of potential habitats for rare or endangered plants and animals. Consider whether 30 m buffer zones are adequate to protect site-specific wetland values, and urge that a conservation easement be prepared to permanently preserve wetlands, buffer zones, and other natural areas.

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