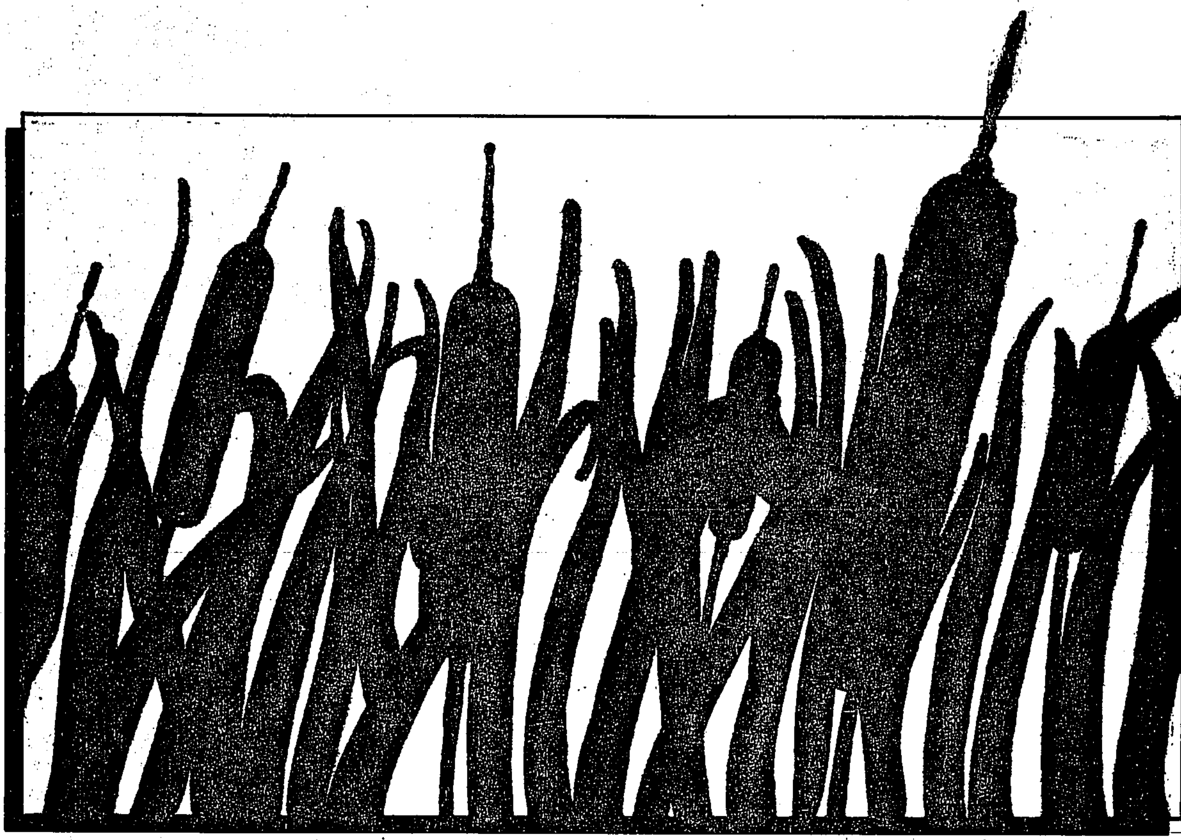
$3.00

THE INLAND WETLANDS



A Handbook For An Ecosystem

Prepared By

INWOODS
Environmental Consultants
New Haven, CT

OF BLOOMFIELD

THE INLAND WETLANDS OF BLOOMFIELD

A Handbook For An Ecosystem

Prepared by

Lynn Clements and Nicole Schless

Inwoods Environmental Consultants

New Haven, Conn.
May, 1985

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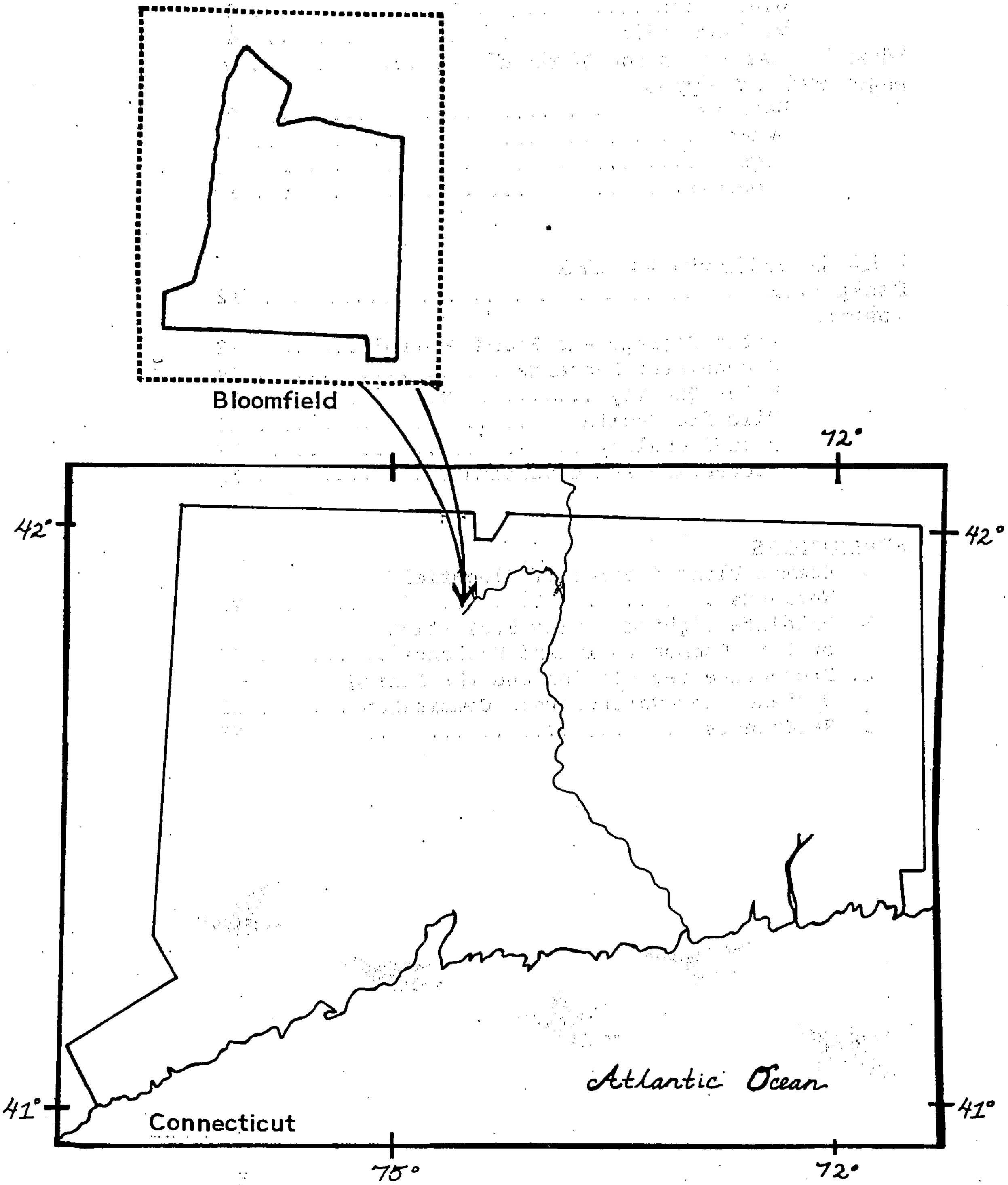

Bloomfield
72°
42°
42°
41°
41°
Atlantic Ocean
Connecticut
75°
72°

The Wetland Ecosystem: The Landscape of Bloomfield

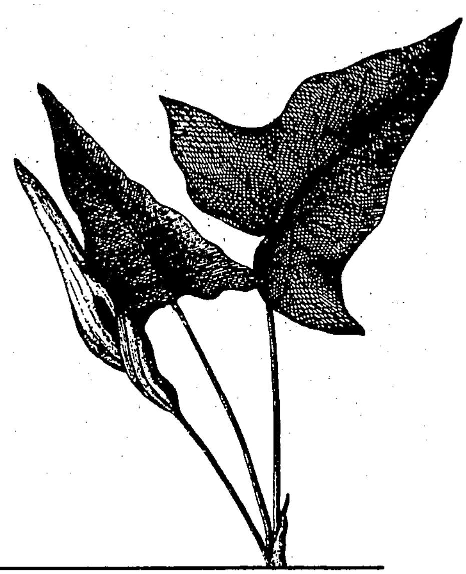
Historical Perspective -- Geology, Glaciation and Soils

Geology

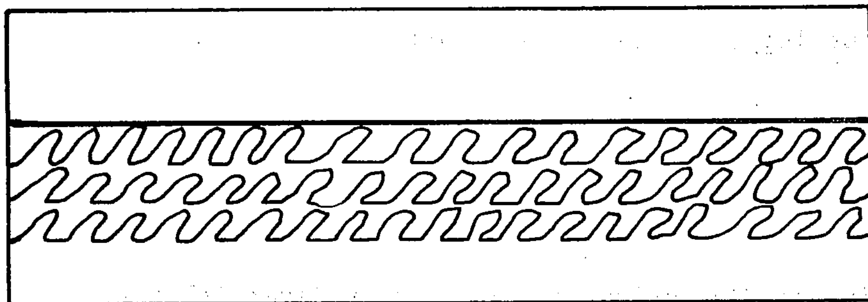
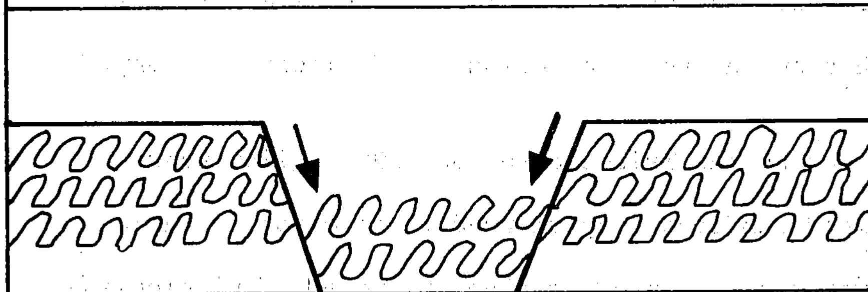
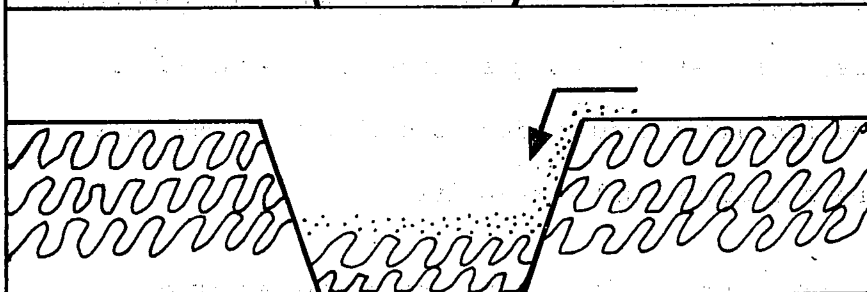
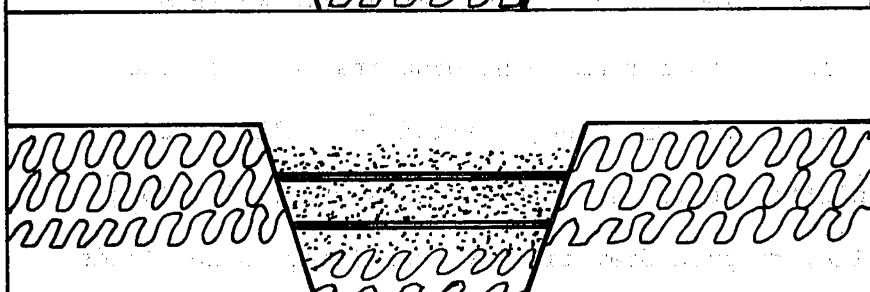
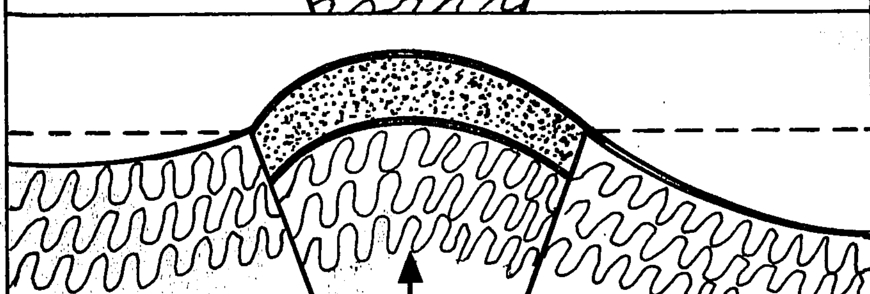
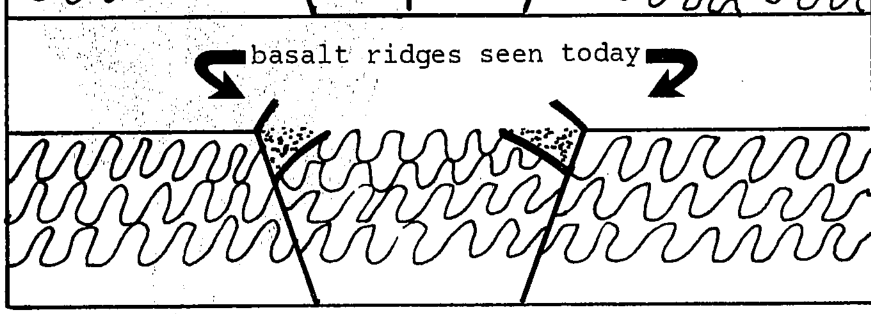
Bloomfield is located in the Connecticut and Farmington River Valleys. This area of New England has an interesting geologic and glacial history.

Geologists belive that during the Triassic Period, 190 million years ago, the southern New England landscape experienced three major volcanic erruptions. Lava flowed over the region and cooled. Composed of plagioclase and ferromagnesian minerals, the faster-cooling surface lava hardened to form basalt; where the minerals had a longer time to cool down, they built a coarser, more crystalline structure called dolorite.

Between each successive lava flow, softer stone and particles from ancient hills eroded and, along with stream-borne deposits, covered the basalt layers. Toward the end of the Cretaceous period, 60 million years ago, there were several uplifts and tilts in the Earth's crust. The long region that is now the Valley dropped dramatically, resulting in low lands with prominent basalt ridges.



Geologic Processes in the Connecticut Valley Lowland

	Early in the Triassic Period this region was composed of metamorphic rock.
	Two faults caused a section of land to drop down.
	Erosion and weathering from upland filled in the valley with sands.
	Igneous rock (basalt) seeped up through the faults cracks and was interspersed between layers of eroded sediment (sandstone).
	The layers of basalt and sandstone were lifted up by internal pressures in the earth.
	Over time, the top of the dome eroded. Basalt is harder than the sandstone, so it erodes more slowly and protrudes above the land surface.

Glaciation

Laval activity, erosion, deposition and tremendous shifting in the region accounts for much of the solid bedrock and major underlying geologic features. However, much of what is actually seen today are features of glaciation. In New England, the rocky crust or mantle of the earth is not composed of rotting bedrock but of pebbles, rocks and other materials brought from the north by the glacier, some 10 thousand years ago.

Two major types of deposits include unstratified and stratified drift. Unstratified drift, or till as it is more commonly known, is found throughout much of the landscape regardless of elevation. This is an assortment of rocks of all sizes which were randomly dropped by the melting glacier. On the other hand, stratified drift was reworked by water and so is stratified by grain size (not randomly deposited) and is found in valley depressions and other low-lying areas. Commonly layered over the till, it is composed of gravel, sand and finer sediments.

Glacial ice moved and melted leaving mounds of loose debris at its southernmost limits. The mounds and ridges formed in this way are called terminal morraines. Two interesting consequences of this still have their effect on the Bloomfield area.

The Farmington River, a part of Bloomfield's landscape, probably flowed straight before glaciation. Geologists conjecture that its path was impeded by deposition. The result was that the headwaters were diverted to flow northward until a course was found which connected the flow to the Connecticut River where the waters empty unobstructed to the sea.

As the glacier began to melt, a dam of rock and boulder debris formed in what is now the town of Rocky Hill. Meltwater from the huge ice mass was temporarily blocked from draining southward. Bloomfield was one of the many towns north of Rocky Hill covered by an enormous stagnant body of water called Lake Hitchcock that reached 160 miles north to Lyme, New Hampshire. As a result of this lake, many sections of the north central Connecticut Valley Lowlands were covered with fine sediments which settled out of the slow-moving water.

Wetland Soils

Of the ten major wetland soils occurring in Bloomfield, three -- Scantic (ScA, SdA) and Whately (WoA) -- are these lake-bottom (glaciolacustrine) soils. They predominate in acreage and occur most frequently in the eastern half of town.

By nature, fine-grained soils have a slow internal drainage rate. When combined with a high groundwater table, they remain wet for long periods of time throughout the year. Wetlands with these soils tend to lack a fragipan, be in topographically low areas and become part of the regional groundwater systems during wet seasons. Generally, these wetlands are areas of discharge -- areas where groundwater flows into depressions and onto the surface of the ground. The extent to which this process is reversed and these areas act as discharge zones is not clearly understood; however, it is extremely significant that there is an exchange between the wetland and the underlying groundwater. Some of the larger wetlands containing these soils include the Wintonbury and Blue Hills Reservoirs, and the wetland east of Blue Hills Avenue across from Blue Hills Reservoir.

Lacustrine soil conditions are very different from till and bedrock, Blöoomfield's second most dominant wetland soil type. In this case, a perched water table is responsible for saturated conditions. Till and bedrock wetlands can occur both on hillsides and in topographically low areas.

Hillside till wetlands are most numerous on the Talcott Mountain, a typical Connecticut Valley ridge. The hard and impervious layer of basalt is very near the surface and the soils on its steep hillside are shallow and rocky. Because vertical drainage in the relatively flat section of the ridge is minimal, water is temporarily trapped and hillside wetlands are formed. Runoff from the hillside can be heavy, especially during times of long and hard rains. Intense runoff is evidenced by a few heavily eroded stream channels such as the one coming off Talcott Mountain that crosses Gun Mill Road. Hillside wetlands trap, filter, and temporarily detain the runoff as it travels downslope.

Bottomland till wetlands are not totally dissimilar to hillside wetlands. They occur in lowland areas where the soil has been compacted just below the surface. This compacted layer, called a hardpan or fragipan, impedes vertical drainage, prevents exchange between the wetland and local groundwater and, in effect, creates a perched groundwater conditions. In Bloomfield, two soil series exhibit these characteristics. They are the Menlo (MpA, MoA) and Wilbraham (WrA, WsA, WtA) series and are frequently located around drumlin formations.

Geologists are not certain how drumlins evolved, but they hypothesize that these oval-shaped hills resulted from the glacier compressing and overriding soil material. Many bottomland till wetlands seem to occur at the base of these formations. An example of this is the northern section of the Cold Spring Reservoir where elongated strands of wetlands are sandwiched between drumlins.

As the climate warmed, the melting glacier sent torrential waters down the valleys. The velocity and strength of the water is recorded in the characteristics of the present-day mantle. Large banks of debris acted as dams, turning whole valleys into lakes. For waters to find their way over these rocky masses, they had to drop out the heavier sands and gravel; what was created were the coarse, gravelly soils known as outwash. Generally outwashes dry out quickly because they are largely deficient in smaller, water-holding particles and so quite porous. Wetlands that occur on outwash are accounted for by associated high water tables.

Another wetland soil type is derived from stream and river overflow sediments. These are the floodplains which occur along streams, rivers and channels, and mark the high water boundary. Ranging in texture from silt to coarser loams and sands, they are frequently inundated and slow to drain. Floodplain soils are often very fertile and so are often cultivated. Much of the Connecticut River floodplain was and still is used as tobacco farmlands.

The fifth, uncommon but extremely important wetland soil type in Bloomfield is the peat and muck (PmA, PkA). Peat soils are ecologically significant for a number of reasons. One important characteristic is its ability to absorb many times its weight in water, thereby markedly affecting the timing and degree of flooding downstream. Organic soils are also able to adsorb potential pollutants such as nitrogen and phosphorus and incorporate them into plant material via nutrient uptake.

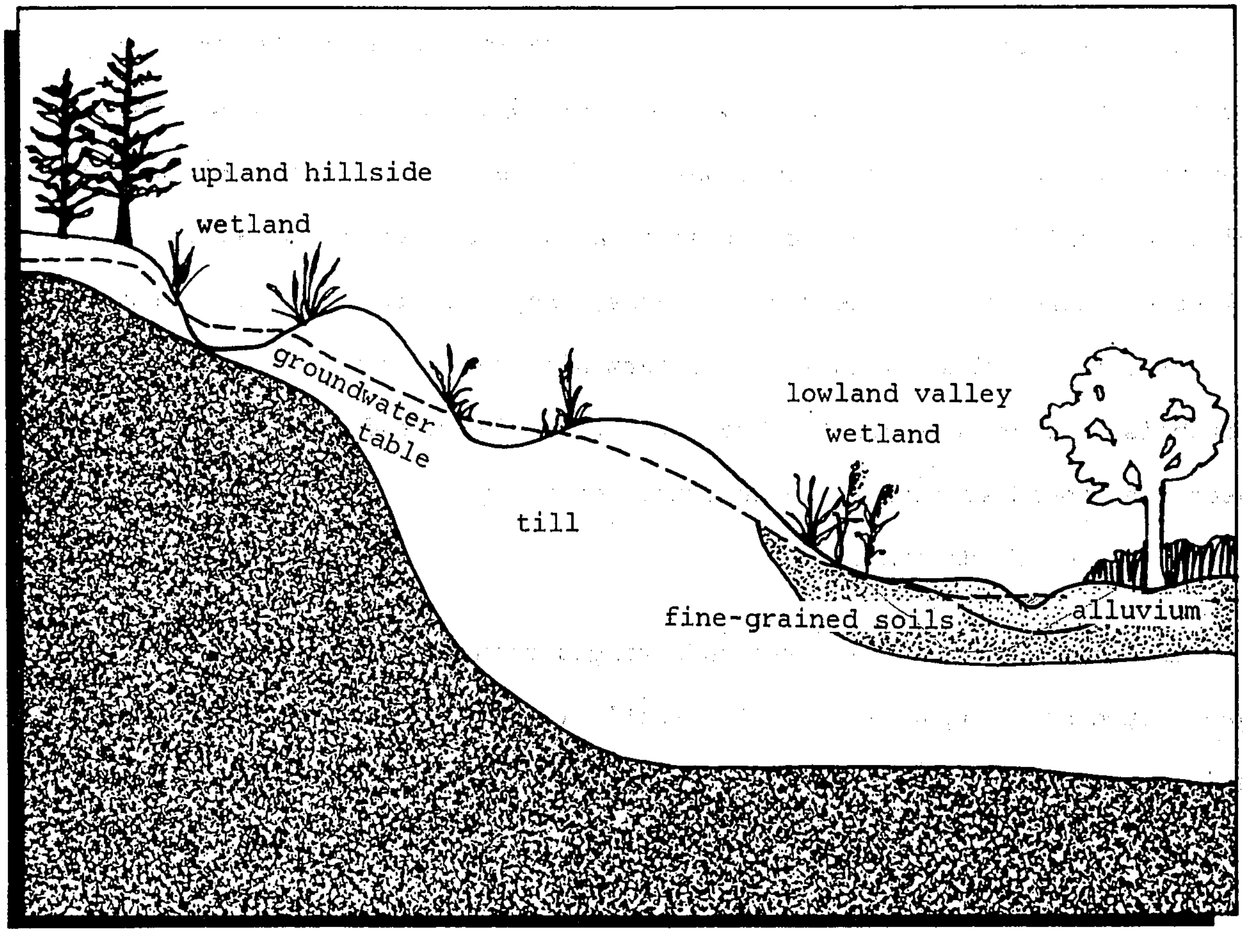
Peat can be an indication of a former pond conditions, many of which were created during glaciation when blocks of ice became lodged in the surrounding landscape. They melted, ponded but eventually filled in with plant and animal debris to form the present-day wetland. Examples of organic soils in Bloomfield include the shrub swamp along Tunxis Avenue just south of Capewell Drive, the small sections of peat at the head of the Blue Hills and Tunxis Reservoirs' tributaries and the large area of peat located in the Cold Spring Reservoir.

What Defines and Inland Wetland?

Inland wetlands occur in a number of different forms and are more commonly known as swamps, marshes and bogs. Floodplains, although not necessarily wetlands by other definitions, may be seasonally inundated, and are also controlled by the Inland Wetlands and Watercourses Commission. Although there are a variety of wetlands, they all have one thing in common -- water is the primary influence determining the formation of soil and the establishment of vegetation. The water table in inland wetlands is at or near the ground surface throughout much of the year, except in the special case of some floodplains.

Identification of inland wetlands ranges from the obvious (areas of year-round standing water), to the subtle (reddish-brown mottling in a grey soil profile -- a telltale sign of a seasonally high water table). The species of plants occurring in these seemingly dry areas is also usually indicative that the land is saturated during wet seasons.

Wetland boundaries are most often indistinct. Rather than a clearly definable line between upland and wetland, many wetland boundaries represent a broad area of transition between upland and wetland ecosystems. In Connecticut, inland wetlands are defined on the basis of soil characteristics: poorly drained, very poorly drained, alluvial, and floodplain. The Soil Conservation Service maps (Hartford County Soil Survey or the Official Inland Wetlands and Watercourses map of Bloomfield) are the best initial sources for determining whether a parcel of land includes inland wetlands. Landowners should check these maps or consult the Town Engineer to determine if land to be altered is a wetland. Developers planning to build on property containing inland wetlands need to delineate specific wetland boundaries as part of the site planning process. Such a survey is done by soil scientists who field check and flag wetland boundaries.



Inland Wetlands in the Landscape

Major Wetland Types

Marshes

Marshes are conspicuously absent of trees and shrubs and are instead dominated by soft-stemmed herbaceous vegetation such as cattail, pickerel-weed, burreed, and reed grass (Phragmites). The water level is variable, depending on soil type and drainage patterns. Seasonal fluctuations in the local groundwater table causes variations in water depth within a marsh. Marshes are often formed by the intersection of the groundwater table with the land surface. They may also evolve with the gradual filling in of open water bodies. In most cases, marshes are underlain by an organic layer of variable depth over a mineral soil.

Swamps

Wooded swamps generally have three strata of vegetation -- trees, shrubs, and herbs -- with trees as the dominant plant form. Red maple, American elm, spice bush, sweet pepperbush, jewelweed, and skunk cabbage are abundant in wooded swamps. Red maple wooded swamps are the most common wetland type in Bloomfield.

Buttonbush, alder, highbush blueberry, sweet gale, and other shrubs are dominant in shrub swamps. Herbaceous vegetation such as ferns and grasses occupy the understory beneath the shrubs. A persistant, high watertable restricts the development of trees, and allows the establishment and dominance of water-tolerant shrubs.

Swamps are also underlain by a shallow organic layer, and may develop directly in wet lowlands, or on steep hillsides. They are often the later stage of marsh succession and development. A typical red maple wooded swamp lies along a tributary of Meadow Brook in the southern section of town. A typical shrub swamp occurrs along Beaman's Brook near the Bloomfield Middle School. As with marshes, small areas of shrub swamp occur as inclusions in some wooded swamps. The shrub swamp wetland type is not well developed in Bloomfield.

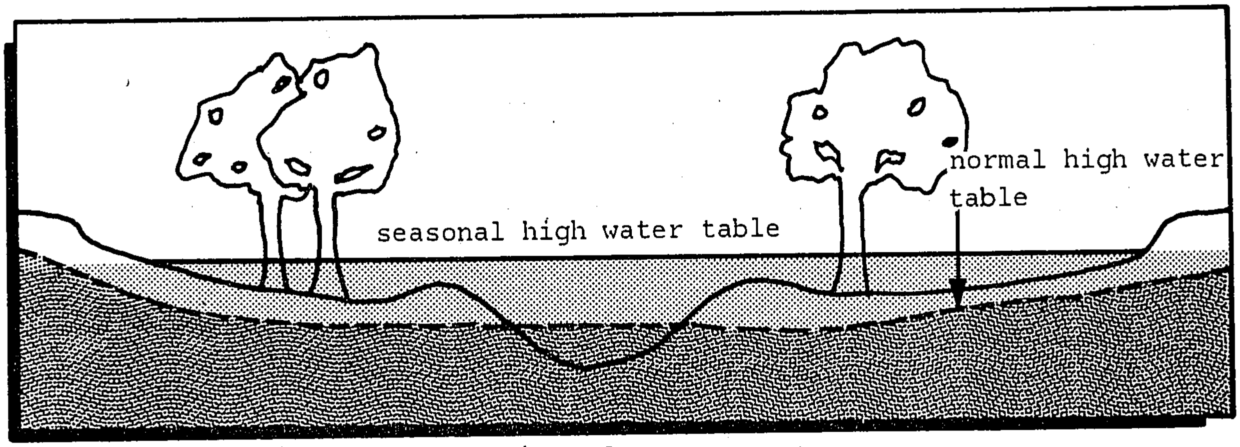
Bogs

Bogs develop in deep post-glacial depressions, and are underlain by a thich layer of organic marterial, sometimes 20-40 feet deep. They are often formed from the gradual filling in of kettlehole lakes and ponds left by melted blocks of glacial ice. Poor drainage, an acidic substrate, and a nutrient-poor environment are characteristic of bogs. As a result of these unusual conditions, bogs are often inhabited by uncommon flora. For example, pitcher plants and sundews trap and digest insects, thus enabling them to survive in this nutrient-poor environment. The substrate of a bog gets less stable toward its center. Typically, black spruce, larch and red maple frequently fringe the more stable edges of bogs; shrubs are found just inside the trees, and closest to the center, herbaceous vegetation grows as a floating mat over the water. Bogs are relatively rare in this region.

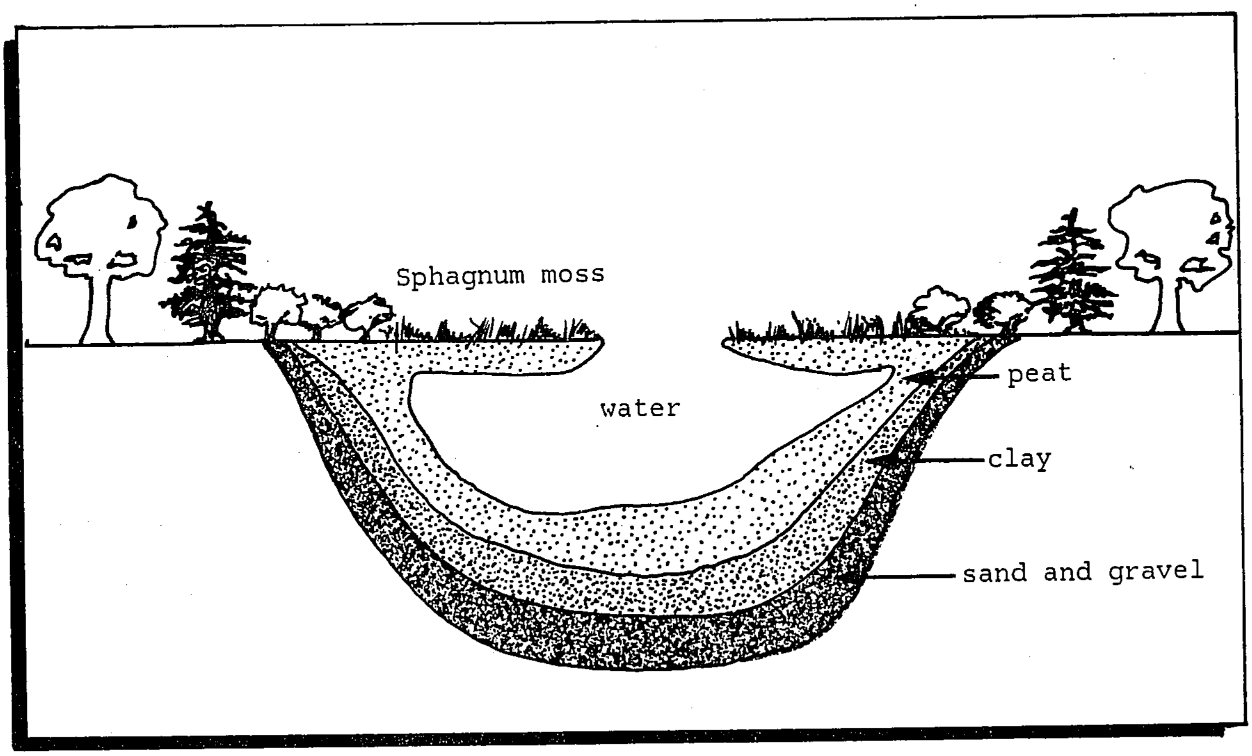
Floodplains

Floodplains are the low-lying flat terraces fringing rivers and streams. They are the lands which are inundated periodically by floodwaters during wet seasons and times of heavy precipitation. Floodplains are underlain by water-deposited sediment called alluvium.

The banks of rivers and streams are usually unstable environments, subject to sporatic deposition, and fluctuating water levels. Floodplains are vegetated by a quite predictable combination of tree species, able to withstand such fluctuations. Willow, sycamore, elm, cottonwood, and silver maple are arranged on floodplains in relation to the height of the land and the frequency of flooding at that elevation.



Cross-section of a Floodplain



Cross-section of a Bog

Inland Wetland Values

Background

From the time of settlement, wetlands were viewed as useless non-productive land and, as such, began to function as dumps for stumps and rocks cleared from fields. Things were simply dumped "over the bank" which usually meant into a wetland or ravine. With the advances in machinery and engineering, many wetlands were drastically altered for agricultural use, others broken up by roads, dammed to make ponds, continued on as local dumpsites and a few remained relatively unscathed.

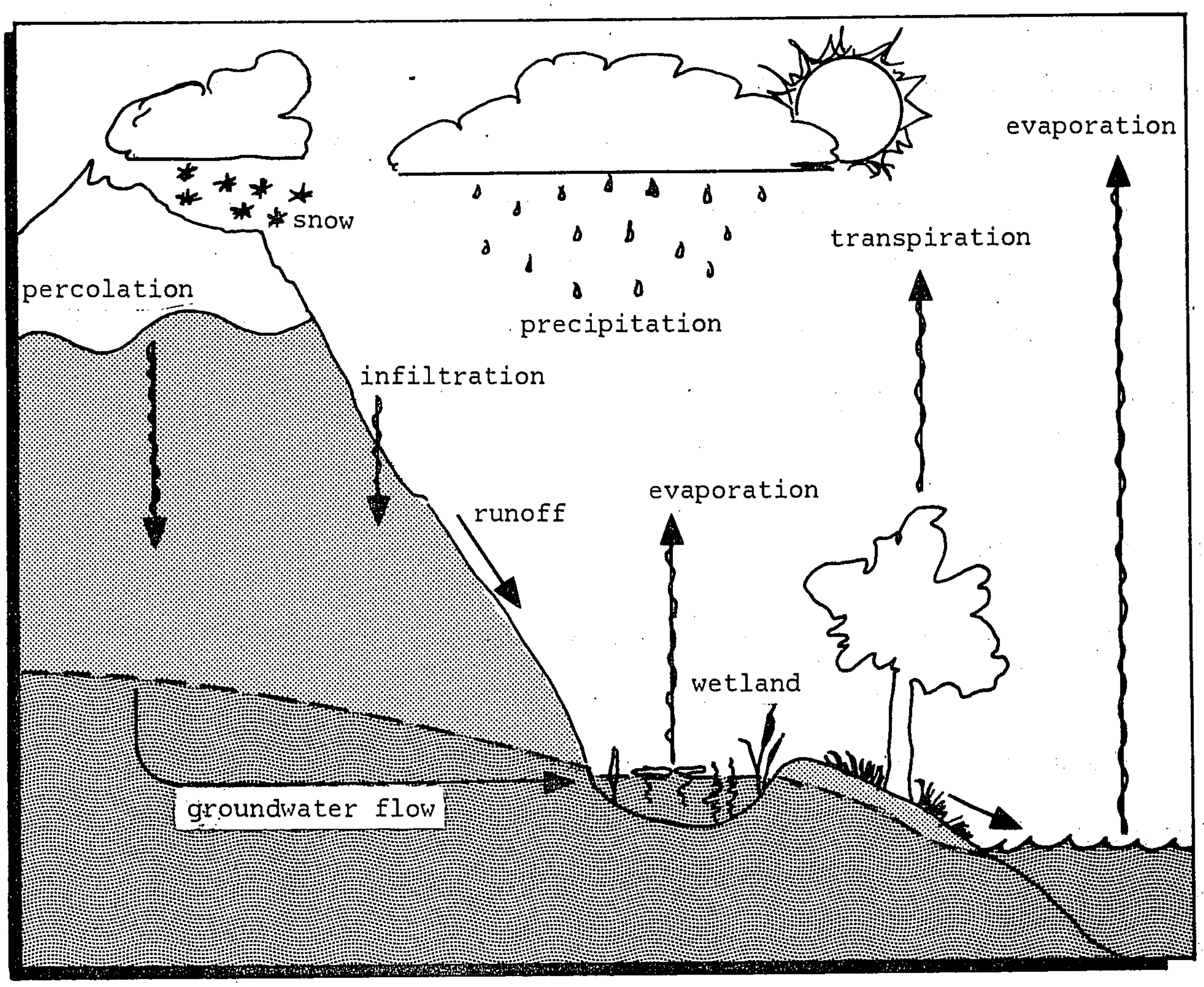
It took the 20th century and increased housing development to really begin to destroy wetlands in large numbers in this part of the country. It is also the result of the environmental awareness of the 20th century and the attention, particularly in Connecticut, to the quality of drinking water that is beginning to turn the trend away from careless disregard to genuine concern for these ecosystems.

Water Storage and Flood Control

Wetlands have the capacity to store large quantities of water which can, in turn, dissapate potentially damaging effects of floods. Pore spaces in the soil normally filled with air in upland soils are replaced by water in wetlands. The rate of decomposition under saturated conditions is extremely slow, since most decomposing organisms require oxygen to function. As a result, wetlands tend to accumulate poorly decomposed organic matter. These organic soils have a high capacity to absorb and hold large quantities of water especially from rains falling during dry periods.

Peat wetlands are composed entirely of organic soils and therefore have the greatest affect on water storage and are especially important in controlling floods. Cold Spring Reservoir contains the largest section of peat in Bloomfield. This reservoir acts as a giant sponge, holding and detaining large quantities of water which are later gradually released into Tumbledown Brook.

The other three reservoirs in Bloomfield -- Tunxis, Blue Hills and Wintonbury ---are composed almost entirely of wetlands. It is the absorbtive qualities of the wetland soils in these reservoirs which have a signifcant effect on water storage and flooding.



The Hydrologic Cycle

Floodplain wetland soils as well as the shape of watercourses significantly affect flooding. These wetlands serve an important flood control function. Oxbows, floodplain soils, and natural levees absorb and retain floodwater which is later released over an extended period of time. The sinuous shape of many waterways obstructs and effectively slows the velocity of floodwaters. As the water is slowed and absorbed, the energy of the flood is dissapated. This results in a reduction as well as a delay in the peak downstream discharge of a storm. Wetlands, therefore, reduce the severity of flood damage to structures located along rivers and streams.

Wetlands, because of their low topographic position, receive overland runoff and seepage from the surrounding land. The storage capacity of wetlands is especially important in urbanized areas, where absorbtive surfaces are replaced by impervious layers. Urbanization increases the rate of overland runoff, which, in the absence of wetlands, can cause flooding and erosional damage during periods of heavy precipitation. Wetland vegetation cycles large quantities of water via transpiration to the atmosphere during the growing season. Removal of this vegetation results in increased saturation and flooding of the land.

Groundwater Recharge

Wetlands are most often areas of discharge, where the groundwater intersects and flows onto the land surface. Originally, it was thought that wetlands slowly recharge aquifers when the groundwater level dropped during dry seasons. But, because of the extremely poor vertical permeability of many wetland soils, little water actually moves downward to recharge the groundwater. Instead, much of the moisture in wetlands is transpired during the dry season and evaporates into the atmosphere or is slowly released to maintain the base flow of adjacent streams, draining the wetland.

Wetland ecosystems, however, are variable. During certain times of the year, some can be important sources of groundwater recharge, especially those underlain by stratified drift (sand and gravel). Most wetlands are inextricably linked to underlying aquifers. Given the extreme importance of groundwater, this association should not be neglected.

Water Quality

Inland wetlands act as filters which remove pollutants and sediments from the water. Runoff from urban development, construction and agriculture all introduce substantial quantities of sediment into watercourses. The resulting sedimentation alters the biologic and geologic processes of aquatic ecosystems. Perhaps the most harmful effect is the increased turbidity of the water. Sunlight penetration is reduced by murkiness and, as a result, photosynthesis is disrupted. This, in turn, affects the life cycles of stream biota, food chain and predator-prey relationships. Fine particles suspended in the water clog the gills of fish as well as the filtering strucures of other organisms. Bottom-dwelling flora and fauna can be smothered by deposited sediment.

Wetlands can mitigate some of these harmful effects of sedimentation by removing suspended particles from the water column. Wetlands with diffuse flow of water and dense persistent vegetation are most effective as sediment traps. The ability of water to transport sediments is directly related to its velocity. As water flows across a wetland, contact with the ground surface and vegetation slows the water and sediments drop out of suspension. Pollutants which are bound to sediments are removed as the particles are filtered by the wetland as well.

However, wetlands can also be harmed by too much sedimentation. Large quantities of deposition can change the character of all or part of a wetland by elevating the ground surface, and creating a drier environment. These ecosystems can function as sediment traps up to a point, beyond which they are adversely affected.

Pollutants are also removed by wetlands. Nitrogen and phosphorus are taken up by vegetaion during the growing season and incorporated into plant tissue. Later, they are released slowly as dead vegeation is decomposed. Assimilation of nutrients by plants and subsequent release results in important nutrient transformations. Simple forms of nitrogen and phosphorous entering a body of water directly are often readily used by algae, causing a nuisance algal bloom. These simple N and P forms, passing first through a wetland, can be converted into complex organic compounds via tissue assimilation. Transformed, it serves as a food base for bacteria and insect larvae.

Wetlands also remove nitrogen via denitrification. The anaerobic conditions of these saturated ecosystems favor the release of nitrogen into the atmosphere.

Wildlife Habitat

Inland wetlands are important areas of open space which provide food, shelter, nesting and breeding grounds for a myriad of wildlife. Beavers, muskrats, songbirds, swans, geese, ducks, herons, turtles, snakes and butterflies are just some of the animals which depend on these environments. Many wetlands contain a wide variety of flora --- trees, shrubs, emergent herbaceous plants, submerged rooted aquatics and floating surface vegetation --- which can support diverse wildlife populations. The arrangement of vegetation and water is also significant. For example, wetlands with highly integrated and nearly equal patches of vegetation and water provide extensive habitats.

Migratory species depend on wetlands located along or near major flyways for temporary resting and feeding. The Connecticut and Farmington Rivers are two important migratory pathways surrounded by wetlands and used a great deal by wildlife.

Wetlands are extremely productive ecosystems in terms of providing a food base. Abundant quantities of planktonic algae and detritus are produced within the wetland environment and are eaten by small organisms. These, in the chain, support larger species such as fish, birds, and muskrats. Inland wetlands have been referred to as "duck factories" because of the enormous populations they support. In Bloomfield, the Barbers Pond ecosystem harbors a wide variety of wildlife including kingfishers and herons as well as a variety of ducks.

Visual Quality

Wetlands provide visual diversity and contrast to the surrounding landscape. Even small sections of wetlands relieve the boredom of continuous stretches of urbanized land.

Wetland vegetation adds color to the surroundings all during the year. Wildflowers such as marsh marigold, loosestrife and jewelweed splash these ecosystems with orange, purple and yellow in the spring and summer. Black gum and red maple add vibrant reds in the fall. Winterberry sustains this color into the cold season with its bright berries dotting the landscape. Cattail and reed grass are frequently collected and used in dried arrangements.

Color and diversity are characteristic of wetlands of all sizes small or large, they are a positive addition to the aesthetics of an area. For human beings, the quality of life is subtly but surely enhanced by natural areas, the perception of beauty and color and the sight and sound of birds and wildlife.

Recreation and Education

Inland wetlands can be used for a range of recreational purposes. Some of Bloomfield's wetlands are already used extensively by bikers, birders, hikers, and picnicking families. Wildlife is easily observed and enjoyed in places like Barber's Pond, the Blue Hills and Wintonbury Reservoirs, Lake Louise, and the hillside wetlands of Penwood Park. There are spectacular and unusual wetlands tucked throughout the town, and as one gets to know them one can see the individuality and particular beauty of each.

Wetlands serve as outdoor classrooms too. Ecological principles such as diversity, nutrient cycling, plant and animal interaction and dependence and energetic flow can be observed and related to the environment as a whole.

Because of Bloomfield's geographic location, it is the home of many fine wetland ecosystems functioning to the benefit of the town's residents: people of all ages, animals, birds, butterflies, insects, plant communities and microorganisms. Multi-faceted and complex, inland wetlands are an enormously valuable natural resource for Bloomfield, adding to the quality of life in so many ways. Their delicacy and impacts to them should not be underestimated; but the increasing level of environmental awareness is adding an encouraging amount of care into some very difficult decisions and planning processes.

APPENDIX A

COMMON PLANT SPECIES IN BLOOMFIELD WETLANDS

Key
WS= Wooded Swamp
SS= Shrub Swamp
SM= Shallow Marsh
M = Meadow
B = Bog
FP= Floodplain

Trees

Red Maple	WS, B, FP
Ash	WS
Sycamore	FP
Amer. Elm	WS
Hemlock	WS, B
Cottonwood	FP
Swamp White Oak	WS
Tupelo	WS

Shrubs

Swamp azalea	SS, WS
Sweet pepperbush	SS, WS
Winterberry	SS, WS
Spicebush	WS
Pussy willow	SS, FP
Alder	SS, WS, FP
Buttonbush	SS, WS
Highbush Blueberry	SS, WS
Leatherleaf	B
Cranberry	B
Waterwillow	B, SS

Herbaceous Vegetation

Blue Flag	M, SM
Jewelweed	SM, WS, M
Juncus	WS, SM, M,
Cattail	SM, M, WS
Sedges	SM, M, WS
Purple loosestrife	WS, SM, M
Skunk cabbage	WS, SM,
Phragmites	SM, M,
Burreed	SM
Panicum	SM, M
Sphagnum	B, SM, WS
Arrowhead	open water
Marsh marigold	WS, SM
Water lily	open water
Royal fern	SM, WS, SS
Cinnamon fern	SM, M, WS, SS
Marsh fern	SM, M
Sensitive fern	SM, M, FP

APPENDIX B

WILDLIFE SIGHTED DURING WETLANDS EVALUATION (10/84-2/85)
OR VERY COMMON TO WETLANDS

Birds

Common snipe
Marsh hawk
Red-wing blackbird
Belted kingfisher
Mockingbird
Cardinal
Junco
Green heron
Great blue heron
Black-crowned night heron
Osprey
Cedar waxwing
Pileated woodpecker
Downy woodpecker
Snowy egret
Black duck
Mallard
Canada goose
Swamp sparrow
Common yellowthroat
Long-billed marsh wren
Sandpiper (spotted and solitary)
Yellowlegs (greater and lesser)

Other Animals

Raccoon
Fox
Frog (spring peeper, leopard, bull)
Deer
Butterflies
Snake (water and garter)
Snapping turtles
Fish

APPENDIX C

PROTECTIVE LEGISLATION AND THE INLAND WETLANDS COMMISSION

In recognition of the importance of wetlands as an integral and vital part of the environment, the federal government took legislative action to protect these ecosystems. Section 404 of the Water Pollution Control Act Ammendments (Public Law 92-500) requires federal agencies to apply for a permit for activities involving alteration of wetlands. Another federal statement concerning wetlands was issued in 1977 in President Carter's Executive Order 11990, which required federal agencies to "...avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands..."

In addition to federal legislation, some states (MA, CT, RI, MN, MI, NH, NY) have enacted their own protection laws. In 1972, Connecticut became the first state to pass inland wetland protective legislation designed to provide for the "...protection, preservation, maintenance, and use of inland wetlands and watercourses..."

In keeping with Connecticut's strong emphasis on decentralized government control, the Connecticut Inland Wetlands and Watercourses Act allowed for the establishment of local regulations if consistent with the state's objectives. Bloomfield is one of the vast majority of Connecticut's towns which have taken advantage of this provision and enacted local regulations.

Activities which affect wetlands in any way must be reviewed and approved by Bloomfield's Inland Wetlands and Watercourses Commission. Since, in Connecticut, wetlands are defined solely on the basis of soil characteristics, any use that infringes even in part on a wetland soil must be presented before the commission. The location of wetland soils in Bloomfield appear on the town's official inland wetlands and watercourses map. The delineation of these soil types are based on the Soil Conservation Service's survey. This map as well as applications and additional information on the permitting process can be obtained at the Town Hall in Bloomfield.

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Organizations

Connecticut Department of Environmental Protection, Hartford, CT. (Natural Resources Center)

Inland Wetlands and Watercourses Commission, Town of Bloomfield.

Soil Conservation Service (Office for Hartford County is located in Windsor, CT.)