Freshwater Wetlands Protection in New Jersey

A Manual for Local Officials

Third Edition

ASSOCIATION OF NEW JERSEY
ENVIRONMENTAL COMMISSIONS

Chapter I

Why Protect Wetlands and How Are They Identified?

Wetlands provide important public benefits that require protection. The first step in protection is to identify where the wetlands are. Soil and vegetation characteristics as well as hydrologic evidence determine the presence or absence, and the extent of wetlands. The NJ Freshwater Wetlands Protection Act provides for classification of wetlands by such resource values as water quality and plant and wildlife habitat. This chapter describes wetlands' physical parameters, why wetlands are valuable, how wetlands are identified and wetland classification.

WHAT ARE FRESHWATER WETLANDS?

Freshwater wetlands occur throughout New Jersey. They usually lie between dry upland areas and water bodies and occur most frequently along rivers and streams and on the margins of lakes and ponds. They can be groundwater-fed depressions. They also occur on slopes where springs erupt at the surface.

The different types of freshwater wetlands vary in character and appearance. They include marshes, wet meadows, swamps bogs and vernal habitats.

- marshes are most often covered with shallow water;
- swamps and wet meadows are often covered with water for only a portion of the year, occasionally drying up during the summer;
- bogs have very restricted inflow and outflow of water and often provide habitat for plant species that will not survive elsewhere;
- vernal habitats are confined wetland depressions that hold water for at least two consecutive months out of the year. They provide habitat to many species of amphibians, insects, reptiles, and plants, but do not support fish.

The NJ Freshwater Wetlands Protection Act defines a wetland as:

"an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation..."

To be considered a wetland, an area must have enough water maintained in the region of the root system at some time during the growing season to support vegetation that tolerates wet conditions and to inhibit the growth of vegetation that cannot survive under wet conditions.

The changing nature and interrelationship of the three wetlands attributes – water, soil, and vegetation – determines the extent and type of the wetland. For example, the extent and type of wetlands and wetlands vegetation near rivers depends on the magnitude and frequency of floods, as well as on the fluctuations in ground water levels.

WHY PROTECT FRESHWATER WETLANDS?

Wetlands work 24 hours a day, seven days a week, providing value to the public. Freshwater wetlands provide many important functions simultaneously.

- protect and preserve drinking water supplies;
- protect water quality by vegetative uptake of pollution in stormwater;
- provide a natural means of flood and storm damage protection that prevents loss of life and property;
- provide essential habitat for a major portion of the state's fish and wildlife;
- maintain critical base flows to surface waters during droughts.

Wetlands Provide a Range of Public Benefits.

A 1978 study by the Biology and Economics Departments of Tufts University, Massachusetts, showed that one acre of wetland provides between $153,000 and $190,000 (1978 dollars) of public value. The $37,000 difference is accounted for by varying values assigned to recreation and aesthetic functions. Please see Table 1 for additional details.

TABLE 1

Summary of the Benefits of One Acre of Charles River Wetland

Function	Status	Low Estimate of Value	High Estimate of Value
Increases in Land Value			
Flood Prevention	proven	$33,370	$33,370
Local Amenity	proven	150	480
Pollution Reduction			
Nutrients and BOD	proven	$16,960	$16,960
Toxic Substances	proven	+	+
Water Supply	proven	$100,730	$100,730
Recreation and Aesthetics			
Recreation	proven	$2,145	$38,469
SUB TOTAL		**$153,355**	**$190,009**
Preservation and Research	probable	+	+
Vicarious Consumption and Option Demand	possible	+	+
Undiscovered Benefits	possible	+	+
TOTAL Including Visual-Cultural Benefits		**$153,535+**	**$190,009+**

SOURCE: AN ECONOMIC ANALYSIS OF WETLAND PROTECTION, FRANCIS R. THIBODEAU. DEPARTMENT OF BIOLOGY, TUFTS UNIVERSITY AND BART D. OSTRO, DEPARTMENT OF ECONOMICS, TUFTS UNIVERSITY, MASSACHUSETTS. 1978

Flood Control... *Wetlands control flooding by storing excess floodwater*

In the 1970's the U.S. Army Corps of Engineers estimated that protecting 8,545 acres of wetlands in the Charles River basin outside Boston would save $17 million per year in flood damage costs.

Approximately a decade later, the Corps estimated that purchase of 13,000 acres of wetlands in New Jersey's Passaic River basin would save $13.25 million per year in flood damage costs.

Water Purification... *Wetlands purify water by absorbing pollutants and filtering out sediment.*

At a cost of $30 million in the 1960's, the Corps channelized the Kissimmee River in Florida, straightening miles of meandering river and building dikes and levees to prevent flooding. Subsequent to the channelization and before wetlands had federal protection, wetlands separated from the river by dikes were filled for agricultural use. By the mid-1970's, downstream Lake Okeechobee was suffering from severe eutrophication caused by nutrient-rich agricultural runoff from the filled wetlands. Florida authorities were very concerned because the lake provides water supply for southern Florida during dry periods. They have decided to dismantle the channelization project and restore the wetlands. The estimated cost is $280 million.

Recreation and Sport... *Wetlands provide opportunities for fishing, hunting, photography and other activities*

According to the Emergency Wetlands Protection Act enacted by Congress in 1986, wetlands are the basis for over $10 billion in annual expenditures on nature study, fishing, hunting, and other outdoor activities.

The U.S. Fish and Wildlife Service estimates that in 1980, observers and photographers of wetland-dependent bird species added close to $10 billion to the U.S. economy.

Dr. Paul Kerlinger, Director of New Jersey Audubon Society's Cape May Bird Observatory, estimates that in 1988 bird watchers spent well over $6 million on travel accommodations alone in Cape May County, New Jersey.

Public benefits where dollar figures not available.... *Some wetland values are very difficult to measure accurately.*

For example, wetland ecosystems have provided ingredients for invaluable medical advances. Researchers at Bristol-Myers Squibb Institute for Medical Research, Princeton, developed a valuable antibiotic using bacteria from soil in the wetlands of the New Jersey Pine Barrens. The antibiotic, Azectam, is effective against a wide range of bacterial infections, and is especially useful in hospitals. In 1989, sales amounted to approximately $200 million and provided invaluable health benefits. No one knows what other medical benefits future research on wetland biota will yield.

Wetlands are ideal places to teach children and adults about the web of life. But, how can educational value be translated into economic return? Similarly, it is almost impossible to come up with dollar values for the open space and climate modification benefits provided by wetlands.

WETLANDS' PHYSICAL ATTRIBUTES

Three characteristic wetlands attributes are essential to identify wetlands: vegetation, soils and hydrology.

Wetlands Vegetation

Plants that have adapted to living in wet conditions are called hydrophytes. Hydrophytes are unique because they grow in soils that lack oxygen as a result of excess water content. They are classified into four categories:

- Obligate plants nearly always occur in wetlands and are the best vegetative indicators of wetlands. Examples include cattails, royal ferns, skunk cabbage, swamp azalea, white cedar.
- Facultative wetland plants occur in wetlands over two-thirds of the time and are good indicators of wetlands. Examples include cinnamon fern, pin oak, high bush blueberry, elderberry.
- Facultative plants occur in wetlands between one-third and two-thirds of the time, but also occur in uplands. Examples include red maples, foxtail grass, witch hazel, rosebay rhododendron.
- Facultative upland plants are more typical of uplands, but will grow in wetlands less than one-third of the time. Examples include American holly, beech, bracken fern.

The *National List of Plant Species that Occur in Wetlands: 1988* is available from the U.S. Fish and Wildlife Service, Suite 101, Monroe Building, 9720 Executive Center, St. Petersburg, FL 33702. *New Jersey's Threatened Plant Species* is available from the Office of Natural Lands Management, CN 404, Trenton, NJ 08625-0404, 609-984-1339.

Web Sources:

www.charttiff.com/WetlandMaps/WetlandPlants/plantlists.html

http://plants.usda.gov/

Wetland Soils

Wetland soils contain excess water for long enough periods to inhibit the presence of free oxygen, necessary to support normal vegetation and to break down minerals.

Soils that occur in wetlands are called hydric and are separated into two categories, organic and mineral.

- **Organic** soils contain a high percentage — more than half of the volume of the upper 32 inches of the soil — of organic material because the lack of oxygen slows down the natural decomposition process. Hydric organic soils are dark in color.
- **Mineral** soils contain a very low percentage of organic material and are hydric when they are saturated long enough to change their properties substantially. Hydric mineral soils are usually gray, mottled immediately below the soil surface, or exhibit dark colors at the surface, and gray mottled areas below the surface.

Evidence of hydric conditions can consist of dark vertical streaking in the subsurface; brown or orange-brown channels left by oxidized roots; or, the odor of hydrogen sulfide (rotten eggs).

Soil scientists have grouped hydric soils according to their degree of association with wetlands. Hydric soils found specifically in the state's counties are available by county at: www.state.nj.us/dep/dwq/pdf/soilcondist.pdf. The following list is a general one.

TABLE 2

NEW JERSEY HYDRIC SOILS

Note: Alluvial Land as mapped by soil surveys does include wetland, however due to its variability (including wet and dry environments), it could not be categorized within one of the three groups. Also, wet phases of somewhat poorly drained soils not on this list may also on occasion be associated with wetland.

Group 1 - Soils that nearly always display consistent hydric conditions.

Adrian	Croton	Lyons, Stony	St. Johns
Bayboro	Doylestown	Manahawkin	Sulfaquents
Berryland	Elkton	Matlock	Sulfihemists
Bibb	Fluvaquents	Muck	Swamp
Biddeford	Fresh Water Marsh	Mullica	Tidal Marsh
Bowmansville	Halsey	Norwich	Wallkill
Carlisle	Humaquepts	Norwich, Stony	Wayland
Chippewa	Keansburg	Pocomoke	Weeksville
Cokesbury	Lamington	Portsmouth	Whitman
Cokesbury, Stony	Livingston	Preakness	Whitman, Stony
Colemantown	Lyons	Sloan	

Group 2 - Soils displaying consistent hydric conditions in most places, but additonal verification is needed.

Atherton	Leon	Plummer	Ridgebury, Stony
Atsion	Othello	Raynham	Shrewsbury
Fallsington	Parsippany	Reaville (wet variant)	Watchung
Fredon	Pasquotank	Ridgebury	Watchung, Stony
Haledon (wet variant)	Passaic (Parsippany variant)		

Group 3 - Soil displaying hydric conditions in few places and additional verification is needed.

Abbottstown	Hammonton	Rowland	Venango, Stony
Amwell	Klej	Turbotville	Whippany
Chalfont	Lenoir	Venango (Albia)	

Source.: Tiner, R. W., Jr. Wetlands of New Jersey.

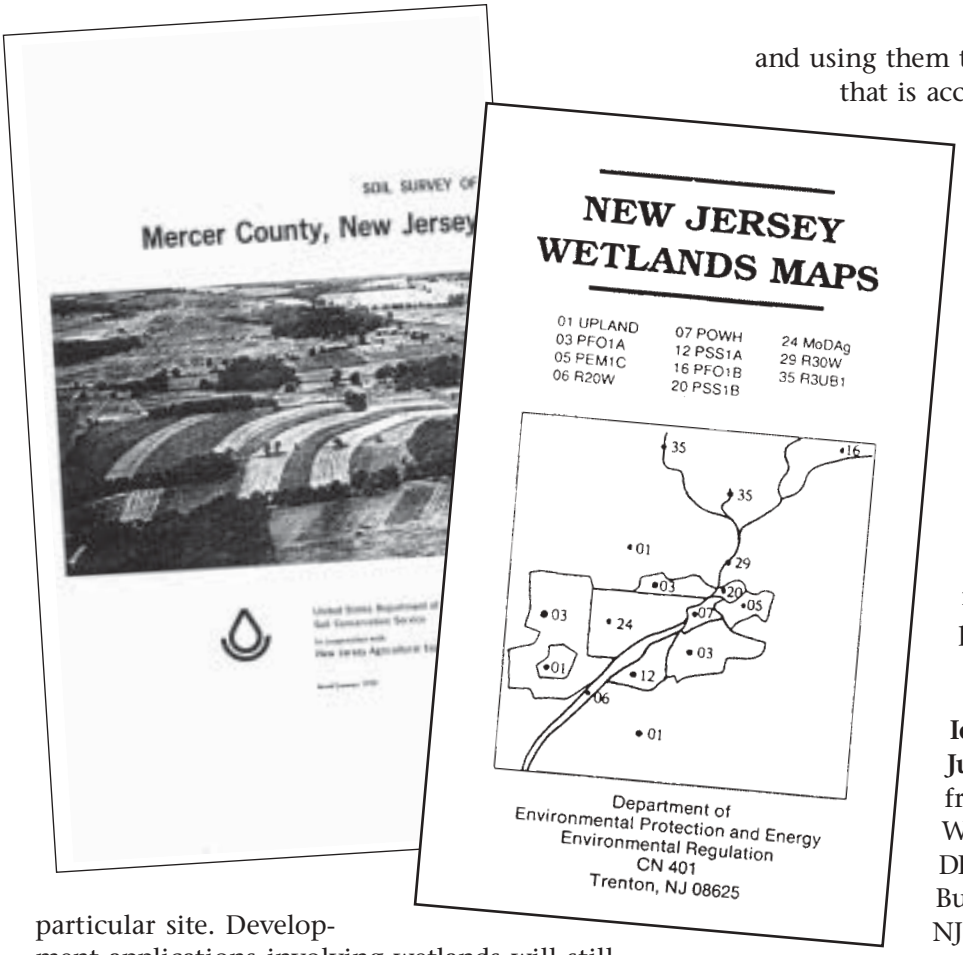
Wetlands Hydrology

Wetlands depend on the presence of surface or ground water supplied by rainfall, flooding, snow melt, and/or subsurface water for a long enough period to support wetland vegetation. The presence of water in wetlands is highly variable and is not always obvious. At times when water is not apparent in a particular area, **hydrologic indicators** are used to ascertain that water is a dominant factor. These indicators include sediment deposits, water marks on tree trunks, moss lines on trees, elevated (buttressed) roots.

AVAILABLE WETLANDS MAPS

Hydric soils, shown on county soil surveys, which are available through the County Soil Conservation Districts, give a good indication of the presence of wetlands. The best source of wetlands maps is the New Jersey Department of Environmental Protection (DEP). The mapping is available as GIS downloads from the DEP web page at www.nj.gov/dep/gis/ or on quarter quad maps available from DEP Maps & Publications, (609) 777-1038, P.O. BOX 438 Trenton, NJ 08625-0417.

It should be noted that while far more detailed than the county soil survey maps, the DEP maps can still not approach the accuracy of a site-specific survey and should only be used as a guideline in regard to the presence or absence of wetlands on a



particular site. Development applications involving wetlands will still require, in most instances, use of the federal identification and delineation techniques.

WETLANDS DELINEATIONS

Because protection of wetlands depends on accurate and consistent identification methods, the NJ wetlands legislation requires use of a single wetlands identification methodology. To facilitate the wetlands identification and boundary delineation process, the Act authorizes the DEP to provide verification for the presence or absence of wetlands, for delineations, and other provisions, by issuing Letters of Interpretation. (See Chapter IV for full details on Letters of Interpretation.)

In an effort to insure accurate, consistent and repeatable wetlands identifications and determinations, the NJ legislature directed the DEP to adopt and use the federal methodology that has been developed by the four federal agencies primarily involved in wetlands identification and delineation: the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, and the U.S. Department of Agriculture Soil Conservation Service. It provides direction on identifying various site-specific wetland indicators and using them to establish a wetlands boundary that is accurate, consistent, and repeatable.

The federal methodology uses a three-parameter approach to identify wetlands. Characteristics of the soils, the vegetation and evidence of hydrology are used to determine the presence, absence, or extent of wetlands. Individuals performing delineations should have a sound background in botany, soil science, and hydrology. However, the degree to which expertise is required in any or all of these areas depends on the type of wetlands determination required and the characteristics of a particular site.

The **Federal Manual for Identifying and Delineating Jurisdictional Wetlands** (available from Superintendent of Documents, Washington DC at 202-783-3238; or, DEP Maps and Publications Office, Bureau of Revenue, CN 402, Trenton, NJ 08625, 609-777-1039) suggests four approaches for wetland field investigations to determine the extent of wetlands on a particular piece of property. All involve both office and field efforts.

For most instances, a **routine on-site determination** is all that is necessary to determine the existence of wetlands. This approach may be conducted by assessing the soils or by evaluating the plant communities.

For more difficult sites, an **intermediate-level on-site determination** is required. This approach is necessary on sites where the determination of wetlands vegetation requires more detailed analysis, especially when the boundary between the upland and wetlands is not clearly defined.

The third approach, a **comprehensive on-site determination** is designed for those sites that are extremely large or complex or when detailed information is necessary to support legal challenges. In applying this approach, use of a team of specialists is recommended so that accurate and detailed information may be compiled on the soils, vegetation, and hydrology of the property.

The last approach presented is for **disturbed area and problem area determinations.** Disturbed areas are those where filling, damming, clearing, or other human activities have impacted the wetlands. Wetland determinations on these sites require

research into the past history of the site as well as investigation into existing conditions. Identification problems on these areas can occur because vegetation usually common to upland situations exist or the wetlands are unique to very limited geographical regions. An evaluation of other site characteristics or familiarity with the region is helpful in defining these wetlands.

All four approaches involve investigations into the types of vegetation present, the soil characteristics, and on-site hydrology. To establish that a particular area is a wetland, all three parameters must be satisfied. However, not all circumstances warrant a thorough investigation of each parameter. Where obligate wetland plants are dominant, the area can be considered a wetland without intensive review of the soils and hydrology. In instances where the soils show hydric characteristics and there is obvious sign of wetland hydrology, the vegetation is assumed to be hydrophytic and does not require further investigation. However, where facultative wet, facultative, or facultative upland plant species are predominant, soil characteristics need to be investigated and hydrologic indicators documented. In general, the Federal Manual recommends that each parameter be investigated to establish accurately the extent of wetlands.

Chapter IX

Long-Term Protection for Freshwater Wetlands

Public ownership offers the surest method of long-term wetlands protection. This chapter describes options for acquisition by means of donation and purchase as well as public and private sources of funds.

WETLANDS PRESERVATION

Despite the different state and local opportunities for wetlands protection through regulation, their preservation is not assured. Deed restrictions or public ownership of wetlands provides the surest long-term protection.

Local government has two options for acquiring wetlands:

- purchasing wetlands or conservation easements; or
- receiving wetlands or conservation easement by donation.

COMMITMENT TO PRESERVATION MUST BE PART OF ACQUISITION AGREEMENT

Public ownership or control can be bolstered by a legal document articulating the public commitment and providing for on-going monitoring and protection.

In the case of land or easements held publicly, the local zoning ordinance can provide for on-going protection. It should require:

- periodic inspection of public land or easements by an organization designated by the governing body such as an environmental commission or a local land trust;
- annual written reports to the governing body on the inspection documenting any changes to the land;
- regular communication with owners and contact with new owners of property containing a public easement to identify any questions and to assure new owners understand the provisions of the conservation easement.

In the case of privately held wetlands, i.e. those held by individuals or by a homeowners' association in clustered developments, deed restrictions provide ongoing protection.

Model Language for Protecting Acquired Open Space Plainsboro Land Use Ordinance

Section 101.24.2

Land permanently set aside for agricultural, conservation, open space and/or recreational uses may either be offered for dedication to Plainsboro Township, deed-restricted to a nonprofit organization found acceptable to the Township Planning Board and/or protected by a homeowners' community association. Open space which is not accepted for public use by the Township Committee shall be protected by legal arrangements satisfactory to the Planning Board sufficient to assure its maintenance and preservation in perpetuity for its intended purpose. Covenants or other legal arrangements shall specify ownership of the open space; method of maintenance; responsibility for maintenance; maintenance taxes and insurance; compulsory assessment provisions; guarantees that any homeowners' association formed to own and maintain open space will not be dissolved without the consent of the Planning Board; and any other specifications deemed necessary by the Planning Board. The open space left unbuilt upon after development shall be maintained in accordance with a land management plan prepared by the developer and accepted and approved by the Planning Board. The developer shall provide copies of deed covenants with prospective purchasers, or conservation easements with the township, describing land management practices to be followed by party or parties that are responsible for open space. Further subdivision of open space land, or its use for other than agriculture, conservation and recreation, shall be prohibited.

LOCAL PLANNING TOOLS AND DONATIONS

MASTER PLAN

Receiving donations of land or easements is more desirable than outright purchase. Local governments can use several techniques to encourage donation of wetland areas or of easements on wetland areas. An important first step for preservation at the local level is inclusion of wetlands in an open space, greenway, stream corridor, or conservation element of a municipal or county master plan. This establishes the official preservation goal, fulfills eligibility requirements for state loan and grant applications, and provides for possible tax benefits for donors.

SUBDIVISION AND SITE PLAN REVIEW

During local subdivision and site plan review, local government can encourage applicants to donate land or conservation easements on wetland areas designated in greenway, conservation, open space or stream corridor plans. A conceptual plan conference provides a good opportunity for discussion of this option. Such donations protect a critical natural resource and can provide a developer with tax savings. (See box.)

Experience in several towns shows that landowners and developers are quite willing to give easements as long as they are aware of the town's open space policies at the outset of project planning.

Proper mapping of an easement is essential. Resolutions of approval should include requirements for surveying the easement using state plane coordinants (for easy translation into GIS) and permanent monuments to mark the easement boundary.

Tax Deduction Criteria

Under the Internal Revenue Service criteria, to qualify for a tax deduction, an easement donation must be made in perpetuity and must be given to a qualified organization such as a land trust or public agency, and must provide one of the following functions:

- public recreation and/or education;
- significant natural habitat;
- scenic enjoyment;
- contribution to local government policy;
- historic preservation.

PURCHASE

Local government, working on its own, with its environmental commission or with a land trust, can purchase areas of land or easements to protect wetlands.

As mentioned earlier, an important first step for preservation involves deciding what lands should be acquired, usually by including them in an open space, greenway, stream corridor, or conservation element of a municipal or county master plan. Another important planning option is designating lands as "reserved for public use" on the master plan or an Official Map, if one exists. (N.J.S.A. 40:55D-44)

RESERVING LAND FOR PUBLIC USE

This option creates an opportunity for a municipality to find the means to acquire land proposed for development. According to the Municipal Land Use Law (MLUL), if an Official Map designating land as "reserved for public use" is adopted when a development application is received, the developer must leave "reserved" acreage vacant in the site design. The municipality then has one year to arrange for acquisition of the reserved area. This option allows municipalities to take positive action toward protecting areas from encroachment.

METHODS OF PURCHASE

Funding is available to local governments from both public and private sources.

Public Sources. The *New Jersey Green Acres Program* for land acquisition offers matching grants and low-interest loans to municipal and county governments, and grants to tax-exempt non-profit organizations that qualify as "charitable conservancies". To encourage open space acquisition, Green Acres has established planning incentive grants. Governments that have a dedicated source of open space funding, and an approved open space or farmland preservation plan can apply for grants in a manner that is similar to a credit line. The parcels designated in the approved preservation plan are "pre-screened" so that local government does not have to start from scratch in the application process for each purchase.

"All acquisition projects submitted for funding consideration are expected to demonstrate conform-

ance with local, county, and state planning goals and should be part of an **on-going process to create a permanent land-water open space system with interrelated recreation areas, parks, and conservation areas."**

— Green Trust Procedural Guide,
NJ. Dept. of Environmental Protection, 1987

Green Acres will also provide grants or loans for purchase of perpetual easements if the proposed acquisition is adjacent and beneficial to public land holdings.

Receipt of Green Acres funding places obligations on a municipality to insure that all its existing publicly owned open space is protected. Towns must list all open space on an inventory and cannot sell those areas for other purposes. In certain instances Green Acres will allow an exchange for land of equal environmental value.

Municipal and County Open Space Tax

Many New Jersey counties and municipalities have established dedicated open space taxes through public referendam. The revenues from a municipal open space tax can preserve open space directly, can help with debt service on funds that are borrowed to pay for open space, or can serve as matching grants with other sources. As of 2003, 20 of new Jersey's 21 counties and 208 of its 566 municipalities had voter-approved open space taxes. For more information, refer *to A Handbook for Public Financing of Open Space in New Jersey*, ANJEC, December 2001.

Private Assistance. Private foundations can help municipalities with open space acquisition, especially for the planning phase. A number of private, national and local foundations provide funding for conservation and preservation purposes.

Land trusts can assist local government in acquiring land or easements. Because of their private, non-profit, tax-exempt status, land trusts can also accept donations of land or easements, and offer donors potential tax benefits.

Land trusts are established to accomplish specific goals such as land conservation, farmland preservation, or habitat preservation. They can be local, state, or national in their scope of operation.

Working with land trusts offers local government many advantages. Land trusts do not have the same constraints as government, so can act more quickly to purchase land and can hold and manage it until a public agency is able to buy it. As private organizations, they can often work more cooperatively with landowners than government can. More options are available to private land trusts. For example, they can make use of the:

- limited development option, where part of a property can be developed in order to fund preservation of the remainder;
- double escrow transaction, where the land trust acts as an intermediary between a private seller and a government agency in a bargain sale (buying land below its market value). Land may be encumbered with a conservation easement during the transaction, and the trust has all its expenses covered by the profit it makes as "middle-man".

MUNICIPAL ACTION THAT CAN ENCOURAGE DONATION

Local government can provide information to the public about the benefits of donating land or easements. For example, under certain circumstances a landowner may obtain a tax deduction for estate and/or income tax purposes. Environmental commissions can refer property owners to land trusts for specific information concerning individual properties.

ENCOURAGING LANDOWNERS TO PROTECT AND HOLD WETLANDS

The New Jersey Conservation Restriction and Historic Preservation Act (N.J.S.A. 13:8B-1 to 9) and the Freshwater Wetlands Protection Act direct local tax assessors to take conservation easements and wetlands into account when they are valuing land. In November 1986 the New Jersey Superior Court affirmed that property encumbered by a perpetual easement that benefits the public should be assessed at a lower value. The court held that:

"The taxpayer, in **giving up in perpetuity the right to do anything other than keep the property in its natural state, has seriously compromised the property's** value as a marketable commodity. The adverse impact of such an encumbrance on market value must be taken into account in arriving at an assessed valuation." Village of Ridgewood and Borough of Midland Park v. The Bolger Foundation. Municipalities should encourage reassessment of properties with wetlands.

SPECIAL OPPORTUNITIES FOR AGRICULTURAL LANDS

Because many acres of wetlands have been lost due to conversion to agricultural use, opportunities for wetlands restoration on farms exist. The U. S. Department of Agriculture has established programs to provide technical and financial assistance to farmers to control soil erosion. Such controls can help protect wetlands from sedimentation and pesticide/fertilizer contamination.

The Wetland Reserve Program (WRP) is a voluntary program that provides technical and financial assistance to eligible landowners to restore, enhance, and protect wetlands. Landowners have the option of enrolling eligible lands through permanent easements or restoration cost-share agreements. Landowners can learn more about this program by contacting their local USDA Service Center, Listed in the phone book under U.S. Department of Agriculture. Information is also available on the web at www.nrcs.usda.gov/programs/farmbill.

Conservation Reserve Enhancement Program (CREP) is an offspring of the Conservation Reserve Program (CRP), CREP is a voluntary program for agricultural landowners. Unique state and federal partnerships allow you to receive incentive payments for installing specific conservation practices. Through the CREP, farmers can receive annual rental payments and cost-share assistance to establish long-term, resource-conserving vegetative covers on eligible land.

Section 1318 of the Food Security Act offers assistance to farmers who have taken out loans from the Farmers Home Administration. Debt-burdened farmers can grant an easement for at least 50 years to conservation organizations or public agencies in return for debt reduction. The U. S. Fish and Wildlife Service is working with the FHA to take full advantage of this program to protect wetlands areas.

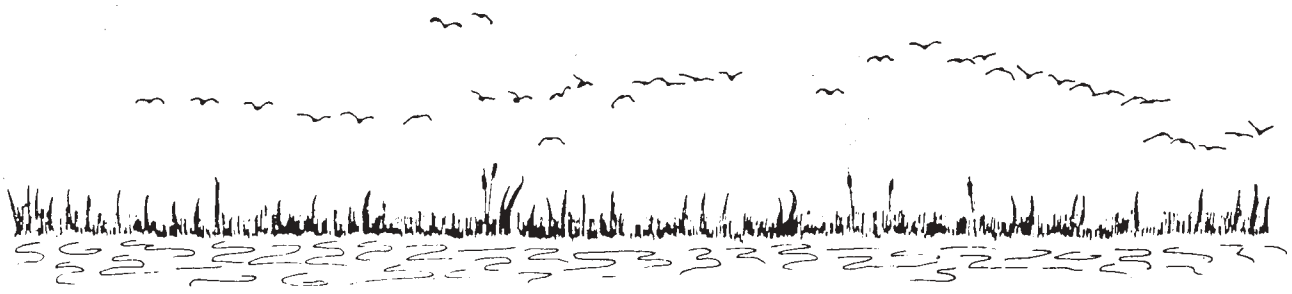
BENEFITS OF WETLANDS PRESERVATION

Wetlands preservation benefits both the public and the individual property owner. Property owners or developers who preserve wetlands:

- may enjoy tax benefits;
- complete projects more easily by avoiding some regulatory requirements;
- finish projects for lower costs; and,
- gain satisfaction for protecting a valuable natural resource.

The public gains a unique resource – special areas that shelter wildlife and endangered species, prevent flooding and protect water quality.

Local governments need to make a concerted effort to provide information about the benefits of wetlands preservation and the options for protection available to their boards and residents.

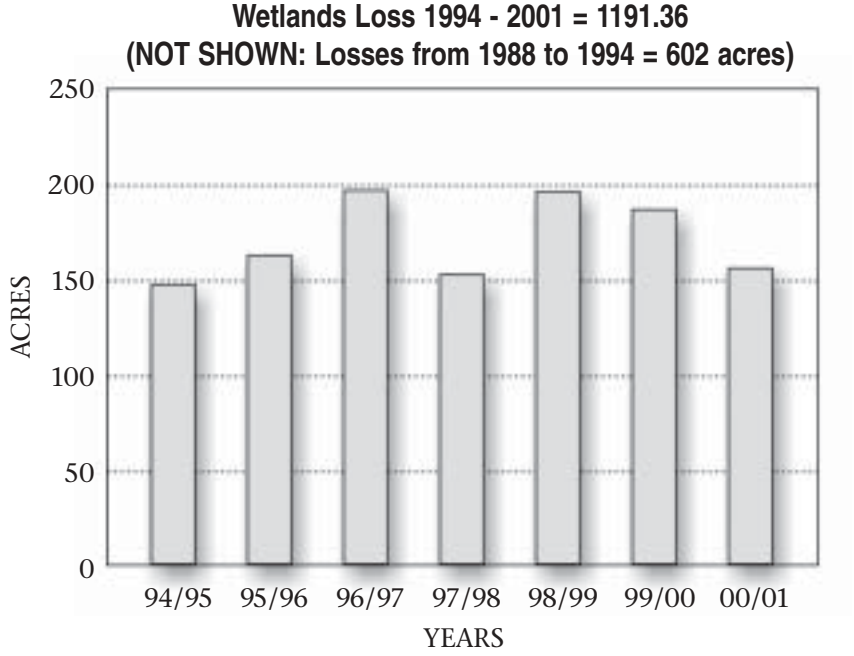


Chapter VIII

Municipal Land Use Law and the Freshwater Wetlands Act

Despite New Jersey's strong wetlands law and regulations, wetlands are still being lost through the DEP permit process. From 1988 to 2001, the annual DEP reports to EPA show that 1,793.3 acres have been lost due to permit activity, an average of about 138 acres a year.

TOTAL LOSS 1988 to 2001 - 1,793.3 Acres



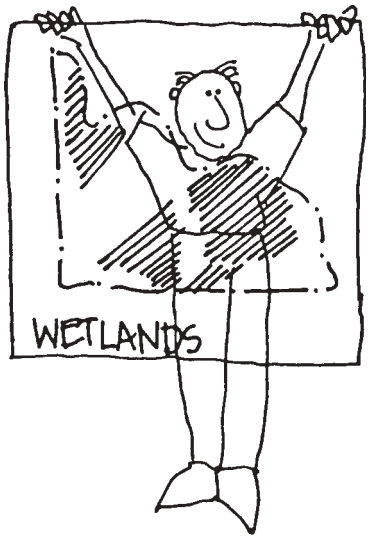
Total Acreage lost does not include losses due to violations.

Municipalities, with their land use responsibility, are in an excellent position to help reduce the loss of wetlands. Municipal officials can provide wetlands protection through their land use control powers as defined by the Municipal Land Use Law (NJ.S.A. 40:55D-1 et. seq.). This chapter outlines ways municipalities can use the local land use planning and development review process to protect wetlands, including ordinance checklists and other local regulatory options. It also offers suggestions for coordinating the local and state review processes.

LAND USE IN NEW JERSEY

Since New Jersey municipalities control land use, they have many opportunities to take actions that will complement the state's Freshwater Wetlands Act.

The Municipal Land Use Law (MLUL) delegates control of land use in New Jersey to municipal government. The provisions of the MLUL are intended to promote appropriate use or development of all lands in the state in a manner that will protect the public health, safety and welfare.



Although the state wetlands law preempts municipalities from regulating wetlands, it does not supersede the provisions of the MLUL requiring municipalities to designate appropriate uses and densities for land.

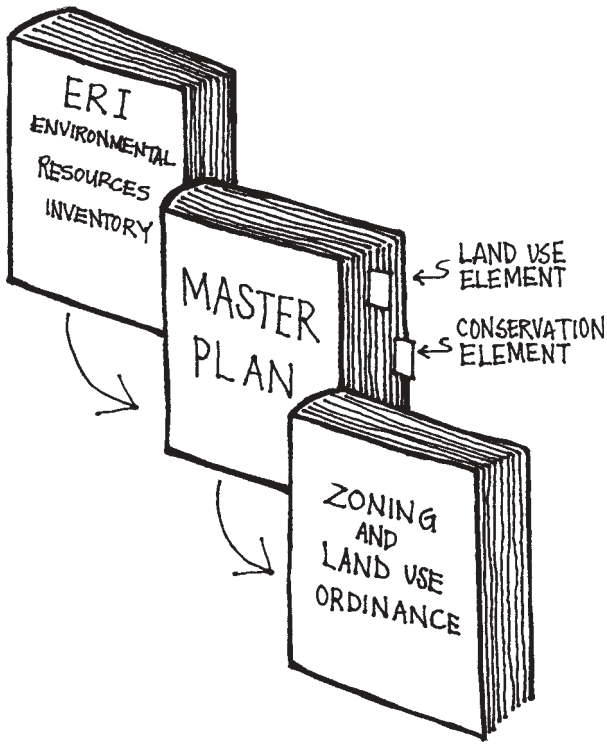
WETLANDS, THE MUNICIPAL ENVIRONMENTAL RESOURCE INVENTORY, MASTER PLAN AND ZONING

The municipal master plan should provide a sound basis for zoning and the zoning ordinance. The MLUL charges planning boards with the job of preparing, adopting, and/or amending master plans to determine appropriate uses for lands in the municipality.

A master plan's land use element identifies appropriate areas for development as well as for protection based on the physical character of the municipality. An **environmental resource or natural resource inventory** can be a source document for the master plan or can be adopted as part of it. The inventory identifies soils, geology, topography, forests, rivers, wetlands, floodplains, and other physical characteristics that the municipality should consider in its land use planning and decision making. It also serves as the basis for a conservation element, which uses the town's physical character to develop goals and strategies for preservation and conservation of natural resources. Much of this information is available from DEP as downloads from www.dep.state.nj/gis which include: wetlands, floodprone areas, topography, soils, contaminated sites, recharge soils, and landscape area classes from the Landscape Project which identifies habitat classes for potential location of rare species in New Jersey.

With information on hydric and poorly drained soils shown on the County Soil Survey maps, or state freshwater wetlands maps, the environmental resource inventory and the master plan's land use maps can show generally where wetlands are located and designate uses for them consistent with their environmental sensitivity. Conservation elements and greenways, stream corridors, or open space plans can also identify wetlands and suggest strategies for their protection.

Once the planning board has adopted a master plan land use element, the MLUL gives the governing body the power to designate uses for different zones in the municipality and to enact or amend a zoning ordinance that provides regulations for each zone district. The zoning ordinance must be consistent with the Master Plan (NJ.S.A. 40:55D - 62a). It describes legally permitted land uses and densities for different districts and provides the planning board and the board of adjustment with rules for development review in those zones. Zoning designations for wetlands areas, based on the master plan land use and conservation elements, can provide for low intensity use, e.g., large lot zoning or cluster provisions to avoid wetland areas.



LOCAL PLANNING, ZONING AND OTHER STATE PROGRAMS

Local control of land use planning and zoning gives municipal government opportunities for wetlands protection not available to the state. At the same time, local planning and zoning are the basis for many state programs and can promote protection of freshwater wetlands.

For example, state water quality planning and associated wastewater management planning prohibit providing sewer service to wetlands and other environmentally critical areas. Local planning and zoning should reflect these constraints.

The State Development and Redevelopment Plan's goal is to manage the state's growth largely through coordination of state agency and local land use planning. The State Plan sets several statewide goals and policies and recommends areas for growth and limited growth in an attempt to balance future development with protection of natural resources, including freshwater wetlands. The Plan's Planning Area system divides the state into five regions, each with different development characteristics. The Plan's regional design system creates objectives for development within these regions.

Planning Area 4B and 5 consist of undeveloped areas where growth must be carefully managed to protect environmentally sensitive features. The Plan encourages local government to map these features and establishes strategies for their protection. Since Planning Area 4B and 5 criteria designate freshwater wetlands systems as one of the areas for protection, local governments should identify them for the State Planning Commission if the State Plan Map did not.

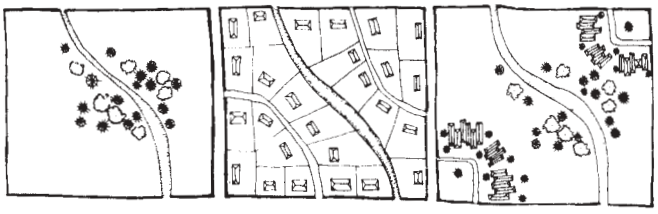
MUNICIPAL LAND USE AND ZONING REGULATIONS

> The Freshwater Wetlands Protection Act does not preempt ordinances with a general purpose that incidentally protect wetlands.

The land use and zoning ordinances can promote wetlands protection. The land use regulations detail requirements and standards for subdivision and site plan review. The zoning ordinance establishes regulations by which municipal boards regulate development in different zoning districts.

The Freshwater Wetlands Protection Act does not preempt ordinances with a general purpose that incidentally protect wetlands. The following ordinances and standards can be especially helpful in wetlands protection:

Open space/cluster ordinances or zoning standards enable municipalities to require that a certain percentage of a site be preserved as open space to provide desirable aesthetics and protect natural resources such as wetlands. The concept behind clustering is straightforward -- in exchange for dedicated open space, development is allowed on smaller lots than provided under conventional zoning. The number of units on the site remains the same as could be obtained under the standard zoning. The MLUL requires that an ordinance for residential cluster development shall provide that the open space shall be owned either by an owners' association or by the municipality. Preservation of the open space in perpetuity can be assured by including such a provision in a deed restriction.



UNDEVELOPED LAND | TRADITIONAL SUBDIVISION | CLUSTER DEVELPOMENT

Both the municipality and the developer benefit from cluster developments. A municipality's natural resources are protected and residents are assured of their own open areas. Allowing a developer increased intensity as an incentive for clustering is unnecessary, since benefits are built in. The developer has lower costs for roads, infrastructure and for state permits. By eliminating state regulatory requirements for wetlands and stream encroachments, the developer also saves time and consultant expenses.

Disadvantages of clustering include public perception that open space will be developed even though the open space can be preserved in perpetuity through deed restrictions. Another possible disadvantage is the potential difficulty of providing proper sewage disposal in areas dependent on septic systems, because the smaller building lots may not have enough land area or soil conditions for a leach field that would prevent build-up of nitrates.

Understanding the nature of open space in clustered developments is important. Open space in clustered developments falls into two categories:

1. active open space that provides for recreation and other amenities; and

2. passive open space that:
- protects sensitive natural resources like wetlands;
- provides open space connections for wildlife corridors and helps sustain biological diversity;
- provides stormwater facilities;
- includes existing easements;
- includes roads.

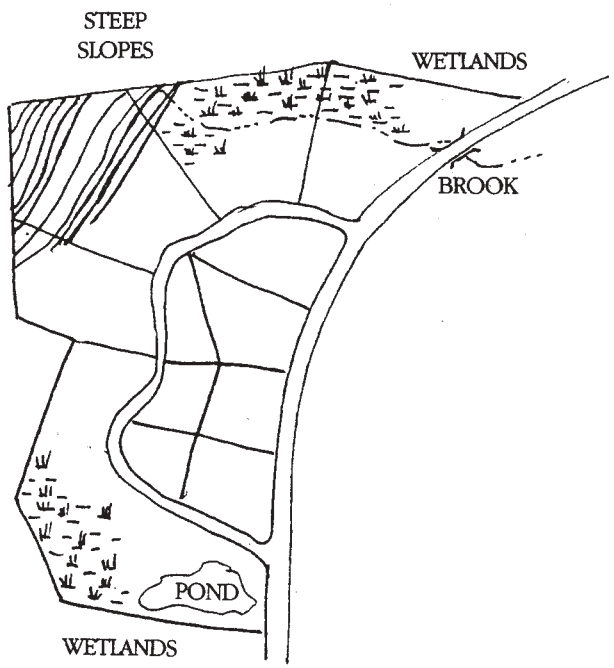
Non-contiguous zoning ordinances enabled under state law, allow cluster development on noncontiguous lands under common ownership. For example, density can be concentrated on one parcel while the noncontiguous parcel remains preserved as open space.

Lot-size averaging ordinance provisions (MLUL 40:55D-40(b) enable municipalities to provide design flexibility for subdivision layout to promote resource protection. The concept allows the planning board to approve some lots in a subdivision to be less than the standard minimum lot size, provided that other lots are larger than the minimum and conform to the overall intent of the zoning. Municipalities should consider limiting the size of structures since the larger lots will accomodate larger houses. Lot-size averaging facilitates protection of environmentally sensitive areas such as stream corridors, wetlands, steep slopes, and agricultural lands. Ordinance requirements should include:
- designating the zones where allowed;
- establishing the minimum parcel size that qualifies;
- establishing a maximum floor area ratio or an impervious cover limit for the principal structure;
- limiting dwelling unit numbers to those allowed under the conventional zoning (numbers are determined by a concept plan for conventional zoning);
- requiring the applicant to demonstrate that the lot size averaging plan is preferable to the conventional plan in achieving the goals and purposes of the ordinance and the Master Plan;
- designating the minimum lot area as well as the required average lot area throughout the subdivision;
- offering an acceptable lot area range;
- requiring deed restrictions to prohibit further subdivision and development of lots larger than that allowed under conventional zoning;
- require that new lots can be developed according to town ordinances.

The benefits of lot-size averaging for the municipality and the developer are very similar to those enjoyed by open space/cluster ordinances except that the open space protected remains in private ownership.

LOT SIZE AVERAGING

Table D



Overlay zoning enables municipalities to protect natural, cultural or other resources that exist in more than one zone by establishing protection standards for the specific resource. For example, a **stream corridor protection overlay** zone establishes stream buffer requirements of a set dimension no matter what zone district the stream flows through. Other resources that overlay zoning can protect include **steep slopes, flood hazard areas, aquifer recharge areas and historic districts**.

Critical areas ordinances regulate and provide design standards for environmentally sensitive areas that cross zones. Such ordinances should state these purposes clearly, and define the critical areas, e.g., steep slopes, floodplains, high water table soils, poorly drained soils, shallow depth to bedrock, streams and aquifer recharge areas, and set up specific techniques to protect them: large lot zoning, useable land calculations, buffers, or performance standards.

INTERNET RESOURCES

Government

County Soil Districts
www.state.nj.us/dep/dwq/pdf/soilcondist.pdf
Natural Resources Conservation Service, Soils
www.nj.nrcs.usda.gov/technical/soils/hydric.html
NJ DEP Bulletin – Notice of Applications
www.nj.gov/dep/bulletin/index.html
NJ DEP Compliance & Enforcement
www.state.nj.us/dep/enforcement/
NJ DEP Vernal Habitat maps –
www.state.nj.us/dep/landuse/fww/vernal/index.html
NJ Mitigation Council
www.nj.gov/dep/landuse/fww/mitigate/mcouncil.html
NJ DEP Wetlands Regulations
www.nj.gov/dep/landuse/
US Environmental Protection Agency (EPA)
www.epa.gov/owow/wetlands
US EPA Priority Wetlands
www.nj.gov/dep/landuse/fww/priority/pwl94rev.pdf
US Fish & Wildlife (FWS)
www.fws.gov
US FWS, Northeast Region:
http://northeast.fws.gov/wetlands

Organizations Focusing on Wetlands

Association of NJ Environmental Commissions
www.anjec.org
Association of Wetland Managers
www.aswm.org
Ducks Unlimited
www.ducks.org/conservation/wetland_functions.asp
Edison Wetlands Organization
www.edisonwetlands.org
Hackensack Riverkeeper
www.hackensackriverkeeper.org
Izaak Walton League
www.iwla.org/sos/awm/awmkit.html
NY/NJ Baykeeper
www.nynjbaykeeper.org/
Raritan Riverkeeper
www.nynjbaykeeper.org/riverkeeper/riverkeeper%20open.htm
Sierra Club
www.sierraclub.org/wetlands/
Watershed Associations - NJ and PA
www.delep.org/waterassoc.htm

Publications & Wetland Topics

Basic Information on Wetlands
www.wetland.org/101/WET101A.pdf
Basic Wetlands Primer
www.thewatershed.org/WSM/wetlandprimer/index.html
Environmental Law Institute,Wetlands Newsletter
www2.eli.org/wmb/index.htm
Headwater Wetlands
www.amrivers.org/docs/WhereRiversAreBorn.pdf
Meetings, Conference Announce.
www.wetlandsworkgroup.org/
NJ Wetlands Mitigation Study, 2000
www.state.nj.us/dep/dsr/wetlands/
NY/NJ Harbor Estuary Significant Habitat
http://training.fws.gov/library/pubs5/web_link/text/intro.htm#FINAL%20REPORT
Potential Vernal Habitat Sites
www.dbcrssa.rutgers.edu/ims/vernal/
Threatened and Endangered Species of NJ
www.state.nj.us/dep/fgw/tandespp.htm
Threatened & Endangered Species Hab. Protocols
www.nj.gov/dep/landuse/announce/protocols.pdf
USDA Plants Database
http://plants.usda.gov
Vernal Pools Booklet
www.state.nj.us/dep/fgw/ensp/pdf/vernalpool02.pdf