

Coastal Plain Pond Shore



Long Pond Sag Harbor



Photo credits: *Stephen M. Young*

System	Palustrine
Subsystem	Open Mineral Soil Wetlands

Did you know?

The first thing you might notice about a coastal plain pond is that there is no stream flowing in and none flowing out. Water levels of the pond, and therefore the size of the exposed pond shore, are due only to changes in an underground aquifer. During the wetter parts of the year this aquifer is high and water levels in the pond are high which translates into a very narrow pond shore. Conversely, during the dry months (late summer) the aquifer is low so water levels are low but there is a large expanse of pond shore. Every 5 years or so there is an exceptionally dry year with a lot of pond shore exposed. Plants that may not have been seen for a decade will now germinate and grow (Edinger et al 2002, Swain and Keasley 2001).

Summary

Protection Not listed in New York State, not listed federally.

Rarity G3G4, S2

A global rarity rank of G3G4 means: Vulnerable globally, or Apparently Secure -- At moderate risk of extinction, with relatively few populations or locations in the world, few individuals, and/or restricted range; or uncommon but not rare globally; may be rare in some parts of its range; possibly some cause for long-term concern due to declines or other factors. More information is needed to assign a single conservation status.

A state rarity rank of S2 means: Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably make it very vulnerable in New York State.

Conservation Status in New York

There are over 50 documented occurrences of coastal plain pond shores in New York. They are restricted to the coastal plain of Long Island. Many of these separate occurrences that occur near each other may actually be combined into pond systems because they are hydrologically connected and should be considered as one occurrence. As of now, there are an estimated 15 separate sites and about 6 pond systems documented. Many of these systems continue to be threatened by development, invasive species, changes to

hydrology, and recreation (e.g. off-road vehicles and trampling).

Short-term Trends

The numbers and acreage of coastal plain ponds in New York have declined in recent years. There are less than 400 acres currently mapped with probably less than 1000 acres extant. The total, historical, acreage is unknown but was probably less than 2000 acres. The decline is due primarily to development and the increasing demand for freshwater.

Long-term Trends

The numbers and acreage of coastal plain ponds have declined from historical numbers primarily due to settlement of the area and the corresponding agricultural, residential, and commercial development causing both a displacement of this community and a lowering of the water table due to an increased demand for freshwater.

Larger occurrences of this natural community (>12.5 acres) are protected under NY State wetland laws.

Conservation and Management

Threats

Coastal plain pond shores are threatened by development and its associated run-off (e.g., residential, roads), recreational overuse (e.g., ATVs, hiking trails causing erosion and compaction), and habitat alteration in the adjacent landscape (e.g., logging, pollution, nutrient loading). Alteration to the natural hydrology is also a threat to this community (e.g., flooding, draining, or dredging). Invasive species also threaten this community including the introduction of grass carp to some ponds. Some coastal plain pond shores are too small to be protected by the New York State freshwater wetland regulations. In 2001, the federal Supreme Court ruled that the US Congress did not give authority to the US Army Corps of Engineers (US ACE) under section 404 of the Clean Water Act to regulate the filling of isolated wetlands.

Conservation Strategies and Management Practices

Where practical, establish and maintain a natural wetland buffer to reduce storm-water, pollution, and nutrient run-off, while simultaneously capturing sediments before they reach the wetland. Buffer width should take into account the erodibility of the surrounding soils, slope steepness, and current land use. Wetlands protected under Article 24 are known as New York State "regulated" wetlands. The regulated area includes the wetlands themselves, as well as a protective buffer or "adjacent area" extending 100 feet landward of the wetland boundary (NYS DEC 1995). If possible, minimize the number and size of impervious surfaces in the surrounding landscape. Avoid habitat alteration within the wetland and surrounding landscape. For example, roads and trails should be routed around wetlands, and ideally not pass through the buffer area. If the wetland must be crossed, then bridges and boardwalks are preferred over filling. Restore past impacts, such as removing obsolete impoundments and ditches in order to restore the natural hydrology. Prevent the spread of invasive species into the wetland through appropriate direct management, and by minimizing potential dispersal corridors, such as roads.

Development and Mitigation Considerations

When considering road construction and other development activities, minimize actions that will change what the water carries and how water travels to this community, both on the surface and underground. Water traveling over-the-ground as run-off usually carries an abundance of silt, clay, and other particulates during (and often after) a construction project. While still suspended in the water, these particulates make it difficult for aquatic animals to find food; after settling to the bottom of the wetland, these particulates bury small plants and animals and alter the natural functions of the community in many other ways. Thus, road construction and development activities near this community type should strive to minimize particulate-laden run-off into this community. Water traveling on the ground or seeping through the ground also carries dissolved minerals and chemicals. Road salt, for example, is becoming an increasing problem both to natural communities and as a contaminant in household wells. Fertilizers, detergents, and other chemicals that increase the nutrient levels in wetlands cause algae blooms and eventually create an oxygen-depleted environment where few animals can live. Herbicides and pesticides often travel far from where they are applied and have lasting effects on the quality of the natural community. So, road construction and other development activities should strive to consider: 1. how water moves through the ground, 2. the types of dissolved substances these development activities may release, and 3. how to minimize the potential for these dissolved substances to reach this natural community.

Inventory Needs

This natural community has been well searched for in New York but composition and dynamics are just beginning to be documented and will need additional work.

Research Needs

Research on these pond systems could include evaluating the effect of secondary disturbances such as fire in the surrounding upland forest on the pond shore, evaluating the effect of elevation in the landscape on the species composition of the pond shore, and determining the variation of the species composition of the plant zones around the pond shore between ponds and pond systems. Other research on these pond shores should involve monitoring of invasive species including exotic fish, monitoring hydrologic changes, and monitoring ponds for eutrophication.

Rare Species

Slender Blue Flag (*Iris prismatica*)
New England Bluet (*Enallagma laterale*)
Stargrass (*Aletris farinosa*)
Mitchell's Sedge (*Carex mitchelliana*)
Barratt's Sedge (*Carex barrattii*)
Golden-winged Skimmer (*Libellula auripennis*)
Mottled Duskywing (*Erynnis martialis*)
Fringed Boneset (*Eupatorium torreyanum*)
Trinerved White Boneset (*Eupatorium album* var. *subvenosum*)
Tooth-cup (*Rotala ramosior*)
Yellow Flatsedge (*Cyperus flavescens*)

Knotted Spikerush (*Eleocharis equisetoides*)
Salt-marsh Spikerush (*Eleocharis uniglumis* var. *halophila*)
Weak Rush (*Juncus debilis*)
Dwarf Bulrush (*Lipocarpa micrantha*)
Globe-fruited Ludwigia (*Ludwigia sphaerocarpa*)
Carey's Smartweed (*Persicaria careyi*)
Long-beaked Beakrush (*Rhynchospora scirpoides*)
Green Parrot's-feather (*Myriophyllum pinnatum*)
Whip Nutrush (*Scleria triglomerata*)
Coastal Silverweed (*Argentina egedii* ssp. *groenlandica*)
Pine Barrens Bluet (*Enallagma recurvatum*)
Little Bluet (*Enallagma minusculum*)
Scarlet Bluet (*Enallagma pictum*)
Tiger Salamander (*Ambystoma tigrinum*)
Screw-stem (*Bartonia paniculata* ssp. *paniculata*)
Coast Flatsedge (*Cyperus polystachyos* var. *texensis*)
Engelmann's Spikerush (*Eleocharis engelmannii*)
Creeping Spikerush (*Eleocharis fallax*)
Long-tubercled Spikerush (*Eleocharis tuberculosa*)
Slender Spikerush (*Eleocharis tenuis* var. *pseudoptera*)

Identification Comments

A gently sloping shore of a coastal plain pond with seasonally and annually fluctuating water levels. The plant cover varies with the changing water levels. In dry years when water levels are low, there is a dense growth of annual sedges, grasses, and herbs. This vegetation occurs in distinctive zones or rings around the pond. In wet years when the water level is high the vegetation is sparse. The fluctuating water level also keeps woody vegetation from getting established. The dominant vegetation is often grass like and includes spikerush (*Eleocharis parvula*), beakrush (*Rhynchospora capitellata*) and pipewort (*Eriocaulon aquaticum*).

The Best Time to See

The best time to visit this community is probably during the late summer when the water levels are lowest and the exposed pond shore is largest. Zones of plants from the waters edge to the tree line will be evident along with the greatest number of growing plant species.

Characteristics Most Useful for Identification

Coastal plain pond shores are found exclusively in the coastal plain of Long Island in New York state. The community occupies the gentle slopes of ponds formed in the glacial till. When water levels are low, distinctive zones or rings of herbaceous vegetation form around the pond.

Elevation Range

Known examples of this community have been found at elevations between 5 feet and 60 feet.

Similar Ecological Communities

Vernal pool: A vernal pool is an aquatic community that can have a wide shoreline. Vernal pools are typically flooded in spring or after a heavy rainfall, but usually dry during summer. Many vernal pools are filled again in autumn.

Shallow emergent marsh: This community is a marsh meadow community that occurs on mineral soil or deep muck soils (rather than true peat), that are permanently saturated and seasonally flooded. The vegetation is typically graminoid (grasses, sedges, and rushes)

Coastal plain poor fen: Coastal plain poor fens are also found on glacial moraine but form best in small "delta-like" areas of organic deposits near the small stream outlets of coastal plain pond basins. They are typically more shrubby than coastal plain ponds.

Pine barrens vernal pond: Pine barrens vernal ponds are also seasonally fluctuating, groundwater-fed ponds. Within the pine barren landscape, this community forms in low kettlehole depressions or in swales between forested dunes. The water is intermittent, typically vernaly ponded, and circumneutral.

Coastal plain pond: Coastal plain pond communities are the aquatic community of the permanently flooded portion of a coastal plain pond with seasonally, and annually fluctuating water levels.

Characteristic Species

Shrubs 2-5m

Highbush Blueberry (*Vaccinium corymbosum*)

Shrubs < 2m

Stagger-bush (*Lyonia mariana*)

Northern Bayberry (*Myrica pensylvanica*)

Highbush Blueberry (*Vaccinium corymbosum*)

Herbs

Purple False Foxglove (*Agalinis purpurea*)

Bluejoint (*Calamagrostis canadensis*)

Toothed Sedge (*Cyperus dentatus*)

Fern Flatsedge (*Cyperus filicinus*)

Dwarf Spikerush (*Eleocharis parvula*)

Seven-angle Pipewort (*Eriocaulon aquaticum*)

Common Boneset (*Eupatorium perfoliatum*)

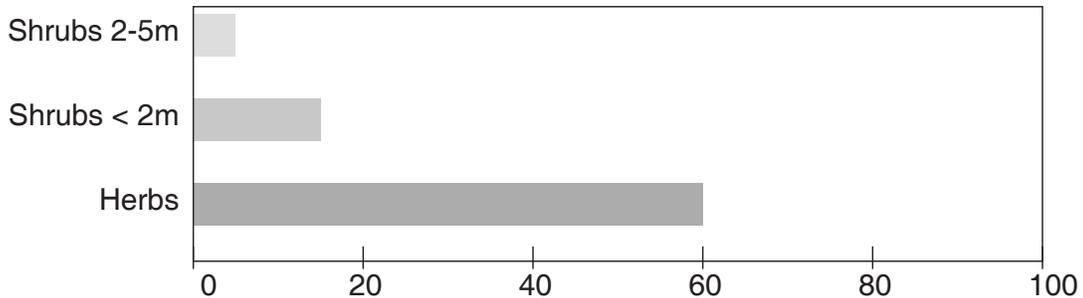
Slender Flattop Goldenrod (*Euthamia caroliniana*)

Golden Hedge-hyssop (*Gratiola aurea*)

Sharp-fruit Rush (*Juncus acuminatus*)

Jointed Rush (*Juncus articulatus*)

Bayonet Rush (*Juncus militaris*)
 Floating-heart (*Nymphoides cordata*)
 Saltmarsh Fleabane (*Pluchea odorata*)
 Brownish Beakrush (*Rhynchospora capitellata*)
 Three-square Bulrush (*Schoenoplectus pungens*)
 Zigzag Bladderwort (*Utricularia subulata*)



This figure helps visualize the structure and "look" or "feel" of a typical coastal plain pond shore. Each bar represents the amount of "coverage" for all the species growing at that height. Because layers overlap (shrubs may grow under trees, for example), the shaded regions can add up to more than 100%.

International Vegetation Classification System Associations

This New York natural community encompasses all or part of the concept of the following International Vegetation Classification (IVC) natural community associations. These are often described at finer resolution than New York's natural communities. The IVC is developed and maintained by NatureServe.

- Twig-rush - Horsetail Spikerush Herbaceous Vegetation (CEGL006016)
- Coastal Plain Pond (CEGL006086)
- (Blunt Spikerush, Yellow Spikerush) - Seven-angle Pipewort Herbaceous Vegetation (CEGL006261)
- Coastal Plain Cobble - Gravel Pondshore (CEGL006300)

NatureServe Ecological System Associations

This New York natural community falls into the following ecological system(s). Ecological systems are often described at a coarser resolution than New York's natural communities and tend to represent clusters of associations found in similar environments. The ecological systems project is developed and maintained by NatureServe.

- Atlantic Coastal Plain Northern Pondshore (CES203.518)

Additional Resources

Links

Calverton Ponds, Long Island

<http://www.nature.org/wherework/northamerica/states/newyork/preserves/art10987.html>

The Nature Conservancy - Long Island Chapter

<http://www.nature.org/wherework/northamerica/states/newyork/preserves/art13653.html>

South Fork Natural History Museum and Nature Center

<http://www.sofa.org/default.asp>

Friends of the Long Pond Greenbelt

<http://longpondgreenbelt.org/>

NatureServe Explorer

<http://www.natureserve.org/>

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