

# HUDSONIA HARLEM VALLEY BIODIVERSITY MANUAL SUPPLEMENT

## Inland Atlantic white cedar swamp

Atlantic white cedar, the signature tree, is primarily a coastal plain species. Inland Atlantic white cedar swamp, a globally rare community, is distinguished from Coastal Atlantic white cedar swamp by geography and by the absence of Coastal Plain species such as bayberry (*Myrica pensylvanica*) and the sedges *Carex walteriana* and *C. collinsii*. Inland Atlantic white cedar swamp is ranked S1 (highest rarity) by the New York Natural Heritage Program.

## Vegetation

Atlantic white cedar (*Chamaecyparis thyoides*) (G4S3, R) is typically codominant with red maple (*Acer rubrum*), and other hardwoods such as swamp white oak (*Quercus bicolor*), pin oak (*Q. palustris*) or black gum (*Nyssa sylvatica*) (Edinger et al. 2002, Laderman 1989). Eastern hemlock (*Tsuga canadensis*) and yellow birch (*Betula alleghaniensis*) may occur in shallow-water examples. Shrubs form a dense understory in some examples, which may include smooth winterberry (*Ilex laevigata*), sweet pepperbush (*Clethra alnifolia*), rosebay (*Rhododendron maximum*), swamp azalea (*R. viscosum*) and highbush blueberry (*Vaccinium corymbosum*). Open-canopy examples and edges may also have alder (*Alnus serrulata*), mountain holly (*Nemopanthus mucronata*) and swamp rose (*Rosa palustris*). Royal fern (*Osmunda regalis*), cinnamon fern (*O. cinnamomea*), interrupted fern (*O. claytoniana*), white beak-rush (*Rhynchospora alba*) and the sedge *Carex disperma* also occur in open examples, sometimes with wild calla (*Calla palustris*) in standing water. In closed canopy examples, herbs may be nearly absent, with mosses, especially *Sphagnum* species, dominating the ground layer.

## Fauna

Hessel's hairstreak (*Mitoura hesseli*) (G3S1 E) is characteristic of coastal Atlantic white cedar swamp, and occurs in this habitat on Long Island. There are few records for inland Atlantic white cedar swamp, but searches for Hessel's hairstreak in this community in the study area might be fruitful. No other animals are known to be exclusively or especially associated with this type of swamp, but possibly some amphibian species such as long-tailed salamander utilize inland Atlantic white cedar swamp as breeding or resident habitat. Sharp-shinned Hawk (*Accipiter striatus*) (S4, SC) and Northern Parula warbler (*Parula americana*) (S3S4, P) occur in inland Atlantic white cedar swamps but are not restricted to them.

Outside the study area (e.g. Maine and Massachusetts) Ringed Boghaunter Dragonfly (*Williamsonia lintneri*) (SH), historically known in New York from Albany County, is found in open fens and bogs associated with inland Atlantic white cedar swamps. Bog turtle (S2, T) and spotted turtle (*Clemmys guttata*) (S3, SC) may live in open wetlands associated with Atlantic white cedar swamps.

## Indicators and Identification

Dominance or presence in significant numbers of Atlantic white cedar growing in saturated or inundated soil. This community is synonymous with "Inland Atlantic white cedar swamp" of Reschke (1990) and Edinger et al. (2002).

## **Biodiversity Values**

Atlantic white cedar is itself a state-rare species (G4S3, R). Rosebay, smooth winterberry, wild calla, and perhaps other plants typical of this community type, are uncommon in other kinds of swamps. More research on this rare wetland type would no doubt reveal many more biodiversity values

## **Substrates**

Soils are typically organic, typically peat but occasionally muck, in large or small depressions in various bedrock substrates.

## **Surface Waters**

Waters in these swamps are typically acidic, clean, transparent, and stained by tannins.

## **Extent**

All known examples are small to medium sized (under 25 ha) in comparison to more common swamp habitats, such as red maple swamp.

## **Distribution**

Swamps of this type occur in eastern Putnam County in the Harlem Valley subregion, and also in the Hudson Highlands west of the Hudson River. In the Hudson Highlands there are swamps of this type in Sterling Forest State Park, and on the summit ridge of Bellvale Mountain. Known in the Harlem Valley corridor only from eastern Putnam County in the towns of Patterson (Great Swamp) and Southeast (Lake Tonetta).

## **Quality**

The quality of known examples is high internally, but with the exception of pockets of this habitat in the Great Swamp wetland complex, surrounding upland buffers are minimal due to the high level of development in Putnam County. Lake Tonetta, in a low-density residential area of the Town of Southeast in Putnam County, has a high-quality 14 ha (35-ac) Atlantic white cedar swamp at its north end (Tucker 1993).

## **Human Uses**

Historically, Atlantic white cedar was harvested for fence posts and beams, especially in areas where this tree was abundant. The rarity of Atlantic white cedar in New York, the difficulty of harvesting timber from deep-water swamps, and the availability of the more common eastern red cedar (*Juniperus virginiana*) probably spared white cedar swamps from wholesale logging. No doubt trees were occasionally taken from swamp edges for local use.

## **Sensitivities, Impacts**

Development to or near swamp margins may have the following negative impacts: introduction of invasive plant species, pollution from runoff waters, direct dumping in swamps by local residents. Atlantic white cedar is a tree that is very sensitive to changes in water levels; entire local populations of

this tree have been lost due to flooding or draining (Laderman 1989). Populations of some animals, especially reptiles and amphibians, suffer loss of individuals from vehicles and entrapment (as in window wells and swimming pools) as well as loss of upland habitat essential to some species (e.g. mole salamanders [*Ambystoma* spp.], wood frog [*Rana palustris*] and northern gray tree frog [*Hyla versicolor*]).

## **Conservation and Management**

It is important to retain adequate upland buffers around swamps and other wetlands. Where buffers are inadequate or nonexistent, they should be restored if possible. Adjacent sewage treatment systems, if found to be affecting the wetland habitat, should be upgraded to prevent flow of nutrient-rich effluents into the wetland. The use of lawn chemicals, including fertilizers and pesticides, on adjacent developed lands should be avoided except in emergency situations. Atlantic white cedar appears to require unpolluted, nutrient-poor, low-salinity water.

## **Examples on Public Access lands**

Cedar Swamp Preserve at Lake Tonetta Park Town of Southeast, Putnam County, NY. Town Park access at end of Pumphouse Road (sign says for Town of Southeast residents only). Contains a 74-acre lake and 50 acres of wetland, including a 25-acre high-quality inland Atlantic white cedar swamp

\*Brewster Pond, Town of Southeast, Putnam County, NY

\*This New York State wetland (BR-11) supports the northernmost occurrence of inland Atlantic white cedar swamp in New York State. While not contiguous with the Great Swamp wetland, Brewster Pond and its wetland area are headwaters for the Muddy Brook extension of the Great Swamp (Cooney, 2003).

## **References**

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