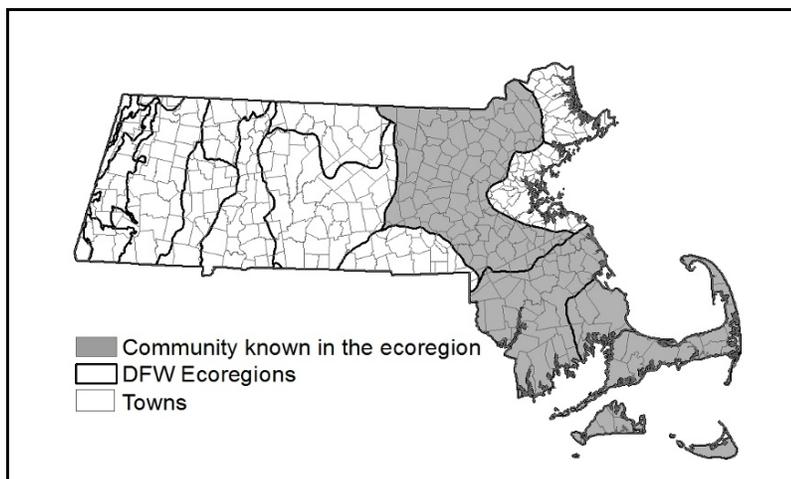


Coastal Atlantic White Cedar Swamp

Community Code: CP1B1A1000

State Rank: S2



Concept: Basin swamps dominated by Atlantic white cedar (AWC) in the overstory and a mixture of coastal species in the understory.

Environmental Setting: Coastal AWCS typically occur at low elevations (< 60 ft. above sea level) in SE Massachusetts (Cape Cod and Islands, Plymouth, and Bristol Counties) with saturated peat of variable depth over the mineral sediments. As in all AWC swamps, standing water generally occurs for at least half of the growing season. The water and soil are nutrient-poor, and particularly low in nitrogen and phosphorus. There is a high iron content in the soil; the iron (called "bog iron") was mined in the early days of manufacturing. Soil pH is acidic (3.1-5.5) and leaf litter decomposition is slow. Because of the dominance of conifers in the canopy, occurrences may be dark and have limited understory growth. Fallen and tipped trees are common.

Vegetation Description: Atlantic White Cedar (AWC) Swamps are defined as having >25% cover of AWC in the canopy; it is usually mixed with red maple (*Acer rubrum*). Occasional associates in Coastal AWCS include white pine (*Pinus strobus*), hemlock (*Tsuga canadensis*), and occasionally pitch pine (*Pinus rigida*). These swamps can have a very dense shrub layer, including high bush blueberry (*Vaccinium corymbosum*), swamp azalea (*Rhododendron viscosum*), sweet pepper-bush (*Clethra alnifolia*) and swamp-sweetbells (fetterbush) (*Eubotrys racemosa*). In Cape Cod sites, inkberry (*Ilex glabra*) frequently occurs. The herb layer is sparse and patchy with cinnamon fern (*Osmundastrum cinnamomeum*), Virginia chain fern (*Woodwardia virginica*), starflower (*Lysimachia borealis*) and wild sarsaparilla (*Aralia nudicaulis*). The ground layer is dominated by *Sphagnum* spp. mosses.



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Differentiating Occurrences:

Although each of the AWC swamp community types has a characteristic vegetation structure and composition, as with all natural communities, transitions and mixes do occur. Coastal AWCSs generally occur below 60 ft elevation and in SE Massachusetts (the Cape and Islands, Plymouth, and Bristol Counties). In Coastal AWCS, pitch pine (*Pinus rigida*) is an occasional canopy associate seldom found in other AWCS types. Other species that are found in greater abundance in coastal than elsewhere include greenbrier (*Smilax rotundifolia*), the shrubs inkberry (*Ilex glabra*), dangleberry (*Gaylussacia frondosa*), sheep laurel (*Kalmia angustifolia*), and swamp sweetbells (*Eubotrys* (= *Leucothoe*) racemosa), and the ferns Virginia chain-fern and netted chain-fern (*Woodwardia virginica* and *W. areolata*). Inland AWCS typically occur at elevations > 60 ft. above sea level and not in southeast MA. Yellow Birch (*Betula alleghaniensis*) is more common than in Coastal AWCS. Inland AWCS have lower abundance of coastal indicators than CAWCS. High-elevation Inland AWCS also have northern species such as creeping snowberry (*Gaultheria hispidula*) and bunchberry (*Chamaepericlymenum canadense*). AWC also occurs in AWC Bogs, relatively open peatland communities with canopy cover <25%. Alluvial AWCS are along streams. The vegetation is highly variable. AWC and red maple dominate the tree layer, and high-bush blueberry and sweet pepperbush occur in the shrub layer along with silky dogwood (*Swida* (= *Cornus*) amomum). The herb layer includes sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), bugleweed (*Lycopus* spp.) and marsh St. John's-wort (*Hypericum virginicum*). Red Maple Swamps in basins in SE Massachusetts are often former AWCS that were cut in the past. Many have small patches of AWC; however, AWC needs to be dominant in the overstory for the community to be classified as an AWCS. Mapping of relatively large dense patches of AWC as AWCS communities may be useful within a Red Maple Swamp to indicate a mosaic of wetland communities.

Habitat Values for Associated Fauna:

Young AWC thickets provide excellent cover for deer, rabbits and birds. Atlantic white cedar foliage and twigs are preferred winter browse for white-tailed deer, while rabbits and mice can feed on cedar seedlings. Although no bird species appear to be restricted to AWC communities, they provide nesting habitat for many species including Northern Waterthrush (*Parkesia noveboracensis*), Veery (*Catharus fuscescens*), Red-breasted Nuthatch (*Sitta canadensis*), Brown Creeper (*Certhia americana*), Black-and-white Warbler (*Mniotilta varia*), and Black-capped Chickadee (*Poecile atricapillus*). Coastal AWC swamps can function as vernal pool habitat if water remains standing for 2-3 months and they lack fish; these areas provide important amphibian breeding habitat.

Threats:

The two greatest threats to AWC swamps are land clearing for agricultural, commercial and residential development, and interference of normal hydrological functioning as a result of development. Atlantic white cedar has been cut extensively for posts and shingles for over three centuries. In an extensive statewide vegetation inventory funded by MNHESP in 1990, no uncut stands were found, but several sites contained cedars that were 100-200 years old. Selective cutting is detrimental to the persistence of AWC swamps, because hardwoods, such as red maple, outcompete and replace AWC. Any alterations to the natural hydroperiod of AWC swamps threatens their persistence.

Management Needs:

Due to the limited distribution of AWC swamps, it is recommended that no clearing or filling of these wetlands be allowed. Atlantic white cedar will regenerate best following catastrophic disturbance events such as hurricanes and fires. Data suggest that in the absence of disturbance, red maple and shrubs increase in abundance at the expense of Atlantic white cedar. Fire suppression negatively threatens the long-term persistence of AWC swamps, and controlled burning practices may be an appropriate restoration tool in many areas. Controlled burning should be accompanied by small-patch clearcuts to be most effective. By clear-cutting small patches (generally 20 m x 20 m) and removing the slash and competing vegetation, pure, even-aged stands of Atlantic white cedar are able to regenerate. AWC swamps require a natural cycle of wet and dry periods for their survival and reproduction. Standing water for much of the year is unfavorable for both seed germination and seedling survival, and young seedlings are killed by both drowning and drought. It is recommended that any alterations in water levels be avoided, this includes development and road construction in uplands surrounding AWC swamps which can alter water levels. Where cedar wetlands are associated with river systems, it is important to maintain normal hydrologic regime of the river.

USNVC/NatureServe:

Chamaecyparis thyoides Northern Peatland Alliance [A3400] -- *Chamaecyparis thyoides* / *Ilex glabra* - *Rhododendron viscosum* Forest (CEGL006188)--distinguished by coastal plain indicators.

