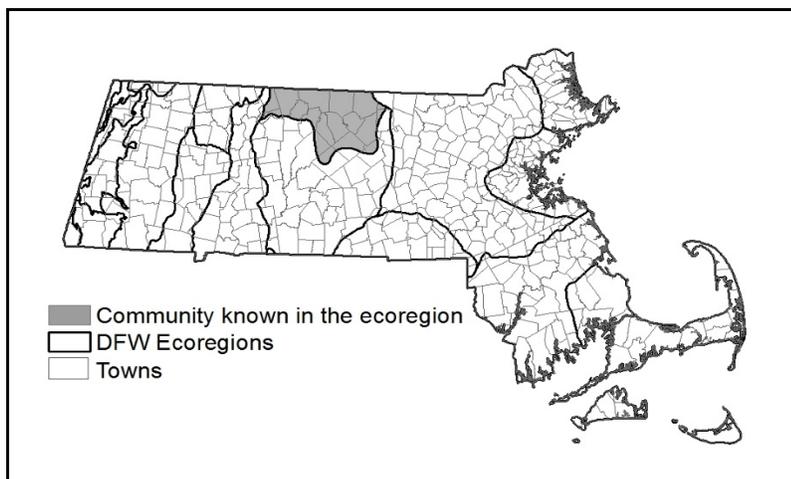


## Northern Atlantic White Cedar Swamp

**Community Code:** CP1B1A3000

**State Rank:** S1



**Concept:** A variant of spruce swamps in which Atlantic white cedar is an associate in the tree canopy.

**Environmental Setting:** Northern AWC swamps are restricted to basins at high elevations, over 1100 feet, the highest known elevation for Atlantic white cedar in the state. As with all AWC swamps, water-saturated peat overlies the mineral sediments, and standing water generally occurs for half of the growing season or longer. 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.

**Vegetation Description:** Atlantic White Cedar (AWC) Swamps are defined as having >25% cover of AWC in the canopy; AWC is usually mixed with red maple (*Acer rubrum*). Most AWCS occurrences include high-bush blueberry (*Vaccinium corymbosum*), swamp azalea (*Rhododendron viscosum*). The ground layer is dominated by *Sphagnum* spp. mosses. Northern AWCS are dominated by northern conifers such as black and red spruce (*Picea mariana* and *P. rubens*) and balsam fir (*Abies balsamea*); Atlantic White Cedar occurs as an associate. Shrubs and herbs also include species of cool northern areas, such as mountain holly (*Ilex mucronata*), creeping snowberry (*Gaultheria procumbens*), and bunchberry (*Chamaepericlymenum canadense*) (also found in the high-elevation variant of Inland AWCS). Labrador tea (*Rhododendron groenlandicum*) and rhodora (*Rhododendron canadense*) are common in the known Northern AWCS occurrence.

**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. Northern AWCS are restricted to basins at high elevations with the known example >1100 ft. Northern AWCS are codominated by northern conifers such as black and red spruce (*Picea mariana* and *P. rubens*) and balsam fir (*Abies balsamea*). Shrubs and herbs include typically northern species such as Labrador tea (*Rhododendron groenlandicum*) and Rhodora (*Rhododendron canadense*) as well as creeping snowberry (*Gaultheria hispidula*) and bunchberry (*Chamaepericlymenum canadense*) that also are found in high-elevation variant Inland AWCS. Inland AWCS typically occur at elevations <1000 ft. and lack the full set of northern species. Red Spruce Swamps may occur near Northern AWCS, but Red Spruce (*Picea rubens*) is dominant in the overstory and AWC is seldom present, and then <25% canopy cover. AWC Bogs are relatively open peatland communities with tree canopy cover <25%. They may have scattered black spruce, but lack red spruce.



## Northern Atlantic White Cedar Swamp

### Habitat Values for Associated Fauna:

Atlantic White Cedar Swamps contribute variation to the habitats of wide-ranging wildlife species. Young AWC thickets provide excellent cover for deer, rabbits and birds. Atlantic white-cedar foliage and twigs is a 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, dense conifer forests are important bird habitat. Swamps 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 NHESP 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, out-compete 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*-*Picea rubens*/*Gaylussacia baccata*/*Gaultheria hispidula* forest [CEGL006363].

