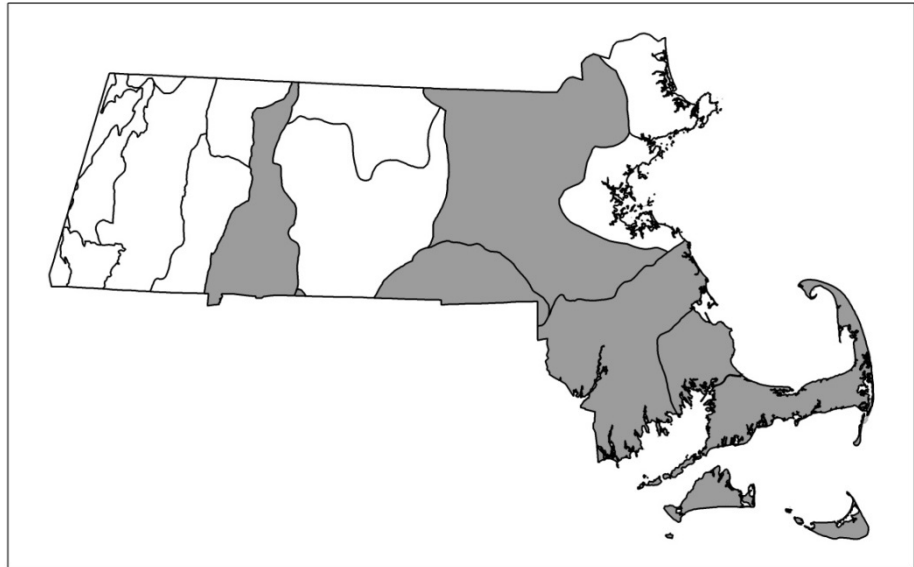




## Atlantic White Cedar Bog

**Community Code:** CP1B1B2000

**State Rank:** S2



**Concept:** Acidic forested peatlands, with a nearly continuous heath shrub layer and an open canopy in which Atlantic white cedar is the characteristic tree species.

**Environmental Setting:** Atlantic White Cedar Bogs are semi-forested, acidic, dwarf-shrub peatlands: wetlands with incompletely decomposed plant material (peat) that accumulates when saturated year-round with water that is cool, acidic, poorly oxygenated, and low in nutrients. Short (2-10m or 6-30 ft.) Atlantic white cedar trees dominate the open canopy. An open to nearly continuous, low (~1m or 3ft) shrub layer often includes small Atlantic white cedars. In Massachusetts, many Atlantic White Cedar Bogs occur as small (<3 acre) openings within larger Atlantic white cedar swamps, in parts of the state where oak and oak - pine forests dominate the landscape. The settings are variable: pond border, patches in large swamps, and on Cape Cod, in kettleholes where they are surrounded by upland Pitch Pine - Oak Forest/Woodlands and Pitch Pine - Scrub Oak Communities.

**Vegetation Description:** Total canopy coverage is low (<25% cover) with Atlantic white cedar (*Chamaecyparis thyoides*) dominant with scattered red maple (*Acer rubrum*). Occasional associates include white and pitch pine (*Pinus strobus* and *P. rigida*), grey birch (*Betula populifolia*), and black spruce (*Picea mariana*). Scattered clumps of tall shrubs include highbush blueberry (*Vaccinium corymbosum*) and swamp azalea (*Rhododendron viscosum*). An often continuous low shrub layer is dominated by leatherleaf (*Chamaedaphne calyculata*) and sheep laurel (*Kalmia angustifolia*), with black and dwarf huckleberry (*Gaylussacia baccata* and *G. bigeloviana*), rhodora (*Rhododendron canadense*), and bog rosemary (*Andromeda polifolia* var. *glaucophylla*). There is typically a well-formed sphagnum moss layer below the



shrubs, and large and small cranberry (*Vaccinium macrocarpon* and *V. oxycoccos*), sundews (*Drosera* spp.), and pitcher plants (*Sarracenia purpurea*) occur throughout. Virginia chain-fern (*Woodwardia virginica*) tends to be more common in peatlands, including Atlantic White Cedar Bogs, in southeastern Massachusetts than in other parts of the state.

**Differentiating Occurrences:** Atlantic White Cedar Bogs have sparse canopy (averaging <25%, but there may be local clumps of trees) cover of Atlantic white cedar over sphagnum on peat. Atlantic White Cedar Bogs share many species and characteristics with other acidic peatlands, including Level Bogs, which they might be considered a variation of, as well as Kettlehole Level Bogs and Acidic Graminoid Fens. The most obvious difference is the presence of Atlantic white cedar in the sparse tree layer and as scattered shrubs on the sphagnum mat. Atlantic White Cedar Bogs often occur as openings in Coastal, Inland, and Northern Atlantic White Cedar Swamps, which are forested wetland communities with closed canopies (>25% tree cover overall, generally more), with >25% cover of Atlantic white cedar. Atlantic White Cedar Bogs have, overall, <25% cover of canopy species (there may be clumps of trees with very locally greater cover; the coverage is for the extent of the community, which will have areas of no canopy cover at all), with Atlantic white cedar dominating the canopy that does occur. Whether Atlantic White Cedar Bogs are considered to be separate entities or openings in the prevailing Atlantic white cedar swamps depends on the patch size and abundance of local patches: 2 acres (that may be cumulative across local patches) are required in the community ranking specifications.

**Associated Fauna:** Winged animals and large terrestrial animals can use peatlands as part of a larger habitat. White-tailed deer browse on shrubs in acidic peatlands, leaving trails across the peat mat. Some birds use peatlands for nesting or foraging. The acidity and low oxygen content make peatlands poor habitat for most amphibians and reptiles, although four-toed salamanders nest in sphagnum hummocks over water and individuals may incorporate Atlantic White Cedar Bogs as part of their habitat. Many species of dragonflies and damselflies inhabit acidic peatlands, especially where there is adjacent open water. Atlantic White Cedar bogs with dense patches of Virginia chain fern or water willow are likely to support species of moths that specialize in those plants.

**Public Access:** Mashpee WMA, Mashpee; Hockomock Swamp WMA (Nunkets Pond, Lake Nippenicket), Bridgewater; Blue Hills Reservation (Ponkapoag Pond), Canton; Peters Pond Area (town-owned), Dracut.

**Threats:** The two greatest threats to Atlantic white cedar 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 Atlantic white cedar swamps, because



hardwoods, such as red maple, outcompete and replace Atlantic white cedar. Any alteration to the natural hydroperiod of Atlantic white cedar swamps threatens their persistence. The peat in Atlantic White Cedar Bogs is threatened by hydrology changes and introduction of nutrients.

**Management Needs:**

Due to the limited distribution of Atlantic white cedar 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 Atlantic white cedar 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. Atlantic white cedar 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 Atlantic white cedar 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 -- *Chamaecyparis thyoides*/  
*Chamaedaphne calyculata* Woodland [CEGL006321].