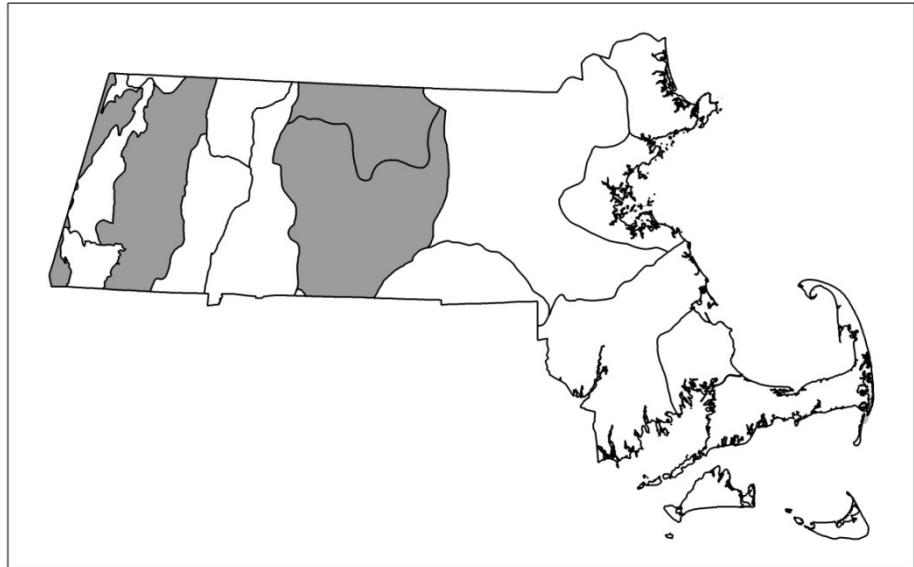




Red Spruce Swamp

Community Code: CP1A11A000

State Rank: S3



Concept: Forested wetlands, primarily of high elevations in western and north-central Massachusetts, dominated by red spruce.

Environmental Setting: Red Spruce Swamps are tall (>20 m) forested coniferous wetlands, typically found at higher elevations in the central and western parts of the state. They tend to occur in poorly drained basins with no obvious inlets and small intermittent outlets that may form stream headwaters. Deep (often >2m) organic sediments (peat or muck) in these swamps create acidic and nutrient-poor conditions.

Vegetation Description: The tree canopy in Red Spruce Swamps is typically closed and dominated by red spruce (*Picea rubens*); associates with variable but much lower abundance include white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), balsam fir (*Abies balsamea*), red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*), and yellow birch (*Betula alleghaniensis*). Black spruce (*Picea mariana*) may be present in low numbers. The subcanopy is usually low in percent cover and may be comprised of one or more of the canopy species. The shrub component is often fairly sparse and grows primarily on the tops and sides of the hummocks. A diagnostic shrub of these swamps is mountain holly (*Ilex mucronata*). Associated shrubs may include highbush blueberry (*Vaccinium corymbosum*), wild raisin (*Viburnum nudum* var. *cassinoides*), winterberry (*Ilex verticillata*), and occasionally swamp azalea (*Rhododendron viscosum*) or maleberry (*Lyonia ligustrina*). The herb layer may be prominent and dominated by cinnamon fern (*Osmundastrum cinnamomeum*) with bluebead-lily (*Clintonia borealis*), creeping snowberry (*Gaultheria hispida*), Massachusetts fern (*Thelypteris simulata*), goldthread (*Coptis trifolia*), bunchberry (*Chamaepericlymenum canadense*), and small amounts of three-seeded bog sedge



(*Carex trisperma*). On the drier hummocks, starflower (*Lysimachia borealis*) and wild sarsaparilla (*Aralia nudicaulis*) may occur in small amounts. The ground is often a carpet dominated by sphagnum moss and the liverwort *Bazzania trilobata*.

Differentiating Occurrences: Red Spruce Swamps have tall, large-diameter trees, dominated by red spruce, generally with an open understory. Creeping snowberry (*Gaultheria hispidula*) and twinflower (*Linnaea borealis* ssp. *americana*) are good indicators of Red Spruce Swamps but do not occur in all examples. Rich Conifer Swamps are characterized by a canopy of mixed red spruce and hemlock, with balsam fir and deciduous trees including black ash (*Fraxinus nigra*), and species such as spicebush (*Lindera benzoin*) that indicate less acidic conditions, and pockets of moss rather than sphagnum lawns. Hemlock Swamps are dominated by eastern hemlock. Spruce - Tamarack Bogs have a dense tree canopy dominated by generally short (<40' tall) black spruce (*P. mariana*) and tamarack (*Larix laricina*), with bog-indicator species such as Labrador tea (*Rhododendron groenlandicum*) and bog laurel (*Kalmia polifolia*) in the often dense shrub layer.

Associated Fauna: Red Spruce Swamps are part of the habitat of large mobile animals. Conifer swamps tend to have dense shade and are relatively cool in the summer, making them preferred areas for animals that get hot, such as moose (*Alces alces*). Red Spruce Swamps can function as vernal pool habitat for amphibian breeding if water remains standing for 2-3 months and they lack fish. Also expected would be northern bird species that use conifer forests such as the declining Rusty Blackbird (*Euphagus carolinus*).

Public Access: Greylock State Reservation, Williamstown; Chalet WMA, Dalton; October Mountain State Forest, Washington; Cookson State Forest, New Marlborough; Warwick State Forest, Warwick; Tully Lake Reservation (US Army Corps of Engineers) and Birch Hill WMA, Royalston; Phillipston WMA, Phillipston; Ashburnham State Forest, Ashburnham.

Threats: Climate change; altered hydrology.

Management Needs: Timber harvesting should be prohibited at some sites to allow old-growth characteristics to develop.

USNVC/NatureServe: *Picea rubens* - *Abies balsamea* Saturated Forest Alliance -- *Picea rubens*-*Abies balsamea*/*Gaultheria hispidula*/*Sphagnum* spp. [CEGL006312]; *Picea rubens* - *Acer rubrum*/*Nemopanthus mucronatus* Forest [CEGL006198].