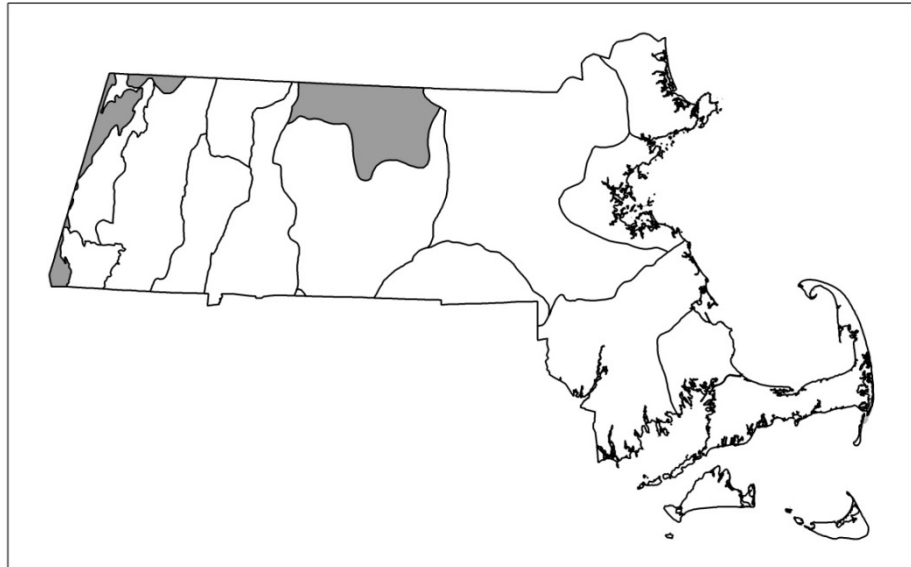




Spruce – Fir – Northern Hardwood Forest

Community Code: CT1D100000

State Rank: S4



Concept: A mixed forest with red spruce and northern hardwoods in cooler, usually northern, parts of the state

Environmental Setting: The Spruce - Fir - Northern Hardwoods Forest has a canopy of mixed spruce and northern hardwoods. It occurs in cool areas above ~450m (~1400 ft.), generally on rocky, nutrient-poor, dry to mesic, acidic soils. Often little light gets through the dense canopy and lower layers are sparse and patchy. Slow decomposition produces dense needle accumulation that further limits herbaceous growth. Tree reproduction is in gaps left by single tree fall.

Vegetation Description: The canopies of Spruce - Fir - Northern Hardwoods Forests have variable dominance of 25 to 75% conifers, and the inverse tree composition of northern hardwoods: red spruce (*Picea rubens*) and/or balsam fir (*Abies balsamea*) with eastern hemlock (*Tsuga canadensis*) may be dominant or co-dominant with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*). Eastern hemlock can be abundant or scattered. Heart-leaf paper birch (*Betula cordifolia*) and paper birch (*Betula papyrifera*) usually occur as scattered individuals. Characteristic shrubs include mountain maple (*Acer spicatum*), red-berried elder (*Sambucus racemosa*), northern mountain ash (*Sorbus americana*), hobblebush (*Viburnum lantanoides*), beaked hazel (*Corylus cornuta*), and American yew (*Taxus canadensis*). A low shrub layer has bunchberry (*Chamaepericlymenum canadense*), creeping snowberry (*Gaultheria hispidula*), and, occasionally, twinflower (*Linnaea borealis*). Herbs tend to be sparse, especially when conifers are abundant; plants include intermediate fern (*Dryopteris intermedia*), mountain wood fern (*Dryopteris campyloptera*),



bluebead lily (*Clintonia borealis*), painted trillium (*Trillium undulatum*), and wood sorrel (*Oxalis acetosella*).

Differentiating Occurrences: In Spruce - Fir - Northern Hardwoods Forests, red spruce is a dominant or at least present with other conifers, including balsam fir and eastern hemlock, while white pine is uncommon. Heart-leaf paper birch is present as scattered individuals. In Massachusetts, High Elevation Spruce - Fir Forest/Woodland occurs only in the Greylock range at the very highest elevations in the state and is more exposed, resulting in shorter, sparser trees in more open woodland conditions than in Spruce - Fir - Northern Hardwoods Forests. There is also a lower proportion of northern hardwoods. Northern Hardwoods - Hemlock - White Pine Forests lack abundant spruce, fir, and heart-leaf paper birch. Blueberry is occasionally present in the understory of Spruce - Fir - Northern Hardwoods Forest, but absent or nearly so in Northern Hardwoods - Hemlock - White Pine Forests. Successional Northern Hardwood Forest is best distinguished by the abundance of white birch and/or aspens in the canopy and northern hardwood species generally occurring in the subcanopy or shrub layer, not the canopy. If spruce or fir is present, it is as scattered individuals, <25% cover. Spruce - Fir - Northern Hardwoods Forest can have abundant eastern hemlock, but differ from other upland hemlock forests by the presence of red spruce, balsam fir, heart-leaf paper birch, and other species of cool areas, including mountain and striped maples (*Acer spicatum*, *A. pennsylvanicum*), mountain ash (*Sorbus americana* and *S. decora*), and skunk currant (*Ribes glandulosum*). They lack species of warmer areas such as oaks (*Quercus* spp.), black birch (*Betula lenta*), and mountain laurel (*Kalmia latifolia*).

Associated Fauna: Animals of this community tend to be northern species that are more typical of forests of Vermont and New Hampshire. Birds include Golden-crowned Kinglet (*Regulus satrapa*), Blue-headed Vireo (*Vireo solitarius*), Blackburnian Warbler (*Dendroica fusca*), Yellow-rumped Warbler (*D. dominica*), and Magnolia Warbler (*D. magnolia*). Mammals include fisher (*Martes pennanti*), red squirrel (*Tamiasciurus hudsonicus*), snowshoe hare (*Lepus americanus*), northern flying squirrels (*Glaucomys sabrinus*), and pygmy shrews (*Sorex hoyi*). Amphibians would include the ubiquitous redbacked salamanders (*Plethodon cinereus*), wood frogs (*Rana sylvatica*), and red efts (juvenile stage of red-spotted newts, *Notophthalmus v. viridescens*).

Public Access: Monroe State Forest, Monroe; Mt. Greylock, Adams; Watatic Mountain Sanctuary and Ashburnham State Forest; Ashburnham.

Threats: Climate change and white pine replacing spruce in old field situations; clearing for ski slopes.

Management Needs:

USNVC/NatureServe: CEGL006053