

Spruce - Fir - Northern Hardwoods Forest

State Rank: S4 - Secure



400 year old red spruce in SFNHF. Photo: Patricia Swain, NHESP.

Description: The Spruce - Fir - Northern Hardwoods Forest (SFNHF) has a canopy of mixed red spruce and/or balsam fir 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.

Characteristic Species: The canopies of SFNHF have variable dominance of 25 to 75% conifers, and the inverse of northern hardwoods: red spruce and/or balsam fir with eastern hemlock may be dominant or codominant with sugar maple and beech (or these may be dominant), with abundant yellow birch

Spruce-Northern Hardwoods Forests are usually found in northern, higher parts of the state, on cool, rocky soils that are acidic, nutrient poor, and somewhat dry.

and smaller amounts of red spruce and/or balsam fir. Hemlock can be abundant or scattered. Heart-leaf paper birch and paper birch usually occur as scattered individuals. Characteristic shrubs include mountain maple, red-berried elder, northern mountain ash, hobblebush, beaked hazel, and American yew. A low shrub layer has bunchberry, creeping snowberry, and occasionally, twinflower. The herbaceous layer tends to be sparse, especially when conifers are abundant; plants include intermediate fern, mountain wood fern, blue-bead lily, painted trillium, and wood sorrel.



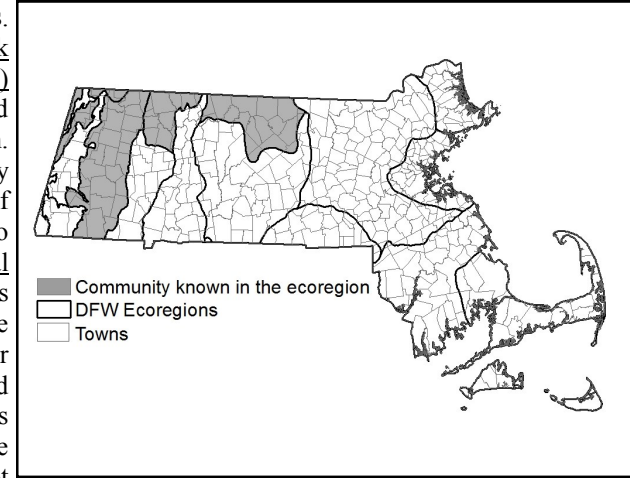
Red Spruce needles and cone. Photo: Keith Kanoti, Maine Forest Service, Bugwood.org.

Differentiating from Related Communities: In SFNHF red spruce is a dominant or at least present with other conifers including balsam fir and eastern hemlock; and white pine is uncommon. 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 SFNHF. There is also a lower proportion

of northern hardwoods. Northern Hardwoods - Hemlock - White Pine Forest (NHHWPF) lack abundant spruce, fir, and heart-leaf paper birch. Blueberry is occasionally present in the understory of SFNHF, but absent or nearly so in NHHWPF. Successional Northern Hardwood Forests 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. SFNHF can have abundant eastern hemlock, but differ from other upland hemlock forests by the presence of red spruce, balsam fir, and/or heart-leaf paper birch and other species of cool areas including mountain maple, mountain ash, and skunk currant and lacking species of warmer areas such as oaks, black birch, and mountain laurel.

Habitat for Associated Fauna:

Animals of SFNHF tend to be northern species that are more typical of forests to our north. Birds include Golden-crowned Kinglet, Blue-headed Vireo, and species of big warblers including Blackburnian, Yellow-rumped, and Magnolia Warbler. Mammals include fisher, as a classic example, and northern species such as red squirrels, snowshoe hare, in the open areas, northern flying squirrels, and pygmy shrews. Amphibians would include the ubiquitous redbacked salamanders, wood frogs, and red efts (juvenile stage of red-spotted newts).



Examples with Public Access:

Monroe SF, Monroe; Mt. Greylock, Adams; Watatic Mountain Sanctuary (DFW) and Reservation (DFG/DCR); Ashburnham.



Broken canopy tree in SFNHF, letting light into lower layers. Photo: Patricia Swain, NHESP.

