



Successional Northern Hardwood Forest

Community Code: CT1C1B0000

State Rank: S5

Map: No Successional Northern Hardwood Forests are documented in the NHESP database.

Concept: A broadly defined time sequence of forest communities, from thick young sprouts with little diversity, to mature, diversifying forests with undergrowth of more shade-tolerant trees. The canopy is seldom completely closed and undergrowth may be dense or open.

Environmental Setting: In cooler areas of Massachusetts, generally in northern, western, and higher elevation areas, Successional Northern Hardwood Forests precede Northern Hardwood - Hemlock - White Pine Forests when land has been left to natural processes after large-scale land opening events. They include a broad time sequence of predominantly deciduous forests growing where major disturbances such as fires, tornados, severe hurricanes, logging, or clearing for farm fields occurred a few to many decades in the past. The canopy, dominated by shade-intolerant tree species, is seldom completely closed and the subcanopy is generally composed of more shade-tolerant tree species. The shrub layer may be dense with low-diversity tree saplings or sprouts, or with more diverse deciduous broad-leaved species in older stands. There is usually an herbaceous layer of perennial forbs. Sites are generally dry-mesic to mesic.

Vegetation Description: The vegetation of successional communities is highly variable: it changes over time and depends on surrounding seed sources and the type of disturbance that removed the original forest. Typically, the canopy of Successional Northern Hardwood Forests includes aspen (*Populus tremuloides* and *P. grandidentata*), white birch (*Betula papyrifera*), red maple (*Acer rubrum*), and/or black cherry (*Prunus serotina*), with gray birch (*B. populifolia*) on very well-drained soils. There may be low percentages of white pine (*Pinus strobus*) or red spruce (*Picea rubens*). Pin cherry (*Prunus pensylvanica*) is a very early colonizer after heavy logging or fire. As the forest matures, the understory is made up of young northern hardwoods such as sugar maple (*Acer saccharum*), red maple (*A. rubrum*), white ash (*Fraxinus americana*), yellow birch (*B. alleghaniensis*), American beech (*Fagus grandifolia*), and red oak (*Quercus rubra*). Shrubs and herbaceous species are variable, sometimes including shade-tolerant pre-disturbance species or residual early post-disturbance pioneer species.

Differentiating Occurrences: Successional Northern Hardwood Forests are highly variable forests, usually in a successional sequence leading to Northern Hardwood - Hemlock- White Pine Forests or one of its named variants. The successional forest is best distinguished by the abundance of white birch and / or aspens in the canopy. All types of northern hardwood forests, including Northern Hardwood - Hemlock- White Pine Forest, are dominated by sugar maple with other northern hardwoods such as white ash,



yellow birch, American beech, and red oak, with low cover of white pine and hemlock; in the Successional Northern Hardwood Forest, the northern hardwoods generally occur predominantly in the subcanopy or shrub layer, not the canopy.

Associated Fauna:

The structure of a community is important to animals. Successional communities change in structure quite quickly, and the animals inhabiting them change as the vegetation grows. For 0 to 10 years, trees are dense but small, often with blackberry (*Rubus* spp.) below. Fugitive bird species such as Chestnut-sided Warblers (*Dendroica pensylvanica*) and Mourning Warbler (*Oporornis philadelphia*) are common in the first 5 years after a major disturbance, especially if there are dead snags left for singing perches. Ruffed Grouse (*Bonasa umbellus*) and American Woodcock (*Scolopax minor*) inhabit younger forest, as does the New England cottontail (*Sylvilagus transitionalis*) if there is a dense shrub layer. After 30 years, Successional Northern Hardwood Forests are used by many generalist animals as part of their habitats.

Public Access:

Sandisfield State Forest, Sandisfield; Leadmine WMA, Sturbridge; Minute Man National Historical Park, Concord.

Threats:

Invasive species in disturbed areas.

Management Needs:

USNVC/NatureServe:

A3225 *Betula papyrifera* - *Populus tremuloides* - *Acer rubrum* Forest Alliance - *Betula papyrifera* - *Acer saccharum*/Mixed Hardwoods Forest [CEGL002464]; A3229 *Acer rubrum* - *Prunus serotina* - *Pinus strobus* Ruderal Forest Alliance - *Populus (tremuloides, grandidentata)* - *Betula (populifolia, papyrifera)* Ruderal Woodland [CEGL006303], *Quercus rubra* - *Acer rubrum* - *Betula* spp. - *Pinus strobus* Ruderal Forest [CEGL006506], and *Acer saccharum* - *Betula* spp. - *Fagus grandifolia* Successional Forest [CEGL006628].