



Source: Associated Natural Communities data - Michigan Natural Features Inventory Biotics database.

## Terrestrial characteristics: Late successional forest

### Description

Late successional forests are forests that have experienced many decades or centuries without significant environmental disturbance. Plant communities in these forests have gone through a series of successional stages over time. The natural disturbance regime is characterized by gap phase dynamics: frequent, small windthrow gaps allow for the regeneration of the shade-tolerant canopy dominants. In Michigan, late successional forests commonly include hemlock (*Tsuga canadensis*), sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), and yellow birch (*Betula alleghaniensis*).

### General Condition of Feature

Late successional forest, as a landscape characteristic, is generally considered to be in fair or good condition across about 45% of the Eastern Upper Peninsula and in excellent condition in about 10%. About 45% of the region is considered degraded or very degraded as late successional forest.

### Associated Natural Communities

Mesic Northern Forest

### Associated Species of Greatest Conservation Need

#### AMPHIBIANS

spotted salamander (*Ambystoma maculatum*)

#### BIRDS

Bald Eagle (*Haliaeetus leucocephalus*)

Cooper's Hawk (*Accipiter cooperii*)

Northern Goshawk (*Accipiter gentilis*)

Red-shouldered Hawk (*Buteo lineatus*)

Wood Thrush (*Hylocichla mustelina*)

#### BIRDS cont.

Northern Parula (*Parula americana*)

Black-throated Blue Warbler (*Dendroica caerulescens*)

Blackburnian Warbler (*Dendroica fusca*)

Cerulean Warbler (*Dendroica cerulea*)

Eastern Towhee (*Pipilo erythrophthalmus*)

Red Crossbill (*Loxia curvirostra*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: A lack of fire can result in a conversion in species composition, often to red maple (*Acer rubrum*).

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices: Economic markets may drive tree species targeted for harvest.

#### BIOLOGICAL INTERACTIONS

- Disease, pathogens, and parasites: Species like hemlock wooly adelgid (*Adelges tsugae*) may alter community composition. Beech bark disease may pose a threat.
- Other biological interactions: White-tailed deer (*Odocoileus virginianus*) browse may hinder regeneration, especially in late successional cedar (*Thuja occidentalis*).

### Conservation Actions Needed [Threats addressed]

#### LAND, WATER & SPECIES MANAGEMENT

- Manage for late successional forest at representative and appropriate areas across the landscape. Maintenance for late successional forests may include prescribed fire and mechanical treatments. [Altered fire regime, Forestry practices]
- Manage to approximate natural disturbance regimes using prescribed fire. [Altered fire regime]
- Implement disease monitoring and control programs. [Disease, pathogens, and parasites]
- Manage white-tailed deer densities to allow for vegetation regeneration. [Other biological interactions]

#### ECONOMIC & OTHER INCENTIVES

- Promote timber markets conducive to late successional forest maintenance. Provide markets where necessary. [Forestry practices]

### Research and Survey Needs

- Identify and quantify characteristics that define late successional forest.
- Compare the effect of stand age with stand structure in providing value to wildlife in late successional forest. Can a young stand provide similar benefits as an old stand if it has a similar structure?
- Develop management techniques that will establish or maintain late successional forests.

### Monitoring

- Track abundance and distribution of late successional forest across the landscape.