



Terrestrial characteristics: Late successional forest

Description

Late successional forests are forests that have experienced many decades or centuries without significant environmental disturbance. Plant communities of 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 forests are very rare in the Southern Lower Peninsula, therefore this feature characteristic is considered degraded or very degraded across the region (~75%). Most of the remaining area is considered to be of fair or good condition.

Associated Natural Communities

Mesic northern forest
Mesic southern forest

Associated Species of Greatest Conservation Need

INSECTS

black lordithon rove beetle (*Lordithon niger*)
six-banded longhorn beetle (*Dryobius sexnotatus*)

AMPHIBIANS

spotted salamander (*Ambystoma maculatum*)

BIRDS

Bald Eagle (*Haliaeetus leucocephalus*)
Cooper's Hawk (*Accipiter cooperii*)
Northern Goshawk (*Accipiter gentilis*)
Red-shouldered Hawk (*Buteo lineatus*)
American Woodcock (*Scolopax minor*)
Red-headed Woodpecker (*Melanerpes erythrocephalus*)

BIRDS cont.

White-eyed Vireo (*Vireo griseus*)
Ruby-crowned Kinglet (*Regulus calendula*)
Wood Thrush (*Hylocichla mustelina*)
Northern Parula (*Parula americana*)
Blackburnian Warbler (*Dendroica fusca*)
Cerulean Warbler (*Dendroica cerulea*)
Prothonotary Warbler (*Protonotaria citrea*)
Worm-eating Warbler (*Helmitheros vermivorus*)
Louisiana Waterthrush (*Seiurus motacilla*)
Hooded Warbler (*Wilsonia citrina*)
Eastern Towhee (*Pipilo erythrophthalmus*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: A lack of disturbance leads to conversion to maple (*Acer* spp.) on some sites.
- Fragmentation

HABITAT CONVERSION

- Industrial, residential, and recreational development: Housing developments can displace forests with this characteristic.
- Incompatible natural resource management: Some managers see old trees as a wasted timber harvest opportunity.

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices: Clear-cutting eliminates late successional communities.

BIOLOGICAL INTERACTIONS

- Invasive plants and animals
- Disease, pathogens, and parasites: Beech bark disease may degrade these systems.

EDUCATION

- Social attitudes: Late successional forests lack aesthetic appeal for the general public. There may be safety concerns over old trees falling down and causing injury or damage. People may not be aware of the value of late successional communities for wildlife.
- Lack of scientific knowledge: Definitions of what constitutes late successional forest may vary between resource professionals.

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, Incompatible natural resource management]
- Manage to approximate natural disturbance regimes using prescribed fire. [Altered fire regime]

MICHIGAN'S WILDLIFE ACTION PLAN
TERRESTRIAL SYSTEMS: SOUTHERN LOWER PENINSULA

- Assess management goals to ensure that they provide for a diversity of communities across the landscape. [Incompatible natural resource management; Forestry practices]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Implement disease monitoring and control programs. [Disease, pathogens, and parasites]
- Develop and implement best management practices for timber harvests that address wildlife habitat needs, including the importance of late successional forest stands. [Incompatible natural resource management; Forestry practices]

LAW & POLICY

- Work with municipalities to promote planning and zoning insuring adequate protection for late successional forest stands. [Industrial, residential, and recreational development; Fragmentation]

EDUCATION & AWARENESS

- Educate the public about the value of late successional forest for the management of quality wildlife habitat. [Social attitudes]
- Train managers to identify late successional stands. [Lack of scientific knowledge]

Research and Survey Needs

- Identify and quantify characteristics that define late successional forest.
- Develop standards for defining 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.