



## Forest: Dry conifer

### Description

Dry conifer forests have dry soils and are generally dominated by such trees as jack pine (*Pinus banksiana*), red pine (*Pinus resinosa*), and white pine (*Pinus strobus*). Fire is an important natural disturbance in many dry conifer forests, where the frequency and magnitude of fires play a major role in determining species composition, successional stage, forest structural characteristics, and configuration. Dry forest openings are also created by high winds or disease. With fire suppression, some dry conifer forests are colonized by shade-tolerant maples or conifers (i.e., balsam fir, white spruce) and thus succeed to mesic forests.

### General Condition of Feature

Dry conifer forests were never very common historically within the Southern Lower Peninsula. Much of the dry conifer in the Southern Lower Peninsula is considered to be in fair or good condition (~55%). Most of the remaining areas are considered degraded or very degraded (~40%). Dry conifer natural communities are each classified as rare or uncommon in Michigan.

### Associated Natural Communities

Dry-mesic Northern Forest  
Wooded Dune and Swale Complex

### Associated Species of Greatest Conservation Need

#### INSECTS

pine katydid (*Scudderia fasciata*)  
pine tree cricket (*Oecanthus pini*)  
gorgone checkerspot (*Chlosyne gorgone carlota*)  
yellow-banded day-sphinx (*Proserpinus flavofasciata*)

#### AMPHIBIANS

blue-spotted salamander (*Ambystoma laterale*)

#### REPTILES

black rat snake (*Elaphe obsoleta obsoleta*)  
eastern hognose snake (*Heterodon platirhinus*)  
smooth green snake (*Liochlorophis vernalis*)  
eastern massasauga (*Sistrurus catenatus catenatus*)  
eastern box turtle (*Terrapene carolina carolina*)

#### BIRDS

Green Heron (*Butorides virescens*)  
Bald Eagle (*Haliaeetus leucocephalus*)  
Cooper's Hawk (*Accipiter cooperii*)

#### BIRDS cont.

Northern Goshawk (*Accipiter gentilis*)  
Black-billed Cuckoo (*Coccyzus erythrophthalmus*)  
Common Nighthawk (*Chordeiles minor*)  
Whip-poor-will (*Caprimulgus vociferus*)  
Red-headed Woodpecker (*Melanerpes erythrocephalus*)  
Brown Thrasher (*Toxostoma rufum*)  
Blackburnian Warbler (*Dendroica fusca*)  
Prairie Warbler (*Dendroica discolor*)  
Connecticut Warbler (*Oporornis agilis*)  
Eastern Towhee (*Pipilo erythrophthalmus*)  
Red Crossbill (*Loxia curvirostra*)  
White-winged Crossbill (*Loxia leucoptera*)

#### MAMMALS

red bat (*Lasiurus borealis*)  
hoary bat (*Lasiurus cinereus*)  
woodland vole (*Microtus pinetorum*)  
southern bog lemming (*Synaptomys cooperi*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: Lack of fire may lead to vertical simplification.
- Fragmentation

#### HABITAT CONVERSION

- Industrial, residential, and recreational development: Residential development in woodlots contributes to fragmentation and loss.
- Incompatible natural resource management: Some burn bosses remove pines to reduce risks prior to prescribed burns.

#### BIOLOGICAL INTERACTIONS

- Invasive plants and animals
- Disease, pathogens and parasites: The effects of disease and insect infestation (e.g., jack pine budworm (*Choristoneura pinus*)) are exacerbated in older stands.
- Other biological interactions: White-tailed deer (*Odocoileus virginianus*) browse may hinder regeneration; white spruce is the only seedling in dry conifer that will survive white-tailed deer (*Odocoileus virginianus*) browse.

### Conservation Actions Needed [Threats addressed]

#### LAND & WATER PROTECTION

- Expand conservation easement programs [variety of threats]
- Support and expand conservation purchase of high quality occurrences [variety of threats]

*LAND, WATER & SPECIES MANAGEMENT*

- Manage to approximate natural disturbance regimes using prescribed fire. [Altered fire regime; Incompatible natural resource management]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Implement disease monitoring and control programs. [Disease, pathogens, and parasites]
- Manage white-tailed deer densities to allow for regeneration. [Other biological interactions]
- Consider wildlife values, timber values, and natural landcover and conditions when selecting vegetative species composition as part of management of these areas [Incompatible natural resource management]
- Manage for representation of all successional stages. [Incompatible natural resource management]
- Promote the closure of non-essential resource management roads and seek other road closure opportunities that do not conflict with other appropriate uses. [Fragmentation]
- Where large diameter tree snags and coarse woody debris are occasional or rare, seek to increase their volume. [Incompatible natural resource management]
- Support Landowner Incentive Programs to foster conservation on private land [variety of threats]

*LAW & POLICY*

- Work with municipalities to promote planning and zoning insuring adequate protection for dry conifer systems. [Industrial, residential, and recreational development; Fragmentation]

*EDUCATION & AWARENESS*

- Provide additional training to land managers on the use of prescribed fire. [Altered fire regime; Incompatible natural resource management]

Research and Survey Needs

- An inventory needs to be conducted to determine the location, condition, and classification of dry conifers and of the opportunities for restoration.
- Test the assumption that remnants are widely dispersed and becoming more fragmented resulting in a loss of species diversity.
- A better understanding is needed of the management needs and appropriate management techniques to maintain and improve dry conifer features.
- A better understanding is needed of the temporal and spatial distribution of disturbance and its influence. What factors provide disturbance within dry conifer communities?
- Identify the characteristics of dry conifer systems that contribute to their value to wildlife and which species may be affected by changes in these characteristics.
- Identify invasive species and diseases that may degrade the value of dry conifer sites for wildlife. Develop techniques to control invasive species. Develop treatments for diseases that threaten mesic conifers.
- Document the historic and current range of variation between dry conifer sites. This includes variables such as species composition, age or size class, and stand size.
- Assess the potential effects of climate change on dry conifer community composition and abundance.
- Determine whether differences exist in the value to wildlife of natural stands, forest plantations, and barrens. Quantify the structural differences between these communities.

Monitoring

- Track woody species composition and diversity, with attention to structure and age class.
- Track the presence and abundance of invasive species.
- Track acreage and distribution of dry conifers.