



## Forest: Forest opening

### Description

Forest openings are herbaceous or shrubby openings or patches in the forest canopy. They are variable in size and can be created or maintained by tree fall, fire, tree disease, hydrological conditions, or soil conditions. Forest openings can be "permanent" (e.g., a bog opening or rock outcrop) or they can be ephemeral (e.g., patch created by treefall or fire). Forest openings, depending upon the type of opening and context, can act as "resource patches" for wildlife. Forest openings can promote invasive species and some native species respond negatively to these openings.

### General Condition of Feature

About 55% of the forest openings in the Northern Lower Peninsula are considered to be degraded. Most of the remaining areas are considered to be in fair or good condition (~40%).

### Associated Natural Communities

N/A – no native natural communities

### Associated Species of Greatest Conservation Need

#### INSECTS

Hine's emerald dragonfly (*Somatochlora hineana*)  
ebony boghaunter (*Williamsonia fletcheri*)  
a spur-throat grasshopper (*Melanoplus eurycercus*)  
secretive locust (*Appalachia arcana*)  
post-oak grasshopper (*Dendrotettix quercus*)  
persius duskywing (*Erynnis persius persius*)  
grizzled skipper (*Pyrgus wyandot*)  
early hairstreak (*Erora laeta*)  
Karner blue (*Lycaeides melissa samuelis*)  
Henry's elfin (*Callophrys henrici*)  
tawny crescent (*Phyciodes batesii*)  
Sprague's pygarctia (*Pygarctia spraguei*)  
boreal fan moth (*Brachionychna borealis*)

#### AMPHIBIANS

Fowler's toad (*Bufo fowleri*)  
pickerel frog (*Rana palustris*)

#### REPTILES

blue racer (*Coluber constrictor foxii*)  
northern ringneck snake (*Diadophis punctatus edwardsii*)  
eastern fox snake (*Elaphe gloydi*)  
black rat snake (*Elaphe obsoleta obsoleta*)  
eastern hognose snake (*Heterodon platirhinos*)  
smooth green snake (*Liochlorophis vernalis*)  
eastern massasauga (*Sistrurus catenatus catenatus*)  
spotted turtle (*Clemmys guttata*)

#### REPTILES cont.

Blanding's turtle (*Emydoidea blandingii*)  
wood turtle (*Glyptemys insculpta*)  
eastern box turtle (*Terrapene carolina carolina*)

#### BIRDS

Spruce Grouse (*Falcapennis canadensis*)  
Cooper's Hawk (*Accipiter cooperii*)  
Northern Goshawk (*Accipiter gentilis*)  
Merlin (*Falco columbarius*)  
American Woodcock (*Scolopax minor*)  
Long-eared Owl (*Asio otus*)  
Whip-poor-will (*Caprimulgus vociferus*)  
Black-backed Woodpecker (*Picoides arcticus*)  
Northern Flicker (*Colaptes auratus*)  
Ruby-crowned Kinglet (*Regulus calendula*)  
Blue-winged Warbler (*Vermivora pinus*)  
Golden-winged Warbler (*Vermivora chrysoptera*)  
Kirtland's Warbler (*Dendroica kirtlandii*)  
Connecticut Warbler (*Oporornis agilis*)  
Eastern Towhee (*Pipilo erythrophthalmus*)  
Red Crossbill (*Loxia curvirostra*)

#### MAMMALS

pygmy shrew (*Sorex hoyi*)  
hoary bat (*Lasiurus cinereus*)  
northern bat or northern myotis (*Myotis septentrionalis*)  
southern bog lemming (*Synaptomys cooperi*)

### Associated Threats

#### MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: A lack of fire may lead to succession within openings and a lack of creation of new openings.

#### HABITAT CONVERSION

- Industrial, residential, and recreational development: Housing development and the erection of cell towers may impact forest openings.
- Incompatible natural resource management: Tree plantings within forest openings may reduce their value for wildlife.

#### CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices: Forest openings may be used as log landings.
- Mining practices: Oil and gas development may impact forest openings.

#### NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Non-consumptive recreation: Uncontrolled ATV and ORV use may impact forest openings.

#### BIOLOGICAL INTERACTIONS

- Invasive plants and animals

Conservation Actions Needed [Threats addressed]

*LAND, WATER & SPECIES MANAGEMENT*

- Manage to approximate natural disturbance regimes using prescribed fire. [Altered fire regime]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- 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]
- Work with land managers to develop priorities for forest opening restoration and management. [Incompatible natural resource management]
- Develop and implement forestry best management practices which address the wildlife value of forest openings. [Forestry practices]
- Temporary roads or clearings for oil and gas extraction should be planned and constructed to be revegetated. [Mining practices]

*LAW & POLICY*

- Work with municipalities to promote planning and zoning insuring adequate protection for high quality forest openings or their conversion to features that have greater wildlife value. [Industrial, residential and recreational development]
- Develop new and enforce existing regulations for mitigation of oil and gas extraction facilities. [Mining practices]

Research and Survey Needs

- Develop a functional definition of forest opening. At what point (size, configuration, etc.) does an opening become the surrounding matrix?
- A better understanding is needed of the management needs and appropriate management techniques to maintain and improve forest openings. What characteristics of forest openings provide the greatest value to wildlife? How does the location of the opening impact its wildlife value?
- A better understanding is needed of the temporal and spatial distribution of disturbance and its influence on forest opening communities. What factors provide disturbance within forest openings?
- Identify invasive species and diseases that may degrade the value of forest openings for wildlife. Develop techniques to control invasive species. Develop treatments for diseases that threaten mesic conifers.
- Document the historic and current range of variation of forest openings. This includes variables such as size, species composition, and vegetation structure.
- Determine whether differences exist in wildlife value of natural openings and artificial openings. Quantify the differences between these communities.
- Determine the impacts of development (gas pipelines, cell towers, etc.) on forest openings. Do these areas continue to function similarly and provide habitat to SGCN after development? Do these areas contribute more to forest fragmentation than other forest openings?
- Examine both the positive and negative values of forest openings to wildlife. These systems contribute to fragmentation but may also provide travel corridors or patches of necessary habitat. Is there an optimal amount of forest openings which balances these effects?
- Examine how the size, shape, and vegetative species composition of forest openings affect their value to wildlife. Are there other variables of the condition of forest openings that influence their wildlife value? Does the feature type or species composition of the surrounding matrix have a significant effect on wildlife value?
- Determine whether forest openings function as sinks to some species. Determine how this varies by species?
- Inventory forest opening management methodologies. How prevalent are these techniques? What are the impacts of each technique on wildlife?
- Evaluate the role of forest openings in the proliferation of invasive species. Quantify the role of forest openings as corridors for invasive species.

Monitoring

- Track woody species composition and diversity in and around forest openings, with attention to structure and age class.
- Track the presence and abundance of invasive species.
- Track acreage and distribution of forest openings.
- Track hydrology patterns and water quality in lowland forest communities.