



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

Most of the forest openings in the Western Upper Peninsula are considered to be in fair or good condition (~90%). The remaining areas are considered degraded.

Associated Natural Communities

N/A – no native natural communities

Associated Species of Greatest Conservation Need

INSECTS

incurvate emerald dragonfly (*Somatochlora incurvata*)
large marble (*Euchloe ausonides*)
early hairstreak (*Erora laeta*)
northern blue (*Lycaeides idas nabokovi*)
Henry's elfin (*Callophrys henrici*)
tawny crescent (*Phyciodes batesii*)
hoary comma (*Polygonia gracilis*)
red-disked alpine (*Erebia discoidalis*)
yellow-banded day-sphinx (*Proserpinus flavofasciata*)

AMPHIBIANS

pickerel frog (*Rana palustris*)

REPTILES

blue racer (*Coluber constrictor foxii*)
northern ringneck snake (*Diadophis punctatus edwardsii*)
eastern hognose snake (*Heterodon platirhinos*)
smooth green snake (*Liochlorophis vernalis*)
Blanding's turtle (*Emydoidea blandingii*)
wood turtle (*Glyptemys insculpta*)

BIRDS

Spruce Grouse (*Falcapennis canadensis*)
Cooper's Hawk (*Accipiter cooperii*)

BIRDS cont.

Northern Goshawk (*Accipiter gentilis*)
Merlin (*Falco columbarius*)
Upland Sandpiper (*Bartramia longicauda*)
American Woodcock (*Scolopax minor*)
Whip-poor-will (*Caprimulgus vociferus*)
Long-eared Owl (*Asio otus*)
Black-backed Woodpecker (*Picoides arcticus*)
Northern Flicker (*Colaptes auratus*)
Ruby-crowned Kinglet (*Regulus calendula*)
Golden-winged Warbler (*Vermivora chrysoptera*)
Kirtland's Warbler (*Dendroica kirtlandii*)
Palm Warbler (*Dendroica palmarum*)
Connecticut Warbler (*Oporornis agilis*)
Eastern Towhee (*Pipilo erythrophthalmus*)
Vesper Sparrow (*Poocetes gramineus*)
Red Crossbill (*Loxia curvirostra*)

MAMMALS

arctic shrew (*Sorex arcticus*)
pygmy shrew (*Sorex hoyi*)
hoary bat (*Lasiurus cinereus*)
northern bat or northern myotis (*Myotis septentrionalis*)
moose (*Alces alces*)
least chipmunk (*Tamias minimus*)
southern bog lemming (*Synaptomys cooperi*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: A lack of fire leads to succession from grassland openings to forested features.

HABITAT CONVERSION

- Incompatible natural resource management: Forestry practices that don't incorporate openings into regeneration patterns are a threat.

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices: Forest harvest and cultivation may eliminate existing openings, alter species composition, and fail to create or maintain new openings.

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Invasive species alter plant composition within openings.

EDUCATION

- Lack of scientific knowledge: There is a lack of knowledge as to the value of forest openings and relationships of size and composition may be related to quality for wildlife. Some managers may avoid creating and maintaining openings for fear they will act as corridors for invasive species like the brown-headed cowbird (*Molothrus ater*).

MICHIGAN'S WILDLIFE ACTION PLAN
TERRESTRIAL SYSTEMS: WESTERN UPPER PENINSULA

Conservation Actions Needed [Threats addressed]

LAND, WATER, & SPECIES MANAGEMENT

- Manage to approximate natural disturbance regimes using prescribed fire to create and maintain forest openings. [Altered fire regime]
- Develop and implement plans for invasive species control and prevention. [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]
- Develop and implement best management practices which address the needs and values of wildlife. [Forestry practices]

Research and Survey Needs

- Identify those characteristics that contribute to the value of forest openings for wildlife. Quantify the influence of opening characteristics on overall value to wildlife. Determine the role of forest openings in facilitating range expansion of invasive species.
- 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 value to wildlife?
- A better understanding is needed of the temporal and spatial distribution of disturbance and its influence. 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 the value to wildlife of natural openings and artificial openings. Quantify these differences.
- 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 value to wildlife? Does the feature type or species composition of the surrounding matrix have a significant effect on its value to wildlife?
- Determine whether forest openings function as sinks. 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?
- Determine the role of forest openings in facilitating range expansion of invasive species.
- Determine indicators of high quality forest openings.

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.
- Track indicators of high quality forest openings.