PROPERTY PLANNING COMMON ELEMENTS

COMPONENTS OF MASTER PLANS

HABITATS AND THEIR MANAGEMENT

Jack Pine

Description

This forest type is comprised of >50% basal area in jack pine, and typically occurs on nutrient-poor sites with excessively drained sandy or rocky soils. The dominant canopy associates formerly were northern pin oak and sometimes red pine. Occasional canopy associates could include white birch, trembling aspen, big-tooth aspen, white pine, white oak, bur oak, black oak, red maple, balsam fir, black spruce, and black cherry. Historically, periodic fire was the primary disturbance regime. Fire frequency and severity were variable, but many sites experienced stand-replacing fires at frequencies of less than a century. In other sites, fires were more frequent but of lower intensity. Jack pine was often dominant in areas with burn intervals of one to several decades. In areas with burn intervals of 50 to 100 years or longer, red pine could become dominant. Large acreages of this forest type were cut, burned, and converted to other land uses during the widespread heavy logging and attempted agriculture that followed Euro-American settlement in the late 19th and early 20th centuries. Much of this land was later abandoned and then colonized by paper birch and/or trembling aspen or converted to pine plantations starting in the 1920s.

Today's jack pine forests have fewer conifer associates and a greater extent of aspen, red maple, and oaks compared to historic conditions. Common understory shrubs include hazelnuts, early low blueberry, and blackberries/raspberries (*Rubus* spp.). Common herbs include bracken fern, starflower, barren-strawberry, cow-wheat, trailing arbutus, and members of the shinleaf family. Many jack pine stands are dense and even-aged, originating from a major disturbance such as logging or fire. However, modern fire suppression practices have greatly diminished conditions for successful jack pine regeneration and this, combined with high harvest removals, high natural mortality (from insects, wind, disease, etc.), and conversion to other species such as red pine, has resulted in a statewide decline in the jack pine cover type.

Ecological Landscape Opportunities

Ecological Landscape	Opportunity*
Northeast Sands	M
Northwest Sands	M
Central Sand Plains	I
Northern Highland	I
Northern Lake Michigan Coastal	I
Superior Coastal Plain	I
Central Sand Hills	P
North Central Forest	P
Northwest Lowlands	P

*M = Major: major opportunity exists in this Landscape; many significant occurrences are recorded or restorations likely to be successful.

I = Important: several occurrences important to maintaining the community in the state occur in this Landscape.
P = Present: community is present in the Landscape, but better opportunities exist elsewhere.

Rare Species

Many Species of Greatest Conservation Need (SGCN) are associated with jack pine forest based on the findings in Wisconsin's 2015 Wildlife Action Plan. To learn more, visit the Northern Forest communities page and click on "Northern Dry Forest".

Threats

- Jack pine forest is a fire-dependent community that is threated by lack of fire. Historically, fire was important not only for regenerating jack pine but for creating a range of age classes and structural conditions that supported a diversity of plants and animals. The current lack of age and structural diversity not only reduces habitat for wildlife but also makes jack pine more susceptible to pests such as jack pine budworm.
- Jack pine forests are threatened by non-native invasive species such as black locust, leafy spurge, and spotted knapweed.
- Conversion of natural jack pine stands to red pine plantations threatens this forest type.
- In the absence of disturbance, jack pine stands can succeed to more tolerant tree species.
- Fragmentation, especially by roads and residential development, is a threat to jack pine in certain parts of the state.
- Climate change may pose a threat to jack pine. The species is at the southern end of its range in Wisconsin and the more frequent drought conditions and increases in pests and diseases associated with substantial warming may render jack pine less able to persist and regenerate.

Management Techniques

- Clearcut
- Overstory removal
- Seed Tree
- Shelterwood
- Direct seeding and planting
- Prescribed fire
- Site preparation
- Intermediate treatments
- Pesticide treatments

Management Considerations

- Wherever possible, manage jack pine as part of a complex of related communities (e.g., pine barrens, lowland conifers, etc.), striving for a shifting mosaic of successional stages and structures.
- Manage for larger blocks of jack pine whenever possible to reduce fragmentation.
- A variety of techniques can be used to naturally regenerate jack pine. The clearcut method is often used in combination with site preparation techniques (scarification) to prepare a seed bed. The seed tree method generally is used in stands with serotinous cones, coupled with prescribed fire to open cones and prepare the seed bed. The shelterwood method is used in stands with non-serotinous cones in combination with scarification to expose mineral soil. Pre- or post-sale mechanical scarification or prescribed fire are critical elements to prepare a suitable seed bed and ensure successful regeneration.
- Tree planting and direct seeding are commonly utilized methods to establish jack pine regeneration, depending on site conditions.
- When planning site preparation, consider the least invasive techniques initially in order to minimize impacts to ground flora and rare species.
- Manage for a diversity of age classes, particularly the younger classes, which are currently underrepresented.
- Provide some openings, ideally in areas exhibiting higher herbaceous plant diversity.