



Jack Pine Communities of the Great Lakes Region

A mixture of pines and other tree species is found in the forests of the Great Lake states. Red, white, and jack pine grow among paper birch and aspen. Grasses, forbs, and shrubs such as big bluestem, little bluestem, raspberry, blueberry, and huckleberry grow under the trees of these communities. The communities of the Great Lakes states have suffered many disturbances since European settlement, making it difficult to determine the "natural" state of these ecosystems.

Jack pines are small trees, rarely exceeding 80 feet (about 24 meters) in height. They occur in poor soils, usually in open "pine barrens," and often form savannahs when grasses are present on the thin soils. Fires occur in jack pine stands approximately every 125 to 180 years.

Jack pine is well-adapted to fire. Serotinous cones, which have a waxy outer coating to protect the seeds, remain on the tree rather than dropping to the forest floor. Seeds can remain viable on the tree for 20 years or longer. When a fire occurs, the thick cone protects the jack pine seed from the intense heat. Jack pine seeds have been known to still be viable after exposure to heat at 1000 degrees Fahrenheit. That heat, however, opens the scales of the cone and releases the seed onto the ground where the fire has removed much of the existing vegetation and litter. Jack pine seeds require contact with mineral soil to germinate, so fire serves to prepare the seedbed, reduce competition from other plants, and release the jack pine seed. In addition, the short stature of jack pines makes crown fires a high likelihood; these very crown fires are necessary to release the seeds from dormancy.

When fire is withheld from jack pine stands, they are replaced by other boreal tree species, such as balsam fir, white spruce, and the hardwoods that occur in this ecosystem. Prescribed fire is used in jack pine stands in central Michigan in order to maintain habitat for the rare Kirtland's warbler, which requires young jack pine stands for nesting.

(from http://www.nifc.gov/preved/comm_guide/wildfire/fire_6.html)

Jack Pine: Great Lakes States

In the forests of the Great Lake States, a mixture of pine and other tree species is found. Red, white and jack pine grow among paper birch, aspen and hazel. Grass, forbs and shrubs such as big bluestem, little bluestem, raspberry, blueberry and huckleberry also inhabit the community. The forests of the Great Lake States, like those of the Northwest, have suffered many disturbances throughout recent history, making it difficult to determine the "natural" state of the ecosystem.

Jack pine has a unique relationship with fire. Unlike many other tree species, jack pine does not drop all of its seeds as they ripen. The majority of the seeds remain in closed cones that stay on the branches for many years. When a fire occurs, the thick

cone protects the jack pine seeds from the intense heat. That heat opens the scales of the cone and releases the seed onto the ground where the fire has removed much of the existing vegetation, preparing the site for the new seedlings. Fire prepares a seedbed, reduces competition from other plants and releases the jack pine seed.

Prescribed fire also is used to reduce fuel levels and prepare sites for seeding. The timing of the burning is tied to the life cycle of the pines; fall is the season of choice for burning.

Fire, as we can see, plays a significant role in ecosystems across the country. Fire, in a natural or prescribed form, performs functions crucial to the maintenance and health of forest and grassland communities.

(from http://www.nps.gov/fire/educational/edu_tea_firefacts13.html)