

Red Oak

Project Subject/Title: McGrath Lake Rx Burn-NHAL

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Abstract:

A 41 acre oak stand in the Northern Highland American Legion State Forest was selected for site preparation treatment (shelterwood and prescribed burn). First, a harvest of all white birch and aspen sapling size and larger, along with some marked oak was conducted. Residual basal area was 40 square feet per acre. Prior to the burn there was advanced oak regeneration throughout the stand. There was heavy competition on the oak from aspen saplings that were over 5 feet tall. Up to ten acres of the stand was burned and the remaining acres left as a control. The burn occurred on April 21, 1996. The burn objectives were to top kill hazel by 75%, and to reduce aspen sprouts by 50%. The site was monitored establishing ten plots (1/1000 acre) throughout the stand. All tree species were counted on the plots. The plots were monitored for two years and then in 2003 and 2014.

Trial Location:

County: Oneida

Township: 38N **Range:** 07E **Section:** 08,17

GPS Coordinates: Lat: 45°47'29" **Long:** -89°39'9.72"

Property Name: Northern Highland American Legion State Forest

Baseline Stand Data

- *Cover Type:* Oak
- *Acres:* 41 acres, only ~10 acres burned
- *Habitat Type:*
- *Soil Type:* Keenwenaw-Vilas complex 1-6% slopes
- *Year of Origin:*
- *Total Height:*
- *Site Index Species and Site Index:*
- *Mean Stand Diameter:*
- *Total Basal Area per Acre:* 40
- *Other stand Condition:*

Prescription and Methods:

- *Type of Prescription:* Prescribed Burn
- *Year Initiated:* 1996
- *Establishment Methods:*

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Prior to the burn, all white birch and aspen was removed including sapling residuals and some marked oak. This brought the basal area of the stand down to 40 square feet per acre. A prescribed burn was conducted in April of 1996. The relative humidity was 46 and the wind was out of the southwest at 2-4 mph.

- *Data Collection Methods:*

In the first two years following the burn, the site was monitored by establishing ten (1/1000) acre regeneration plots throughout the stand. They were monitored in 2003 and then again in 2014. A visual exam of the stand was also taken.

Results:

The summary after six years showed that there was 67% less pine, 20% less oak, 225% more red maple, 167% more hard maple, 75% less birch, and 96% less aspen on the burn site. The oak regeneration out-competed other hardwood and established the best where there was no overstory. Aspen and rubus were effectively eliminated by the burn. The burn also eliminated white pine and white birch in the area.

When the site was revisited in 2014, oak was the most numerous regenerating species measured at 3,500 stems/acre. The next two species that were well represented were red maple at 2,400 stems/acre and white birch at 1,500 stems/acre. Red maple and white birch were the most vigorous species regenerating.

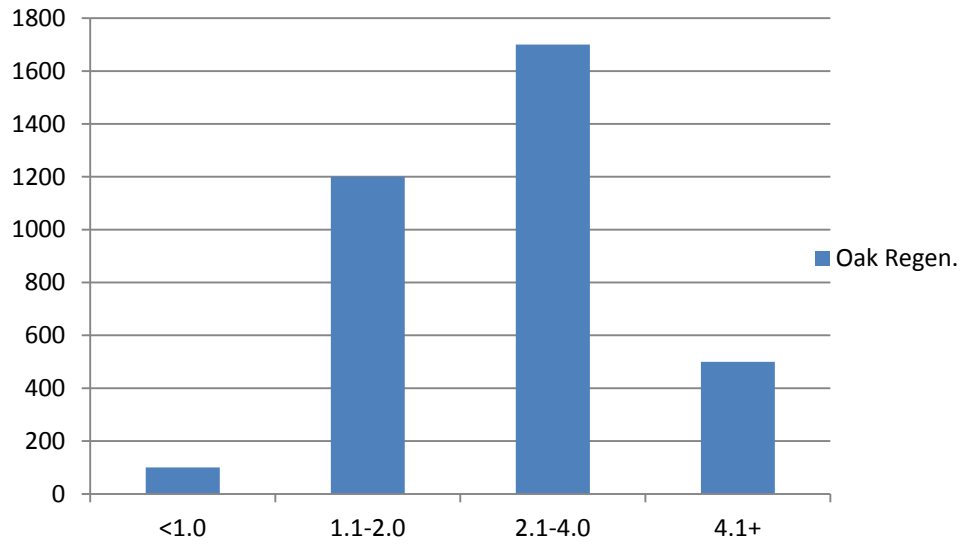
Discussion/Recommendations:

Despite there being adequate oak regeneration potential, red maple and white birch were out-competing the oak in areas where the species were mixed together. Fire did a good job of reducing the aspen competition, as there were none that were found in, or adjacent to the plots. The amount of deer browse on the regenerating oak could severely impact the success of the oak getting into the overstory. A larger regenerating stand could help overwhelm the deer and therefore help reduce the overall percentage of browse on the oak regeneration.

Following are charts for both total regeneration by species and red oak only.

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2014 Oak Regen.



2014 Regeneration

