

Silviculture Trial Template

Project Subject/Title: Red Pine Shelterwood

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Abstract: Regenerate red pine through the shelterwood method and sustain natural red pine stands in Vilas County. A recon visit in 2012 found a 2-aged stand consisting of overstory red pine and understory mixed hardwood. Stand conditions were created by aggressive past thinnings, where all mixed hardwood trees were cut and residual red pine stocking was not maintained high enough to control understory development of mixed hardwood saplings.

Two trial methods were used on Compartment 18 Stand 50 to establish red pine regeneration by seed and control advanced understory regeneration. Trail 1 was a 2013 mechanical fecon project that setback understory competition, but was not successful in establishing red pine seedlings. Trail 2 was a 2017 herbicide/anchor chain project that was successful in controlling understory competition and establishing red pine seedlings.

Trial Location: Nearest Forest Road – Decker Lake Fire Lane.

County: Vilas

Township: 41N **Range:** 9E **Section:** 15 and 16

GPS Coordinates: Lat: N/A Long: N/A

Property Name: Vilas County Forest

Site Map: *3-13 Buckatabon Springs Shelterwood*

Baseline Stand Data: Presale Stand Data

WisFIRS Property Code: 6400

Compartment/Stand number: 18/50

Primary Type: PR 15+^3

Secondary Type: PR 9-15^1

Age: 109

Acres: 14

Soil Type: Rubicon Sand and Karlin.

Habitat Type: PArV

Presale Stocking: 126 sq.ft./acre

Residual Stocking: 89 sq.ft./acre

Prescription and Methods: Trial 1, 2013 Fecon Site Prep – Mechanically cut non-merchantable tree/shrub competition within the project area in preparation for natural or artificial regeneration of red pine. Use a forestry mulcher/mower or other mechanical means to cut all non-merchantable trees/shrubs with a diameter of 4 inches or less. Cut, grind or mulch all 1-4 inch stumps to ground level. Note: Stand stocking level was BA 126 sq.ft./acre.

A Follow up treatment of herbicides and anchor chain was necessary in 2017 to promote natural regeneration of red pine. Herbicides controled competition and the anchor chain scarified the site, exposing bare minieral soil.

Trial 2, 2017 Herbicide and Anchor chain – A ground broadcast spray application of herbicides using the following chemicals and rates: 1.5 quarts Accord XRT/acre, 16 ounces of Chopper Gen II/acre and 1 ounce Oust XP/acre. Herbicide target species – Rubus spp., Populus spp., Acer rubrum,, and all grass/sedge species. Fall anchor chain scarification following August herbicide treatment. Equipment – 540B John Deere Skidder and Anchor Chain. Two passes were made over the project area. This treatment was made after a shelterwood harvest was completed in 2016. The treatment reduced stand stocking from BA 126 sq.ft./acre to 89 sq.ft./acre.

Note: Effective seed dispersal is about 40 feet from the parent tree for red pine. Satisfactory seed germination occurs with 65% crown closure and maximizing seedling growth and development can be achieved with as little as 45% full sunlight for the first five years. Using the average crown area of 618 sq.ft./tree, average dbh of 21 inches, and a targeted crown closure of 60%, leave trees were marked in green paint and spaced approximately 33 feet apart. Using a densitometer, measured crown closure was 59%.

Results: Survivial/acre, 2016 – MR 2270, OR 525, PW 15, Fern competition 1000/ac.
Survival/acre, 2018 – PR 118, PW 310, MR 107, OR 11.
Survival/acre, 2019 – PR 790, PW 40, MR 1080, F 50, SW 20, BW 20.

Discussion/Recommendations: Red pine can be regenerated from seed through the shelterwood method. Key factors are crown closure, bare mineral soil, and understory competition control. As soon as red pine seedlings are established the overstory needs to come off to reduce the risk of pathogens such as, diplodia.

Vilas County Forestry Department

Planting and Cultural Report

Project Number: 3-13 - Buckatabon Springs PR Shelterwood

Acres - 14

Legal Description: NWNW Section 15 & NENE Section 16, T41N, R9E.
 Compartment/Stand Number: 18/5
 Soil Type: Rubicon Sand and Karlin Loamy Fine Sand
 Habitat Type: PARV

Date:	Cultural Practices:	Acres:	Cost/Acre:	Total Cost:
10-13	Mechanical Site Prep/Brush Release:	14	\$285.71	\$4,000.00
8-17	Ground Broadcast Herbicide Application: Chopper Gen II - 16 oz/acre; Oust XP 1 oz/acre and Accord XRT 1.5 qts/acre	14	\$98.00	\$1,372.00
8-17	Anchor Chain - Operator: \$ 89.61 /ac Skidder/Bracke/Anchor Chain - Transportation: \$94.93 /ac - \$8.52 /ac	14	\$193.06	\$2,702.84

2013 Fecon Site Prep: Mechanically cut non-merchantable tree/shrub competition within the project area in preparation for natural or artificial regeneration of red pine. Use a forestry mulcher/mower or other mechanical means to cut all non-merchantable trees/shrubs with a diameter of 4 inches or less. Cut, grind or mulch all 1 - 4 inch stumps to ground level.
 6-16-16 Survival/acre - MR 2270, OR 525, PW 15, Fern Competition 1000.

2017 Site Prep: Site Preparation Broadcast Herbicide Application: A ground broadcast spray application of herbicides using the following chemicals and rates:
 1.5 quarts Accord XRT/acre, 16 ounces Chopper Gen II/acre and 1 ounce Oust XP/acre.
 Fall 2017 - Anchor Chain scarification. Herbicide target species are Rubus spp., Populus spp., Acer rubrum, and all grass/sedge species.
 Spray 50 feet away from ponds. Do not spray trails.

540B Skidder and Anchor Chain; 2 passes were made over the forest floor, exposing bare mineral soil.

7-3-18 Survival/acre - PR 118, PW 310, MR 107, OR 11.
 2019 Survival/acre - PR 790, PW 40, MR 1080, F 50, SW 20, BW 20.

