2019

Silviculture Field Report

FORESTRY FUTURES TRUST ONTARIO

INTRODUCTION

The Forestry Futures Trust (FFT) has distributed over $200 million in support of eligible silviculture projects on Ontario's Crown forest lands since its establishment in 1995. Although Forestry Futures Trust Committee (FFTC) members have visited a number of the projects from inception through to completion on an ad-hoc basis, there has been no formal field evaluation. In 2013, a structured field inspection plan was designed to:

- Document the success or failure of a funded project
- Provide an opportunity to discuss challenges encountered in completing the project with the proponent or forest manager
- Identify lessons learned from implementing the planned treatments
- Evaluate opportunities to implement similar projects under similar conditions
- Produce a summary report of FFTC-funded silviculture project accomplishments

Project site selection was focus-based, not random, in order to meet the following requirements:

- Address projects where project objectives are linked to concerns raised in an Independent Forest Audit
- Capture projects funded under the Job Stimulus Program (Round 29)
- Capture older projects (visit the early projects from the 1990s and 2000s)
- Represent the three Ministry of Natural Resources and Forestry Regions (NW, NE, S)
- Inspect projects that received large investments of capital
- Represent three broad treatment types: disturbance renewal, spacing treatments, and stand conversions.

This year, the program targeted field visits to 10 projects across four forest management units in Central Ontario. The original project applicants and/or current forest managers were contacted to participate in the field visits and to provide background information to supplement the information documented in the FFT Final Project Work Reports. Shelley Vescio, R.P.F., and Peter Street, R.P.F., carried out the site visits on behalf of the FFTC. Peter compiled the report while Shelley and Anastasia Frisby, Provisional R.P.F., provided editorial review. Thanks are extended to the following foresters who contributed background documentation and logistical support for this review:

Nipissing Forest:	Andy Straughan, R.P.F.
Sudbury Forest:	Doug Maki, R.P.F.
Northshore Forest:	William well-stocked, R.P.F., Francisco Murphy, R.P.F., Doug Peerla, R.P.F., Will Byman, R.P.F.
Algoma Forest:	Vince Strack, R.P.F.

All of the projects visited were deemed to be successful; follow-up treatments that were required were carried out, sometimes with funding from the SFL's Renewal Trust Fund. Project background and field observations are provided in the following section that is organized by forest management unit.

Nipissing Forest
Pre-Commercial Thinning of Red Pine Plantations
Investment: $479,905 by FFT and $179,643 by Applicant

Project 697-1-R27:

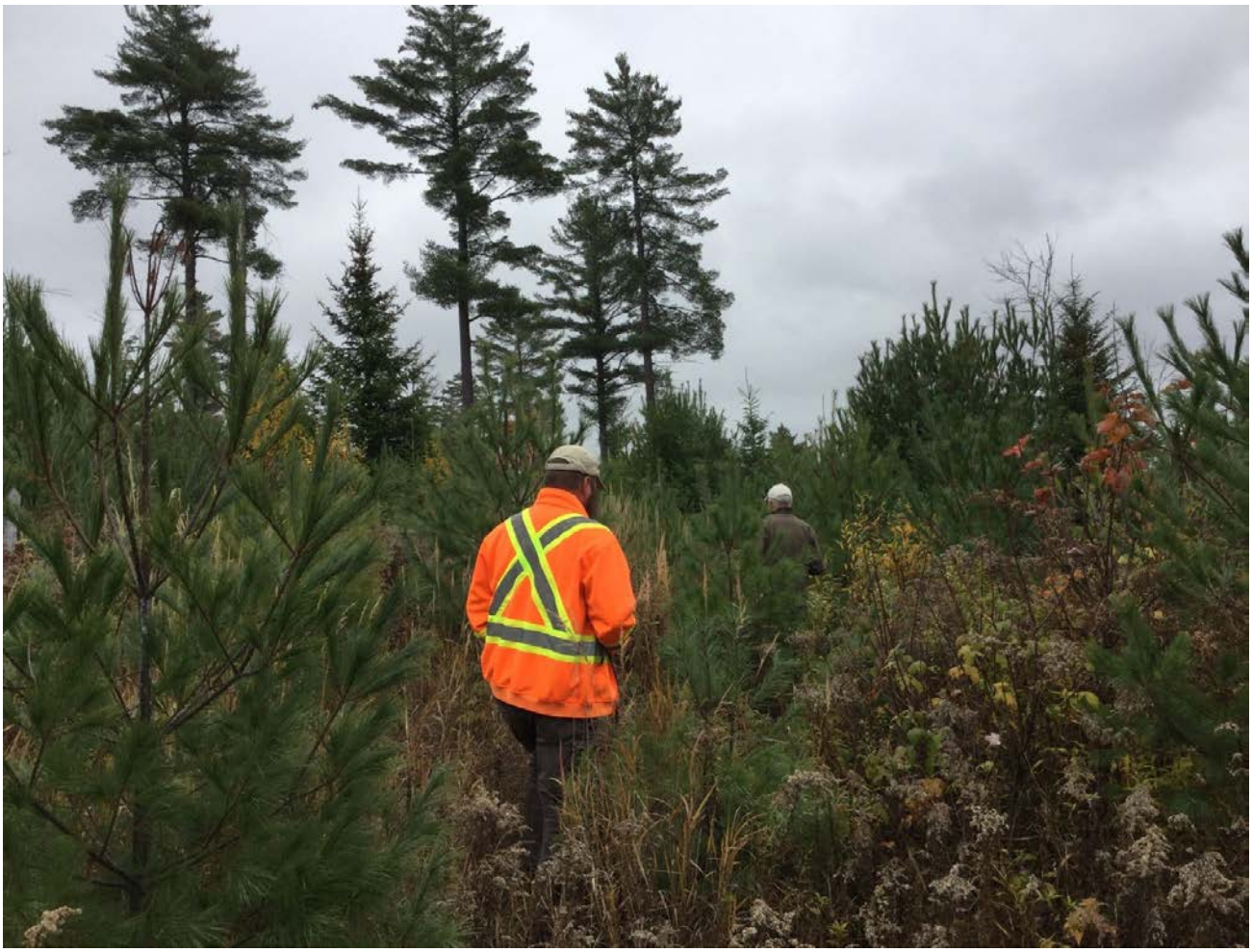
- Thinning of red pine plantations was carried out over a three-year period from 2009 to 2012. A total of 596 hectares were treated by First Nation Contractors.
- Thinned areas were initially tree marked to meet forest operation prescription (FOP) density targets.
- The average number of trees (crop and non-crop) that were removed ranged from 650 to 1,300 and resulted in post-thinned densities of 1,300 to 1,800 crop trees per hectare.
- Approximately 2,262 days of employment were created.
- This site was thinned nine years ago and many of these stands are now slated for a commercial thinning in the 2009 to 2019 Forest Management Plan. Stems have more than tripled in size.

Nipissing Forest
Yellow Birch Restoration
Investment: $986,111 by FFT and $293,486 by Applicant

Project 544-1-R20:

- The objective of this treatment was to create stand conditions suitable for the development of high-quality, tolerant hardwood trees through pre-commercial thinning and stand improvement tending in approximately 30 to 40-year-old polewood stands.
- The project was conducted over a three-year period from 2001 to 2004.
- A total of 2,734 hectares were treated by First Nation Contractors.
- Stands were cruised, a Forest Operation Prescription prepared, and trees marked to remove unacceptable growing stock (UGS) and to provide a one-crown spacing between residual trees. The cleaning and spacing operations were done with power saws.
- Approximately 2,465 days of employment were created.
- The project was successful in removing UGS trees and the spacing operation resulted in an increased growth rate.

Nipissing Forest
Restoration of Pine Shelterwood Due to 2006 Windstorm
Investment: $389,500 by FFT and $178,891 by Applicant



Project 653-2-R25**:**

- Over a three-year period from 2007 to 2010, a total of 358 hectares were planted with 579,442 trees (comprised of 54% white pine, 39% red pine, 5% white spruce, and 2% red/black spruce).
- The project also included 28 hectares of mechanical site preparation and 71 hectares of chemical tending.
- Further treatments were carried out by the Sustainable Forest Licence (SFL) holder using Forest Renewal Trust (FRT) dollars.
- This work included a fill-in plant in 2013 and a second aerial-spray tending project in 2016.
- The site is currently very well stocked and averages 2 to 3 metres in height. It will be considered for an establishment survey in 2020.

Nipissing Forest
Tolerant Hardwood Stand Improvement
Investment: $472,650 by FFT and $915,555 by Applicant

Project 416-1-R14:

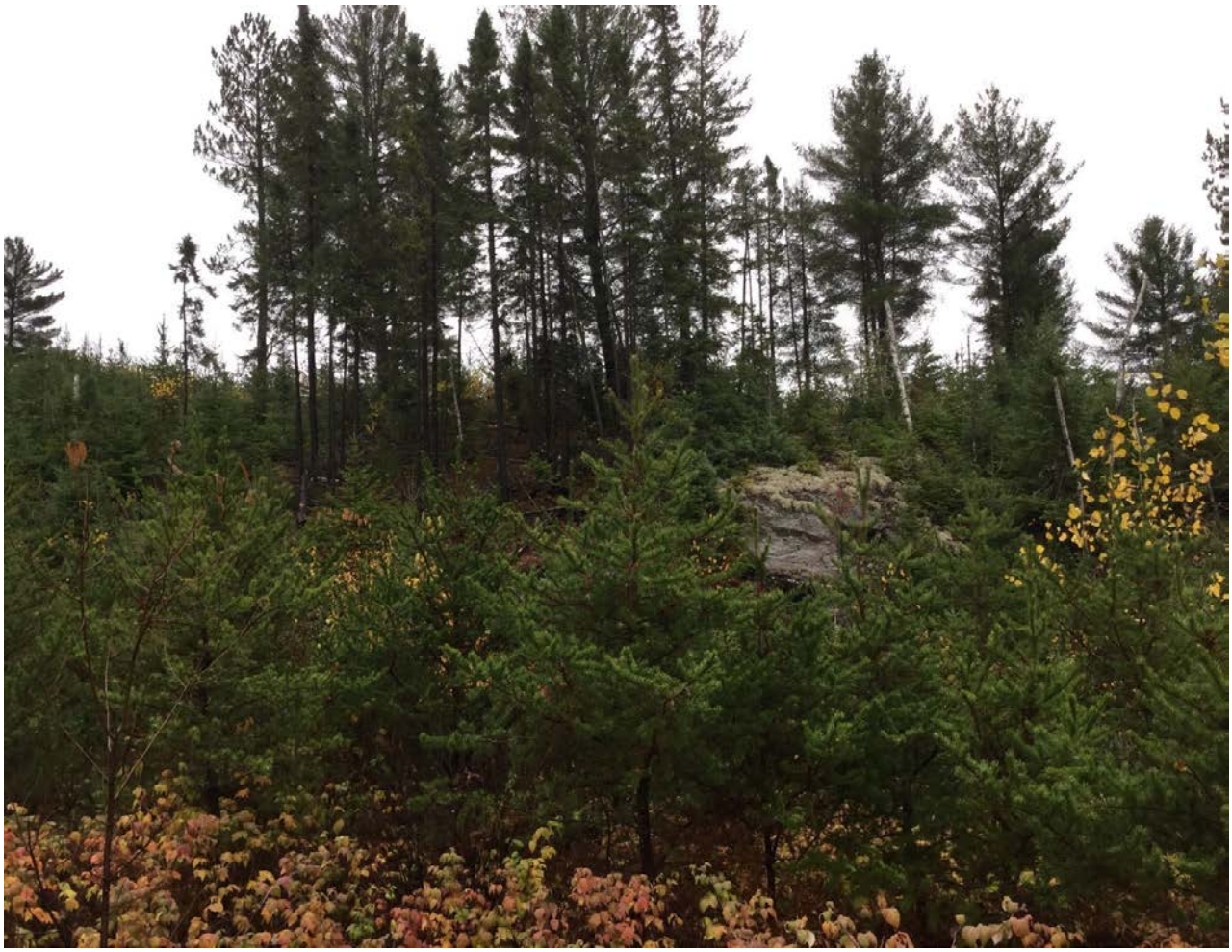
- A total of 4,108 hectares of tolerant hardwood stands were thinned for stand improvement under the selection silvicultural system over a three-year period from 2001 to 2004.
- The stands were cruised, Forest Operation Prescriptions were prepared and trees were marked for removal.
- Thinning was carried out by six aboriginal contractors using power saws and carried out in the winter months to also meet deer management objectives (provide winter browse) in the Loring Deer Yard.
- Approximately 1,180 days of employment were created.
- The project was successful in removing UGS trees and improving the health of the forest.

Sudbury Forest
Red Pine Plantation Thinning
Investment: $572,830 by FFT and $213,246 by Applicant

Project 476-1-R17:

- A total of 1,996 hectares of red pine plantations (and some naturally occurring red pine) were thinned over a three-year period from 2003 to 2006.
- The work was completed by local First Nation Contractors and provided 960 days of employment.
- Spacing targets were prepared using red pine stand density diagrams for each stand and then marked accordingly.
- Chain saws were used to do most of the work. Brush saws were used to a smaller degree but were found to be less efficient.
- Ages of thinned stands ranged from 15 to 35 years old. The trees have responded well to thinning and many of the stands are being allocated for commercial thinning in the 2020 Sudbury Forest Management Plan.

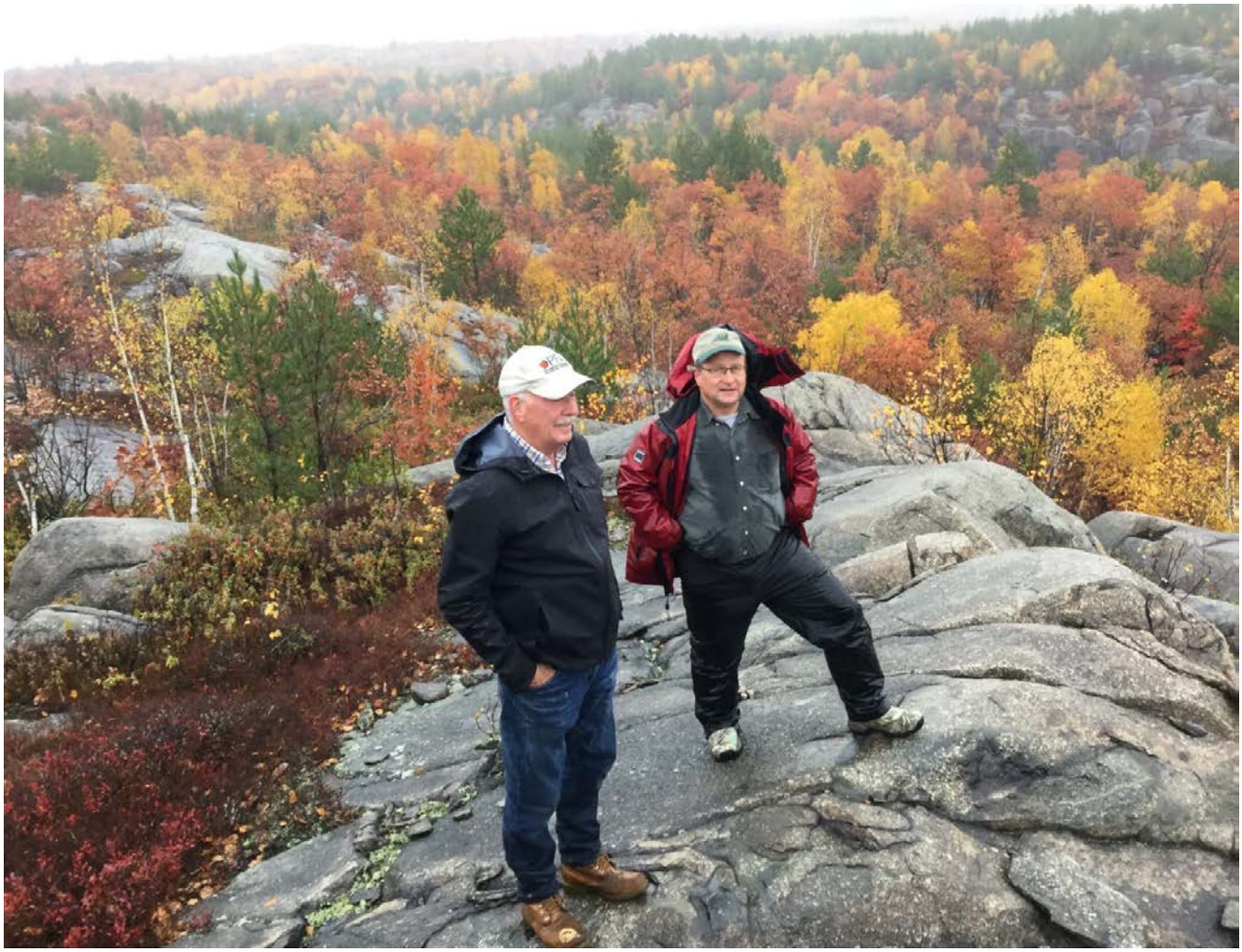
Sudbury Forest
Washagami Spruce Budworm Salvage Renewal
Investment: $138,890 by FFT (Applicant contribution not required in R29)



Project 736-2-R29:

- In 2010, a total of 239 hectares were mechanically site prepared by trenching and planted with 411,358 jack pine seedlings.
- A total of 345 days of employment were generated from those operations.
- The SFL followed up with a 2014 aerial spray (Vision) which was paid through their Forest Renewal Trust fund as a contribution to the project.
- The area has been declared established and described with a stand composition of $Pj_7Sb_1Bw_1Bf_1$, a height of 3 metres and a stocking of 80%.

Sudbury Forest
Sudbury Region Crown Land Reforestation Project
Investment: $743,600 by FFT and $80,030 by Applicant



Project 363-1-R11:

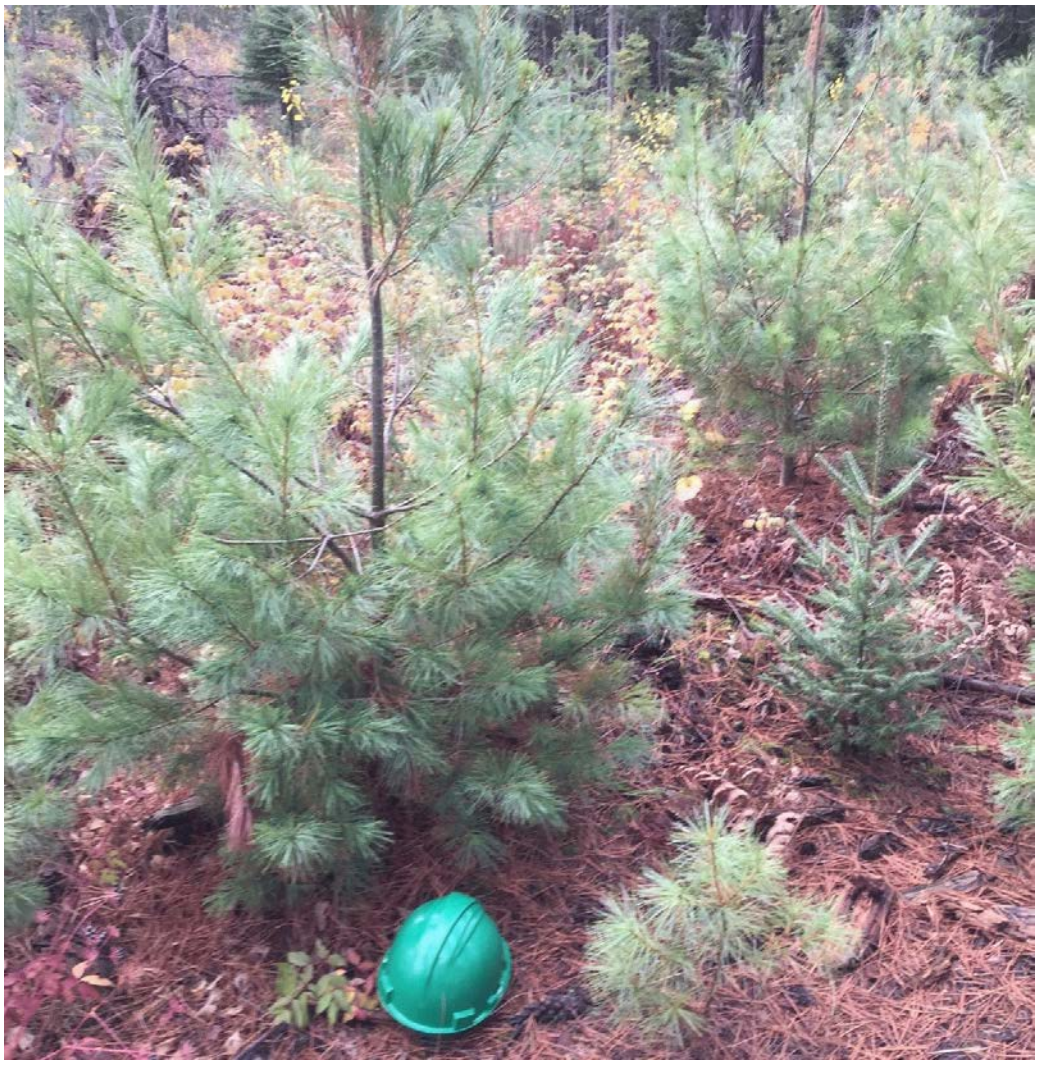
- This three-year project (2000 to 2003) resulted in the planting of 1,560,000 trees on 2,633 hectares of barren Crown land within the boundary of the City of Greater Sudbury.
- Rough ground conditions with large areas of exposed bedrock allowed for the planting of only 590 trees per hectare. Some of the areas had no access and the trees and planters had to be flown in by helicopter.
- Almost 78% of the trees were planted by a First Nations contractor and the balance planted by crews from the City of Greater Sudbury. Forestry Students from Sudbury's Collège Borèal grew 100,000 seedlings for the project and established 38 survival plots in the area.
- In 2003, the Collège reported a 91.9% first-year survival rate, which is remarkable for these harsh sites.

Sudbury Forest
Renewal of Salvage Areas (2006 Blowdown / 2007 Spruce Budworm Salvage)
Investment: $151,700 by FFT and $41,247 by Applicant

Project 675-2-R26:

- This project was a mix of treatments that included mechanical scarification, chemical site preparation, planting and tending.
- Renewal had been initiated on most of the blowdown site in previous years, with this project covering the treatments carried out in 2009.
- A total of 163 hectares were scarified using spiked anchor chains, 34 hectares were chemically site prepared using an air blast sprayer (Vantage), 77 hectares were planted to white pine and 31 hectares were planted to red pine.
- The SFL followed up with an aerial spray in 2011 and again in 2016 using funds from their FRT account.
- The stands can be currently described as $Pj_7Sb_1Pr_1Bw_1$, 3.5 metres in height, and 70% stocked.

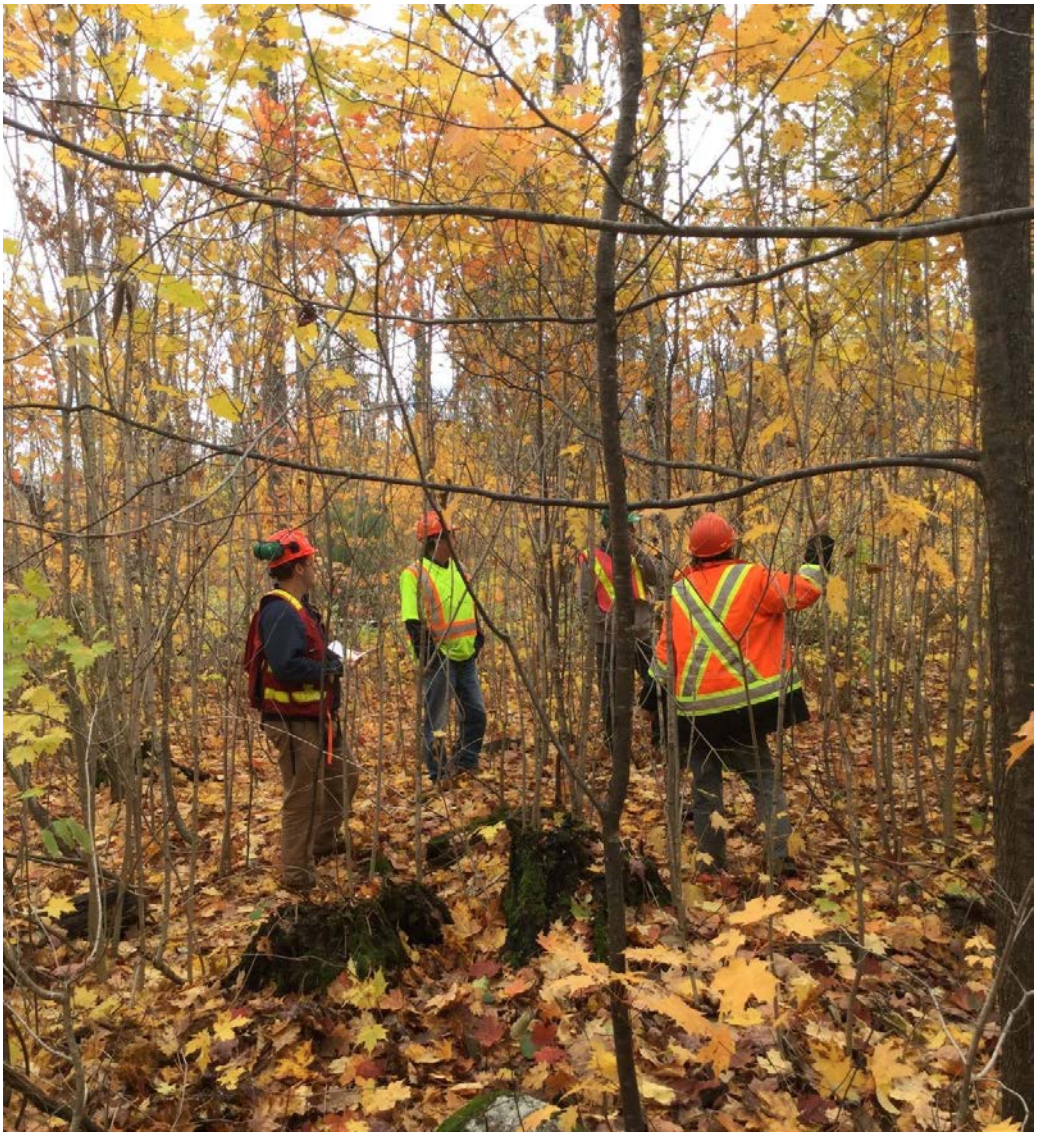
Northshore Forest
White Pine Cleaning
Investment: $93,225 by FFT and $13,439 by Applicant (to date)



Project 937-1-R44:

- This three-year project (2017 to 2013) resulted in the cleaning of 312 hectares of white pine regeneration from competing vegetation.
- Manual tending was carried out using brush saws and undesirable species were removed within one metre of crop trees (white pine, red pine, jack pine, and spruce).
- Undesirable trees were cut about 50 cm from the ground to reduce the risk of sprouting.
- The tending treatment was successful with very little sprouting; white pine regeneration is now over a metre in height and well-stocked.

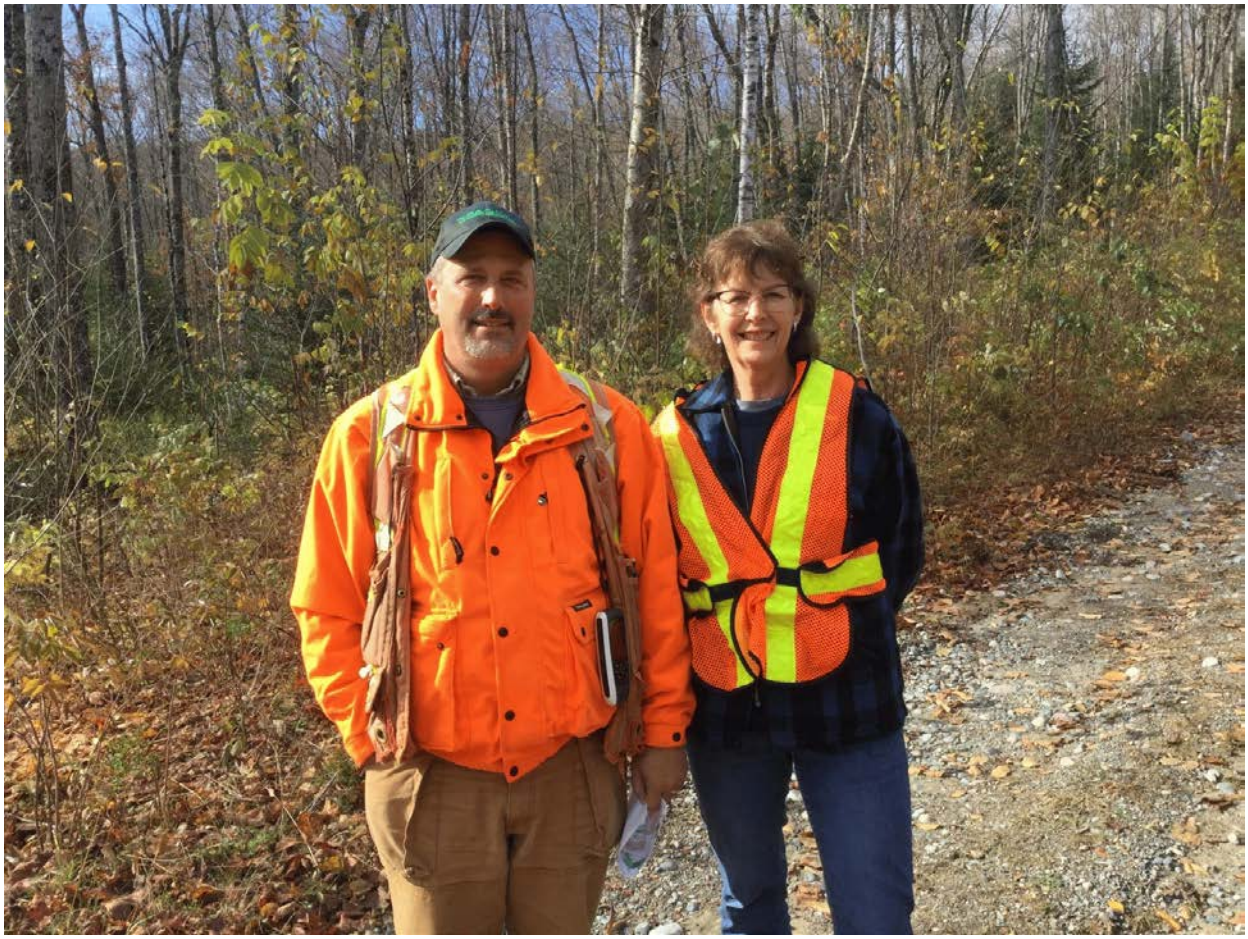
Northshore Forest
Tolerant Hardwood Stand Improvement
Investment: $123,000 by FFT and $46,729 by Applicant



Project 768-1-R30:

- This three-year project (2010 to 2013) resulted in the removal of unmerchantable UGS trees on 1,640 hectares.
- These trees (often diseased and of low quality) were marked for removal and dropped on-site during the regular harvesting of these stands.
- The project was effective in leaving a residual stand structure that is now absent of oversized or undersized trees, thereby, providing long-term benefits of increased stand health, yield and product quality (higher percentage of sawlogs and veneer logs).
- It is expected that the benefit of this treatment will be realized in 25 years or less.

Algoma Forest
Tolerant Hardwood Stand Improvement
Investment: $242,250 by FFT and $358,521 by Applicant



Project 672-1-R26:

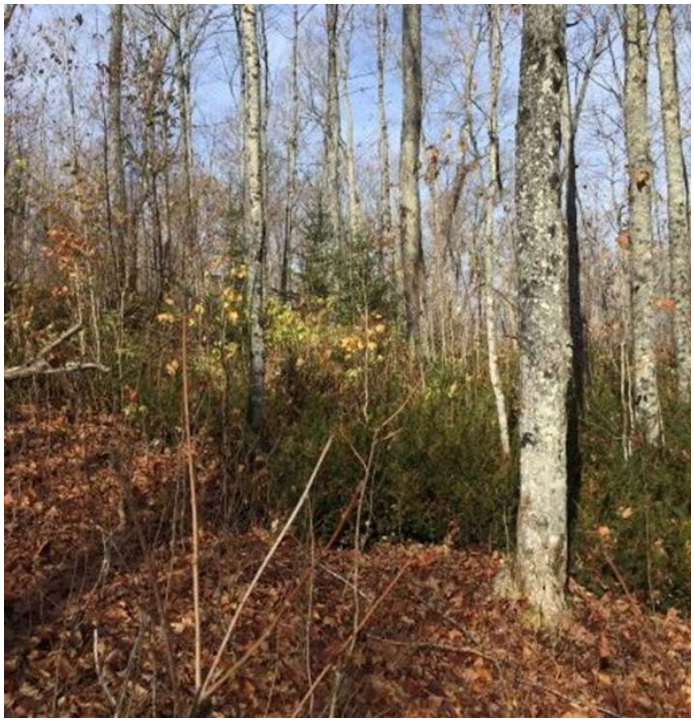
- This large two-year project (2008 to 2010) resulted in the removal of unmerchantable UGS trees on 3,808 hectares.
- All areas were tree marked and local harvesting contractors felled the unmerchantable trees using both cut-and-skid gangs and fully mechanized feller buncher operations.
- This treatment improved the overall health of the stand and maximized the growth of high potential trees.

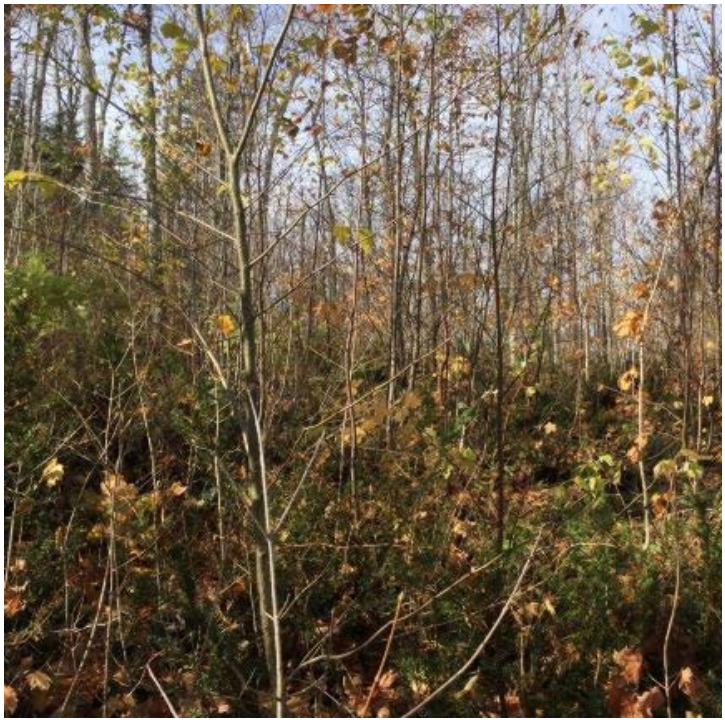
Algoma Forest
Intensive Stand Management on Planted White Pine Stands
Investment: $15,050 by FFT and $5,946 by Applicant

Project 696-1-R27:

- This one-year project (2009) resulted in 43 hectares of white pine being released from competition.
- This white pine shelterwood area was first planted in 1995.
- Local silvicultural contractors and cutters were employed to clean unwanted competition surrounding planted white pine using manual brush saws which resulted in 72 days of employment.
- The project was a success and the released white pine are now over 3 metres in height and free from competition.

Algoma Forest
Tolerant Hardwood Stand Improvement in Selection and Shelterwood Stands
Investment: $756,400 by FFT and $737,058 by Applicant





Project 711-1-R28:

- This three-year project, carried out from 2010 to 2013, resulted in the removal of unmerchantable UGS trees on 10,552 hectares of tolerant hardwood stands using both the shelterwood and selection silvicultural systems.
- All areas were tree marked and local harvesting contractors used careful logging practices to minimize damage to residual stems in order to maximize the value of product yield in future harvest entries.
- Operations were performed using fully mechanized operations with feller-bunchers.
- The photo on the left is of an area being managed under the tolerant hardwood selection system.
- The photo on the right is an area from the same project being managed under the tolerant hardwood shelterwood system.