

## PROPERTY DESCRIPTION

These side-by-side properties have similar histories and are being managed as one large block. The land runs westerly from the Selkirk Road in Queens County, an area that has many remnant stands of our native Acadian forest. Like most woodlands in Prince Edward Island, this forest is a patchwork of stand types with a mixture of origins. Some of the land was once farmed, with a large area of previously-cleared land along the Selkirk Road. Towards the western end, a block of unploughed woodland contains large yellow birch, sugar maple and hemlock.

The formerly-agricultural land for the most part has grown up in white spruce, or been planted in blocks of white spruce, black spruce, white pine, red pine, Scots pine, eastern larch and some non-native firs. The plantations were established from 1972 to 2005. Most of these areas have low biological diversity.

The unploughed land has a diversity of stand types, with a large block dominated by eastern hemlock, another with some extremely large yellow birch, and areas of almost pure beech.

There are also younger mixed stands and areas where the fir is dying out due to being attacked by balsam woolly adelgids (*Adelges piceae*).

The land is slightly rolling and well-drained for the most part and is capable of growing very high quality trees. There is an extensive riparian area within the property, which include several abandoned beaver impoundments and one poorly-drained area that has some of the highest biological diversity on the site. Access is good throughout the property due to the extensive road system already in place, though these need to be maintained.

## OVERALL PLAN FOR THE PROPERTY

While all woodland has its own value, this forest has many attributes that make it deserving of special care and attention.

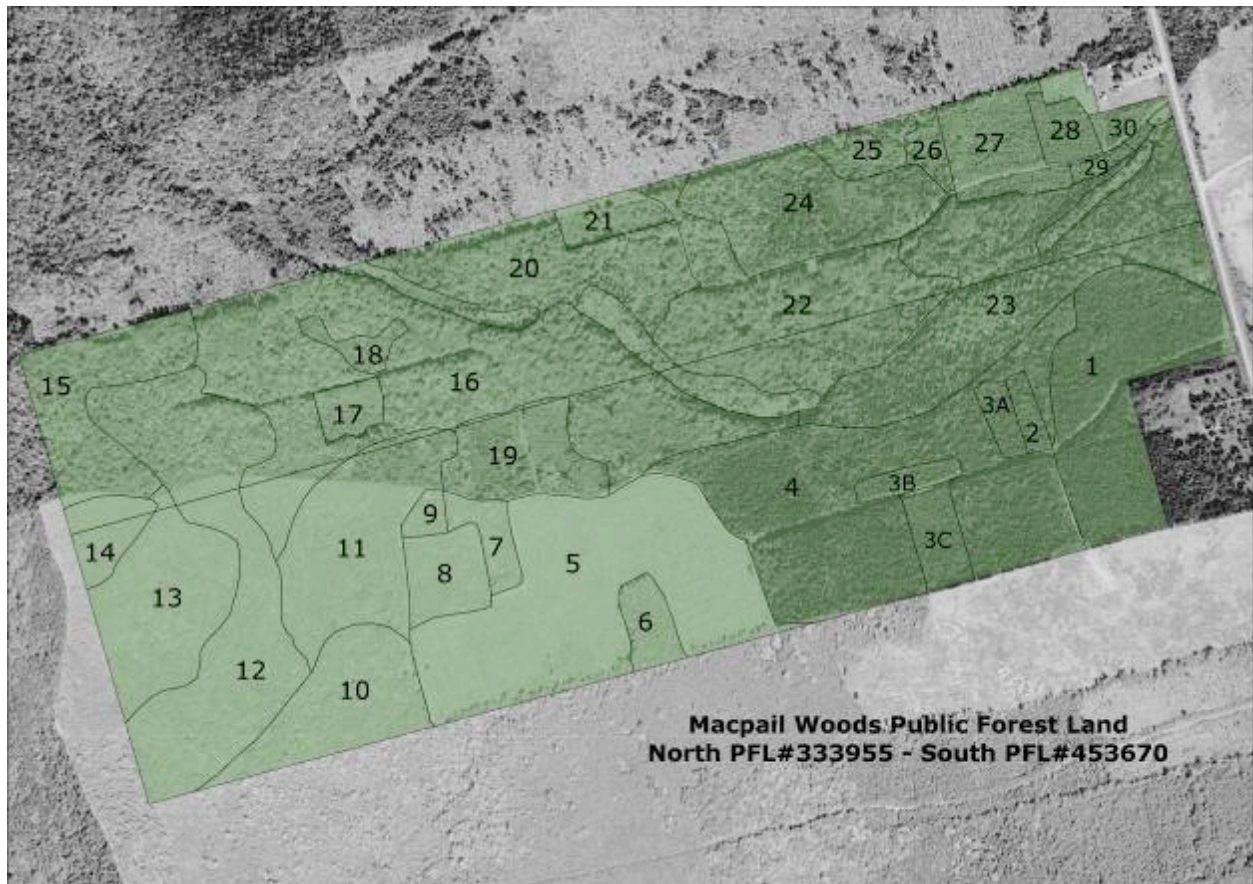
1. There are three species of rare native plants naturally growing on the property – witch hazel (*Hamamelis virginiana*), black ash (*Fraxinus nigra*) and hobblebush (*Viburnum lantanoides*). The first is listed as “**Extremely rare**: May be especially vulnerable to extirpation (typically 5 or fewer occurrences or very few remaining individuals)” by the Atlantic Canada Conservation Data Centre. Hobblebush and black ash have a ranking of “**Rare**: May be vulnerable to extirpation due to rarity or other factors (6 to 20 occurrences or few remaining individuals)”. In addition, there is royal fern (*Osmunda regalis*), which is “**Uncommon**, or found only in a restricted range, even if abundant at some locations (21 to 100 occurrences)”. There are also hundreds of common lady’s slipper, both in the pink and white forms.
2. The woodland is home to a pileated woodpecker (*Dryocopus pileatus*). This is our largest native woodpecker, being about the size of a crow. This rare bird was once thought to be extirpated in the province. There are many signs of feeding on dead balsam firs, and a pileated was heard calling and drumming many times. In late December of 2011, there were sightings of the woodpecker on two different occasions.
3. The large trees on the property are not only attractive to the pileated woodpecker – there is also a barred owl (*Strix varia*) regularly seen and heard within the woodlands.
4. There are some excellent examples of yellow birch, eastern hemlock and beech on the property, in stands or just individual trees. These remnants of the native Acadian forest not only provide excellent habitat for a wide range of wildlife, but also will be important seed sources for this and other properties in the province.
5. The (comparatively) large size of this woodland is important, as it is becoming increasingly rare within the province.
6. The riparian zones, including the beaver impoundments, offer some excellent wildlife habitat to everything from mink to spotted salamanders and newts.
7. The trail on the property makes these areas very accessible and will be used to highlight riparian zone restoration and all things related to water.

This management plan will guide improvements in:

1. the overall health of the forest and riparian zones
2. biological diversity
3. the value of the timber and non-timber forest products
4. public visitation

The work will consist of patch cuts and strip cuts in the plantations, old field white spruce and areas dominated by cankered beech; some selective harvesting; removing the Scots pine plantation and turning it into a wildlife haven; extensive planting throughout the forest; pruning to improve tree quality; adding nest boxes and brush piles for a variety of wildlife; and inviting the public to make use of the property and assist with the planting and trail maintenance work.

## STAND DELINEATION



## STAND TREATMENTS

**Stand #1 (5.08 ha):** This stand is a large block of white spruce directly as you enter the southern section of the property off the Selkirk Road (Highway #23). Although it looks much like a thinned, naturally occurring stand of white spruce, it is actually a plantation from 1972. Some white spruce has seeded in naturally and there are two larger white pine in the stand that are over 25cm in diameter. The stand was cleaned and spaced during the period of 1980-2000. The trees are of good quality, but the stand itself lacks biological diversity and the spruce will start to die over the next decade. There are two white pines within the stand, plus small amounts of white and grey birch, trembling aspen and red maple. There are a few small holes within the stand that have no trees growing, and some plantings have already been done to improve biodiversity. The stand is mostly flat, sloping down towards the northern section, and is well-drained. There is little regeneration on the site. In some areas there are large numbers of chanterelle mushrooms growing, which could be harvested in years when they are plentiful.

**Stand #1 (5.08 ha):**

**Drainage:** medium

**Watercourse:** none

**Ploughed:** yes

**Origin:** old field, plantation

**Dominant and codominant trees:**

#1: white spruce	90% of stand	Age: 40	Diameter: 22.9cm	Ht: 18.2m
#2: white birch	4% of stand	Age: 40	Diameter: 20.2cm	Ht: 18.4m
#3: trembling aspen	2% of stand	Age: 40	Diameter: 24.4cm	Ht: 18.6m

**Tree source:** seed - 10%; planted - 90%; stump sprouts and suckers - 0%

**Maturity class:** immature-mature

**Canopy description:** solid, with a few holes

**Stocking:** fully stocked with spruce

**Tree quality:** medium

**Regeneration:** almost none

**Tree species present:** white spruce, white pine, balsam fir, white birch, grey birch, trembling aspen, large-tooth aspen, red maple, sugar maple, wild apple (spp), eastern hemlock

**Other plants present:** European mountain ash, pin cherry, raspberry, red berried elder, bayberry, blueberry, willow (spp), bluebead lily, common speedwell, whorled wood aster, creeping buttercup, bunchberry, hawkweed (spp), heal all, starflower, wild sarsaparilla, wild strawberry, wood sorrel, wild lily of the valley, Indian pipe, red stem moss, common haircap moss, pillow moss, cinnamon fern, wood fern, old man's beard

**Ground cover:** 30% moss, 5% wildflowers, 60% leaf/needle litter

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, American crow, blue jay, red squirrel, eastern chipmunk, snowshoe hare tracks, ruffed grouse tracks

**Treatment:**

1. Enlarge openings and make patch cuts to create six openings on either side of the road, spaced throughout the stand. These should be roughly 15-20m in diameter and will be planted with a mixture of long-lived, high-value trees, as well as shrubs to attract wildlife. Plant yellow birch, red oak, white ash, sugar maple, white pine and hemlock. Individual red spruce can be added to the centre of a few of the holes. They are very susceptible to spruce budworm falling down from older trees.
2. Selectively harvest the larger white spruce as they start to decline.
3. Create brush piles throughout the stand with the spruce limbs, to improve wildlife habitat and to start diversifying the forest floor.
4. Prune any potentially high-value white birch, sugar maple and red maple, whether the trees are large or small.
5. Continue underplanting a mix of shade-tolerant plants, such as yellow birch, hemlock, witch hazel, alternate-leaf dogwood, highbush cranberry, Christmas fern, royal fern and crested wood fern throughout the area.

**Stand #2 (0.33 ha):** A Scots pine plantation from 1972 on the northern side of the road. The stand is growing very poorly and the trees are of low quality, both in form and in potential value of the wood. As these trees have been dying out, there has been some infilling of white birch, trembling aspen, white spruce and balsam fir from the neighbouring stands. The Scots pine are starting to seed into other areas of the property, which is not what we want to see happen. This is one instance where all the trees should be cut or girdled. The young trees should be pulled and this will have to be done repeatedly until the seed load in the ground is lowered. We will then turn the area into a wildlife haven, planting a large number of food-bearing plants that will attract winter birds especially, as well as wildlife throughout the year. An earlier survey noted that the stand contained at least 1,000 pinesap (*Monotropa hypopithys*). Extraction of wood should be done with this species in mind, so possibly very early in the spring, late in the fall, or during the winter on frozen ground.

**Stand #2 (0.33 ha)**

**Drainage:** good

**Watercourse:** none

**Ploughed:** yes

**Origin:** field, plantation

**Dominant and codominant trees:**

#1: Scots pine	90 % of stand	Age: 40	Diameter: 19cm	Ht: 14.5m
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#2: white spruce	5% of stand	Age: 40	Diameter: 18.2cm	Ht: 13.9m
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#3: trembling aspen	5% of stand	Age: 40	Diameter: 19.2cm	Ht: 13.9m
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**Tree source:** seed - 10%, planted - 90%, stump sprouts - %, root suckers - %

**Maturity class:** Scots pine are starting to die out

**Canopy description:** very patchy

**Stocking:** low

**Tree quality:** poor

**Regeneration:** medium

**Tree species present:** white spruce, white pine, balsam fir, white birch, grey birch, red maple, wild apple (spp), eastern hemlock

**Other plants present:** European mountain ash, pin cherry, speckled alder, raspberry, red berried elder, willow (spp), bayberry, heal all, starflower, wild sarsaparilla, wild strawberry, goldenrod (spp) wood sorrel, whorled wood aster, wild lily of the valley, pinesap, Indian pipe, wood fern, old man's beard

**Ground cover:** 30% moss, 5% wildflowers, 30% leaf/needle litter, 5% ferns, 20% grasses

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, woodpecker (downy or hairy), red squirrel, red fox tracks, snowshoe hare tracks

**Treatment:**

Normally it doesn't make sense to remove an entire stand of anything, as even undesirable trees can produce shade, build soil and shelter new plantings. But the Scots pine are starting to invade

into other areas and have to be removed to reduce the source of seeds. So we will turn this area into a wildlife haven, a place where fruit-bearing plants can get all the sun necessary to produce large crops on a regular basis. This is the one instance where we will actually prevent trees from growing in a forest. If these plantings become overgrown with trees, there will be a drastic reduction in fruit production. The finished area will look something like this: until they fall down, there will be some snags for cavity-nesting birds and small mammals (everything from northern flickers to flying squirrels), and after that we can erect nest boxes on posts; large numbers of fruit-bearing plants to attract American robins, cedar and bohemian waxwings, pine grosbeaks and many other species of birds and small mammals; and some smaller eastern white cedar and eastern hemlock that will be allowed to grow up to 2m and then kept pruned for winter protection and as a place where smaller birds can escape predators.

1. Girdle 10-15 of the largest Scots pine that look solid and windfirm. These should be as evenly spaced throughout the stand as possible.
2. Remove the rest of the Scots pine, making large piles of brush for wildlife habitat. The trees may have to go for woodchips, unless we can find other uses for the wood.
3. Remove the rest of the trees from this area except for some of the white spruce and balsam fir under 2m. These will be kept as winter protection and possible nesting sites for birds until the plantings of hemlock and cedar get to that height.
4. Plant about 500 plants in the area, with the larger plants (highbush cranberry, American mountain ash, wild raisin, hawthorn, common elder, red-berried elder, hobblebush, serviceberry, winterberry holly, false holly and beaked hazelnut in clusters at about 3m spacing and the smaller wild rose and bayberry at 1m spacing. The plants that will eventually grow taller, especially the American mountain ash and serviceberry, should be planted towards the northern end of the stand to prevent them from shading out the shorter species.
5. Plant a block of five eastern hemlock in the centre of the stand, and a block of eastern white cedar between the first block and the roadway. Each plant will be about 2m apart. These will be allowed to grow up together until about 2m tall, then kept pruned so as not to reduce the fruiting of the plants around them.

**Stand #3 (1.63 ha):** This stand is made up of three black spruce plantations: #3A (0.38 ha) is a small block just west of the Scots pine plantation; #3B (0.41 ha) is another small block about 90m further west; and #3C (0.84 ha) is the largest section across the road and running to the southern boundary). It is old agricultural land that is quite flat and well-drained.

**Stand #3 (1.63 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field, plantation

**Dominant and codominant trees:**

#1: black spruce 95 % of stand Age: 30 Diameter: 15.8cm Ht: 10.8m

#2: white spruce 5% of stand Age: 30 Diameter: 17.5cm Ht: 13.8m

**Tree source:** seed - 5%, planted - 95%, stump sprouts - %, root suckers - %

**Maturity class:** young

**Canopy description:** solid

**Stocking:** full with black spruce

**Tree quality:** good

**Regeneration:** low

**Tree species present:** black spruce, white spruce, balsam fir, white birch, grey birch, trembling aspen, red maple,

**Other plants present:** European mountain ash, pin cherry, raspberry, red berried elder, willow (spp), bayberry, blueberry, common speedwell, hawkweed (spp), creeping buttercup, wild strawberry, Indian pipe, wood fern, old man's beard

**Ground cover:** (snow-covered, will add) % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** low

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, red squirrel, snowshoe hare tracks

**Treatment:**

1. Create three patches in #3A, six patches in #3B and 12 patches in #3C, each about 10m in diameter. If possible, these should be spaced evenly throughout the stands, though enlarging existing openings is usually the best option. Plant each opening with a mix of long-lived, high quality trees, such as yellow birch, sugar maple, red oak, white pine and eastern hemlock, as well as witch hazel, beaked hazelnut and red-berried elder.
2. Release any suppressed black spruce that are of good quality.



**Stand #4 (9.36 ha):** This large stand of white spruce grew up on abandoned agricultural land on both sides of the road, and encompasses Stands #3B and #3C. It is a flat, well-drained site that slopes gently to the north. Several patches of trembling aspen and white birch add some biodiversity of both species and habitats. One white pine that seeded in has a diameter of 37cm. Parts of the stand were thinned during the period from 1980 and 2000. Many trees do not have good form, the dense patches have a low live crown ratio and open-grown trees have excessive limbs. Trial areas were left undisturbed as demonstrations. In the early 1970's, black spruce, balsam fir and two exotic fir species (*B. alba* and *B. nordmanniana*) were planted in rows along the southwest side of the stand. Only the black spruce is in good condition. This area also has some sugar maple and yellow birch that have seeded in from the neighbouring woods. There are chanterelle mushrooms growing in the area that could be harvested in years of abundance.

**Stand #4 (9.36 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field, small amount of planting

**Dominant and codominant trees:**

#1: white spruce	80% of stand	Age: 40	Diameter: 20.7cm	Ht: 14.7m
#2: trembling aspen	5% of stand	Age: 40	Diameter: 20.4cm	Ht: 18.4m
#3: white birch	5% of stand	Age: 40	Diameter: 19cm	Ht: 16.2m

**Tree source:** seed - 20%, planted - 80%, stump sprouts - %, root suckers - %

**Maturity class:** white spruce is starting to mature

**Canopy description:** mostly closed with some gaps

**Stocking:** fully stocked with trees

**Tree quality:** medium

**Regeneration:** low

**Tree species present:** white spruce, black spruce, white pine, balsam fir, plus the two exotic firs (*B. alba* and *B. nordmanniana*), trembling aspen, large-tooth aspen, white birch, grey birch, yellow birch, red maple, sugar maple, wild apple (spp)

**Other plants present:** European mountain ash, pin cherry, bayberry, red-berried elder, willow (spp), speckled alder, raspberry, wild lily of the valley, starflower, common speedwell, creeping buttercup, heal all, wild sarsaparilla, wild strawberry, whorled wood aster, goldenrod (spp), Indian pipe, wood fern, red stem moss, pillow moss, common hair-cap moss, hay-scented fern, wood fern, old man's beard

**Ground cover:** 30% moss, 10% wildflowers, 50% leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** low

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, yellow-bellied sapsucker feeding holes, red squirrel, snowshoe hare tracks, feeding signs

**Treatment:**

1. Make strip cuts or patch cuts throughout the stand. This stand should be able to support the removal of at least 10 cords annually. Plant the openings with a mix of long lived, high value trees such as yellow birch, sugar maple, red oak, white ash, white pine and eastern hemlock. Red spruce can be added in small amounts to the centre of a few of the cuts. In addition to the trees, add highbush cranberry, American mountain ash, witch hazel, beaked hazelnut, hobblebush, Christmas fern and crested wood fern.

**Stand #5 (8.46 ha):** This large white pine plantation was established in 1996, after the area was clearcut the previous year and anchor chained with a skidder. There were 20,653 white pine seedlings planted. In some areas it is pure, dense young white pine, with a large amount of weevil damage that has severely affected the quality of the young trees. In other areas, there are yellow birch and sugar maple coming up from stump sprouts, while mixed throughout are small amounts of white and grey birch and trembling aspen. Some of the white pine have been overgrown by pin cherry and trembling aspen, or are simply crowding each other out. The site is relatively flat, with one quite steep area at middle of the the southern edge of the stand. As with most plantations, there is very little regeneration throughout most of the stand.

**Stand #5 (8.46 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field

**Dominant and codominant trees:**

#1: white pine	80% of stand	Age: 16	Diameter: 15.4cm	Ht: 8.7m
#2: white birch	10% of stand	Age: 16	Diameter: 9cm	Ht: 8.2m
#3: grey birch	5% of stand	Age: 16	Diameter: 8.4cm	Ht: 7.9m

**Tree source:** seed - 15%, planted - 80%, stump sprouts - 5%, root suckers - %

**Maturity class:** young

**Canopy description:** closed, with a few small openings

**Stocking:** full

**Tree quality:** poor-medium

**Regeneration:** low

**Tree species present:** white pine, white spruce, balsam fir, white birch, grey birch, yellow birch, trembling aspen, large-tooth aspen, red maple, sugar maple, striped maple, wild apple (spp)

**Other plants present:** European mountain ash, pin cherry, speckled alder, red-berried elder, willow (spp), bayberry, blueberry, raspberry, bluebead lily, wild lily of the valley, starflower, bunchberry, viola (spp), woodrush, rough-stem goldenrod, hawkweed (spp), painted trillium, gall-of- the-earth, fireweed, whorled wood aster, creeping buttercup, heal all, starflower, wild sarsaparilla, wild strawberry, aster (spp), Indian pipe, wood fern, old man's beard

**Ground cover:** 10% moss, % wildflowers, 75% leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** low

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. This is the stand that would most benefit from aggressive, but carefully done, pruning. The health and future value of many of the young hardwoods present would be greatly improved. All good quality sugar maple, yellow birch, white birch and red maple should be pruned and released.

2. The best of the white pine should be released and pruned, looking to achieve somewhere around 100-200 crop trees per hectare.
3. Create patches in any existing holes that lack high-value trees, or in blocks where the white pine is of especially poor form or health. These patches should be about 8-10m in diameter and scattered throughout the areas that have the lowest biodiversity. If suitable areas are found, create about five patches per hectare. Plant a mix of long-lived trees such as yellow birch, red oak, red spruce, eastern hemlock, as well as high-bush cranberry, alternate-leaf dogwood, witch hazel, hobblebush, Christmas fern and interrupted fern.

**Stand #6 (0.7 ha):** A small stand along the southern border of the woodland, enclosed on the three other sides by Stand #5. This mixed wood stand was never farmed, due to the rolling topography that slopes to the west.

**Stand #6 (0.7 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** unploughed, probably fuelwood cuts

**Dominant and codominant trees:**

#1: white birch      50% of stand      Age: 40      Diameter: 23cm      Ht: 17.1m

#2: trembling aspen      40% of stand      Age: 40      Diameter: 24.5cm      Ht: 19.9m

**Tree source:** seed - 70%, planted - %, stump sprouts - 20%, root suckers - 10%

**Maturity class:** immature

**Canopy description:** closed, but with a variety of heights

**Stocking:** full

**Tree quality:** medium

**Regeneration:** mostly young balsam fir under 1m, some red maple and yellow birch

**Tree species present:** white birch, trembling aspen, grey birch, yellow birch, red maple, American beech, white spruce, balsam fir, white pine

**Other plants present:** pin cherry, red-berried elder, beaked hazelnut, wild raisin, willow (spp), blueberry, raspberry, bluebead lily, starflower, bunchberry, common speedwell, pyrola, viola (spp), hawkweed, wild sarsaparilla, heal all, wild strawberry, aster (spp), wild lily of the valley, Indian pipe, wood fern, red-stem moss, pillow moss, common hair-cap moss, old man's beard

**Ground cover:** (snow covered, will add) % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** medium      **Size of CWD:** medium

**Number of snags:** medium      **Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. Prune up all potentially high-value trees, especially the yellow birch and white birch.
2. Create five patches in the worst areas of the stand, where there is low volume and little product value. Each patch should be approximately 15-18m in diameter. As these areas are not producing high-value wood, it will not be worth creating an extraction road into the area at this time. Plant the patches with a mixture of sugar maple, red oak, eastern hemlock, white pine and red spruce, along with highbush cranberry, witch hazel, hobblebush and alternate-leaf dogwood.

**Stand #7 (0.65 ha):** This irregularly-shaped stand is bordered on two sides by the white pine plantation (Stand #5), made up mostly of white birch, with a lesser amount of American beech. It is a gently rolling area that should be capable of producing good quality hardwood sawlogs with the right plantings and selective harvesting. There are two 48cm-diameter large-tooth aspen at the southeast corner of the stand, and some large, clear beech that could be harvested as they die. There is also a very large amount of one-sided shinleaf throughout the stand.

**Stand #7 (0.65 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** unploughed

**Origin:** partial cuts

**Dominant and codominant trees:**

#1: white birch	40% of stand	Age: 50	Diameter: 26.5cm	Ht: 18.5m
#2: American beech	20% of stand	Age: 50	Diameter: 30.5cm	Ht: 14.1m
#3: red maple	15% of stand	Age: 50	Diameter: 17.1cm	Ht: 18.2m

**Tree source:** seed - 50%, planted - %, stump sprouts - 30%, root suckers – 20%

**Maturity class:** mature

**Canopy description:** patchy, some huge beech, some widely-spreading trees in the canopy, and also a lot of dead fir creating gaps and allowing side shade.

**Stocking:** understocked

**Tree quality:** medium

**Regeneration:** 20cm-tall balsam fir, with some red maple about the same size

**Tree species present:** white birch, yellow birch, grey birch, American beech, red maple, sugar maple, large-tooth aspen, trembling aspen, white spruce, balsam fir

**Other plants present:** pin cherry, red-berried elder, willow (spp), blueberry, raspberry, bunchberry, common speedwell, bluebead lily, heal all, starflower, wild sarsaparilla, whorled wood aster, wild lily of the valley, Indian pipe, prince's pine, wood fern, old man's beard, lung lichen

**Ground cover:** % moss, % wildflowers, 60% leaf/needle litter, % ferns, 10% shrubs

**Coarse woody debris amount:** high      **Size of CWD:** medium

**Number of snags:** high      **Quality of snags:** high

**Wildlife:** black-capped chickadee and old nest, lots of woodpecker feeding signs and nesting holes, red-breasted nuthatch nest, blue jay, snowshoe hare browse, red squirrel feeding signs

**Treatment:**

1. Create three or four patches in the areas with lots of dead balsam fir. The diameter of these cuts should be about 15m, and they can be planted with red oak, white ash, white pine and red spruce, along with fruit and nut-bearing shrubs such as highbush cranberry, wild raisin, serviceberry and beaked hazelnut.
2. Prune all high-value trees, such as yellow birch, white birch and sugar maple.

**Stand #8 (1.15 ha):** This block of woodland is to the west of Stand #7 and forms the northwest boundary of the white pine plantation (Stand #5). It is a dense, young hardwood stand that naturally regenerated after a fuel-wood harvest in the late 1980's. The stems are of high quality and with proper care this could be a valuable stand in the future.

**Stand #8 (1.15 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut for fuelwood

**Dominant and codominant trees:**

#1: white birch	40% of stand	Age: 24	Diameter: 10cm	Ht: 11m
#2: grey birch	15% of stand	Age: 24	Diameter: 11.5cm	Ht: 11.1m
#3: red maple	15% of stand	Age: 24	Diameter: 12cm	Ht: 11.4m

**Tree source:** seed - 50%, planted - %, stump sprouts - 50%, root suckers - %

**Maturity class:** immature

**Canopy description:** short and closed

**Stocking:** full

**Tree quality:** high

**Regeneration:** 10cm-tall balsam fir, with some 8cm red maple

**Tree species present:** white birch, grey birch, yellow birch, red maple, sugar maple, striped maple, trembling aspen, large-tooth aspen, American beech, balsam fir

**Other plants present:** pin cherry, red-berried elder, wild raisin, willow (spp), blueberry, raspberry, bluebead lily, common speedwell, bunchberry, viola, pyrola, hawkweed, heal all, starflower, wild sarsaparilla, whorled wood aster, wild lily of the valley, wild strawberry, Indian pipe, red-stem moss, pillow moss, common hair-cap moss, wood fern, hay-scented fern, old man's beard

**Ground cover:** 40% moss, 10% wildflowers, 30% leaf/needle litter, 20% seedlings

**Coarse woody debris amount:** low

**Size of CWD:** low

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare browse

**Treatment:**

1. Prune and release all good quality yellow birch, white birch, large-tooth aspen and sugar maple. This stand should be looked at every five years or so and the pruning and release carried out as needed.
2. In order to increase the value of the area for wildlife, plant any within the stand holes with white pine, red spruce or eastern hemlock, plus shrubs such as American mountain ash, high-bush cranberry and alternate-leaf dogwood.

**Stand #9 (0.28 ha):** A tiny, flat stand north of Stand #8. The trees are generally in poor health, so this will be a major restoration effort. There is one red spruce in the stand, of poor quality, that is 32.5cm in diameter with a height of 17.8m.

**Stand #9 (0.28 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** partial, heavy cut that probably had a strong understory of balsam fir

**Dominant and codominant trees:**

#1: balsam fir	90% of stand	Age: 35	Diameter: 15.5cm	Ht: 13.9m
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#2: white birch	5% of stand	Age: 35	Diameter: 20cm	Ht: 13.2m
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**Tree source:** seed - 95%, planted - %, stump sprouts - 5%, root suckers - %

**Maturity class:** young trees but starting to die

**Canopy description:** closed, low canopy that is opening up as the fir dies

**Stocking:** low, especially of quality trees

**Tree quality:** low

**Regeneration:** masses of 4cm-high balsam fir

**Tree species present:** balsam fir, white spruce, red spruce, white birch, grey birch, yellow birch, red maple, American beech

**Other plants present:** pin cherry, red-berried elder, willow (spp), bayberry, blueberry, raspberry, common speedwell, heal all, starflower, wild sarsaparilla, bunchberry, mouse-eared hawkweed, whorled wood aster, wild lily of the valley, Indian pipe, hay-scented fern, beech fern, wood fern, old man's beard

**Ground cover:** 20% moss, % wildflowers, % leaf/needle litter, 20% trees

**Coarse woody debris amount:** low

**Size of CWD:** low

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. Much of the balsam fir is dead and will be left on site. If any have value, they can be removed as lumber, fuelwood or biomass. Plant the openings with a mixture of red oak, sugar maple, yellow birch, white pine and eastern hemlock, as well as beaked hazelnut, witch hazel, hobblebush, highbush cranberry, serviceberry and American mountain ash.
2. Prune and release any yellow birch and white birch that have potential as lumber trees.



**Stand #10 (2.83 ha):** The stand along the south boundary at the western end of the white pine plantation. It is a mixed wood stand with a small block of older red spruce, the only such area in this woodland. These trees are of good quality and will be used as seed sources for improving the biodiversity with this woodland and other public lands. Bark beetles have already killed some of the red spruce. Large trees are scattered throughout the stand, including a 45.5cm-diameter red maple that is 21.7m high. Some of the American beech in the stand seems to be free of canker. There is a large amount of balsam fir in the understory. The area is rolling with several valleys.

**Stand #10 (2.83 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** unploughed

**Origin:** partial cut

**Dominant and codominant trees:**

#1: American beech	50% of stand	Age: 65	Diameter: 27cm	Ht: 15.8m
#2: balsam fir	20% of stand	Age: 65	Diameter: 26cm	Ht: 16.5m
#3: red maple	20% of stand	Age: 65	Diameter: 26.5cm	Ht: 16.9m

**Tree source:** seed - 70%, planted - %, stump sprouts and root suckers - 30%

**Maturity class:** mature, with significant amounts of fir and red spruce dying

**Canopy description:** patchy

**Stocking:** full

**Tree quality:** medium

**Regeneration:** mostly balsam fir at .2m, with some red maple and a smaller amount of American beech about the same height

**Tree species present:** American beech, red maple, sugar maple, large-tooth aspen, white birch, yellow birch, balsam fir, red spruce, eastern hemlock

**Other plants present:** pin cherry, red-berried elder, willow (spp), wild raisin, bayberry, blueberry, raspberry, bluebead lily, common lady's slipper, common speedwell, wild lily of the valley, starflower, twinflower, wild cucumber, whorled wood aster, wild sarsaparilla, bunchberry, painted trillium, pyrola, one-sided shinleaf, prince's pine, Indian pipe, red stem moss, pillow moss, common hair-cap, bazzania, ground pine, wood fern, lung lichen, old man's beard, puffball (spp)

**Ground cover:** 60% moss, 30% wildflowers, 10% leaf/needle litter, % ferns

**Coarse woody debris amount:** high

**Size of CWD:** medium

**Number of snags:** high

**Quality of snags:** low

**Wildlife:** black-capped chickadee, red-breasted nuthatch, golden-crowned kinglet, blue jay, pine grosbeak, red squirrel, snowshoe hare tracks

**Treatment:**

1. This area will provide both lumber and fuelwood and should be able to supply about three cords per year and still continue to improve the stand. Create 14-15m diameter patch cuts in the worst areas of balsam fir. Plant these patches with a mix of eastern hemlock, sugar maple, white

pine, witch hazel, hobblebush, striped maple, beaked hazelnut, Christmas fern and hairy sweet cicely.

2. Selectively harvest trees that are in decline throughout the stand. This will provide both lumber and fuelwood. The taller, healthier trees should be left, but the suppressed American beech and some of the dying red spruce will make excellent products. Depending on harvesting schedules, remove up to six cords every two years, with the intention of always improving the overall quality of the trees within the stand.

3. Prune and release all good quality red spruce, yellow birch, sugar maple, white birch and red maple within the stand.

**Stand #11 (4.04 ha):** A mixed wood stand to the north of Stand #10 dominated by yellow and white birch. The trees along the eastern section of the stand are larger and more widely spaced than along the western section. It is well-drained and has a rolling topography. There are pockets of balsam fir in the stand, both in the overstory and understory, but many are dying from the balsam woolly adelgid, a European insect introduced to the United States around 1900. Because this adelgid is not native, balsam fir has not evolved any type of defense against it to date. These insects typically lay about one hundred eggs and have three generations per year and should help control the excessive amount of balsam fir in many Island woodlots. There are several large-tooth aspen with diameters of approximately 50cm.

**Stand #11 (4.04 ha):**

**Drainage:** high

**Watercourse:** no

**Ploughed:** no

**Origin:** clear cut

**Dominant and codominant trees:**

#1: yellow birch	50% of stand	Age: 40	Diameter: 14cm	Ht: 15m
#2: white birch	30% of stand	Age: 40	Diameter: 9.5cm	Ht: 13.2m

**Tree source:** seed - 90%, planted - %, stump sprouts - 10%, root suckers - %

**Maturity class:** immature

**Canopy description:** closed, medium height

**Stocking:** full

**Tree quality:** high

**Regeneration:** mostly balsam fir at .3m high, with some .3m tall red maple and some .6m tall yellow birch

**Tree species present:** yellow birch, white birch, red maple, sugar maple, American beech, trembling aspen, large-tooth aspen, balsam fir, white spruce

**Other plants present:** pin cherry, wild raisin, beaked hazelnut, red-berried elder, willow (spp), blueberry, raspberry, common speedwell, bluebead lily, heal all, starflower, wild sarsaparilla, wood sorrel, whorled wood aster, wild lily of the valley, bunchberry, viola, common lady's slipper, hawkweed (spp), goldthread, wild strawberry, twinflower, painted trillium, goldenrod (spp), gall of the earth, Indian pipe, beech drops, pillow moss, red-stem moss, common hair-cap moss, hay-scented fern, beech fern, wood fern, lung lichen, old man's beard

**Ground cover:** 50% moss, 30% wildflowers, 10% leaf/needle litter, % ferns

**Coarse woody debris amount:** medium      **Size of CWD:** medium

**Number of snags:** medium      **Quality of snags:** medium

**Wildlife:** ruffed grouse, barred owl, black-capped chickadee, golden-crowned kinglet, blue jay, lots of woodpecker feeding sign, red squirrel, snowshoe hare feeding sign

**Treatment:**

1. Prune and release all good quality yellow birch, white birch and sugar maple.
2. Underplant six each of eastern hemlock, witch hazel, hobblebush and alternate-leaf dogwood, crested wood fern and interrupted fern.

**Stand #12 (6.83 ha):** A large, mostly deciduous stand running from the southwest corner of the property around Stand #13 and then almost to the northern boundary. It contains some trees of very large size and excellent quality, especially the yellow birch and eastern hemlock. There is one valley that is part of the new trail system that contains a great mix of remnant old-growth Acadian forest. The forest floor is pit and mound throughout the stand. This area is also part of the range of the pair of the barred owls and the pileated woodpecker.

**Stand #12 (6.83 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** partial cuts

**Dominant and codominant trees:**

#1: red maple                      40% of stand                      Age: 80                      Diameter: 27cm                      Ht: 23.4m

#2: white birch                      20% of stand                      Age: 80                      Diameter: 36cm                      Ht: 21.7m

#3: American beech                      20% of stand                      Age: 80                      Diameter: 27.2cm                      Ht: 20.8m

**Tree source:** seed - 60%, planted - %, stump sprouts and root suckers - 40%

**Maturity class:** medium-mature

**Canopy description:** tall closed, lots of sidelight and a few gaps

**Stocking:** full

**Tree quality:** high

**Regeneration:** .3m beech, .2m red maple, .3m balsam fir

**Tree species present:** red maple, sugar maple, American beech, white birch, yellow birch, trembling aspen, eastern hemlock, balsam fir, red spruce, white spruce

**Other plants present:** pin cherry, red-berried elder, willow (spp), wild raisin, bayberry, blueberry, raspberry, bluebead lily, wild cucumber, common lady's slipper, pyrola, common speedwell, heal all, starflower, wild sarsaparilla, bunchberry, whorled wood aster, wild lily of the valley, beech drops, Indian pipe, hay-scented fern, wood fern, lung lichen, old man's beard

**Ground cover:** 30% moss, 30% wildflowers, 20% leaf/needle litter, 5% seedlings

**Coarse woody debris amount:** high

**Size of CWD:** high

**Number of snags:** high

**Quality of snags:** high

**Wildlife:** barred owl, vireo (spp) nest, robin nest, black-capped chickadee, blue jay, lots of woodpecker feeding signs (including pileated), red squirrel, snowshoe hare tracks

**Treatment:**

1. This stand has great potential to produce high-quality hardwood sawlogs. Total removal for this stand, through small patch cuts and selective harvesting, should be about 7-10 cords annually. This will be a mix of fuelwood, hardwood lumber and craft wood. The wood mizer sawmill should be used right in the woods to leave as much of the slabs and sawdust as possible on the forest floor. The small patches (around 15m in diameter) should be planted with a mixture

of hemlock, red spruce, ironwood and a few red oak, as well as hobblebush, witch hazel, alternate-leaf dogwood, Christmas fern and crested wood fern, and a mix of shade-tolerant wildflowers.

2. Prune up all high-quality sugar maple, yellow birch, white birch and clean American beech

3. There are some very clean young American beech in the stand and these should be GPS'd and monitored to see if they are truly resistant to the beech bark canker. They may become important seed sources in the future.

**Stand #13 (3.42 ha):** This stand slopes to the western boundary of the property and is dominated by a large amount of cankered beech, probably originating from a heavy cut. The beech would have sent up root suckers that outcompeted other species. The stand slopes to the west. It appears to be an important part of the home territory of the barred owls and the pileated woodpecker. There are some clean beech within the stand and a lot of good quality hardwood sawlogs.

**Stand #13 (3.42 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** heavy cut

**Dominant and codominant trees:**

#1: American beech 80% of stand Age: 100 Diameter: 28.5cm Ht: 17.1m

#2: white birch 10% of stand Age: 100 Diameter: 40.5cm Ht: 21.2m

**Tree source:** seed - 50%, planted - %, stump sprouts and root suckers - 50%

**Maturity class:** mature

**Canopy description:** patchy, tall and short trees creating lots of gaps

**Stocking:** full

**Tree quality:** medium

**Regeneration:** mostly .7m-tall balsam fir, with some small beech, yellow birch and red maple

**Tree species present:** American beech, white birch, yellow birch, red maple, sugar maple, striped maple, trembling aspen, balsam fir

**Other plants present:** pin cherry, red-berried elder, willow (spp), blueberry, raspberry, bluebead lily, common speedwell, wild cucumber, bunchberry, wild sarsaparilla, heal all, starflower, wild lily of the valley, whorled wood aster, pyrola, common lady's slipper, beech drops, Indian pipe, cinnamon fern, hay-scented fern, wood fern, lung lichen, old man's beard

**Ground cover:** 20% moss, 20% wildflowers, 50% leaf/needle litter, 10% ferns

**Coarse woody debris amount:** medium **Size of CWD:** medium

**Number of snags:** high

**Quality of snags:** high

**Wildlife:** black-capped chickadee, blue jay, red squirrel, pileated woodpecker, barred owl, lots of woodpecker feeding signs and nesting holes, snowshoe hare tracks, ruffed grouse tracks

**Treatment:**

1. With careful treatment, this stand can be moved into a healthier mix of trees and shrubs, away from having such a dominance of cankered American beech. This stand should easily produce 3-4 cords of fuelwood and hardwood lumber annually just by taking out the beech of poor form or trees that are in decline. Always look to leave a large number of tall, older trees for both the woodpeckers and the owls. The intermediate cankered beech can be removed in 15m patches scattered throughout the stand, or as individual selections. Plant the patches, or underplant, with eastern hemlock, red spruce, sugar maple and ironwood, and shrubs such as witch hazel, hobblebush, alternate-leaf dogwood and beaked hazelnut. Christmas and interrupted ferns, hairy sweet cicely and nodding trillium can also be added.

2. Prune any good quality yellow birch and sugar maple, including the regeneration.

**Stand #14 (1.32 ha):** A small, gently sloping block of young mixed woods on the western border of the property, between Stand #13 and Stand #15. It is a result of a fuelwood clearcut done in the 1980's. The balsam fir in the stand has been attacked by the balsam woolly adelgid and many have died. The quality of the deciduous trees is fairly good and they should respond well to careful pruning and releasing of the best trees.

**Stand #14 (1.32 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut

**Dominant and codominant trees:**

#1: yellow birch      40% of stand      Age: 20-25      Diameter: 10.5cm      Ht: 12.4m

#2: white birch      30% of stand      Age: 20-25      Diameter: 11cm      Ht: 12.8m

**Maturity class:** immature

**Canopy description:** low and closed

**Stocking:** full

**Tree quality:** medium

**Regeneration:** mostly .5m balsam fir, with a smaller amount of .4m American beech

**Tree species present:** yellow birch, white birch, grey birch, American beech, red maple, sugar maple, striped maple, trembling aspen, balsam fir

**Other plants present:** pin cherry, red-berried elder, willow (spp), blueberry, raspberry, bluebead lily, creeping buttercup, heal all, common speedwell, starflower, wild sarsaparilla, wild lily of the valley, wood sorrel aster, pillow mosses, cinnamon fern, wood fern, old man's beard

**Ground cover:** % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:**

**Size of CWD:**

**Number of snags:**

**Quality of snags:**

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. No harvesting is prescribed for this area for at least 10 years. Prune and release all good quality yellow birch, white birch, red maple and sugar maple.

**Stand #15 (2.97 ha):** This rolling stand occupies the northwest corner of the property and is the result of a series of partial cuts for fuelwood done in the late 1970's. There is a large amount of balsam fir in both the canopy and the understory, and most have been attacked by the balsam woolly adelgid. The dominance of American beech will be even more pronounced as the fir die out.

**Stand #15 (2.97 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** fuelwood partial cuts

**Dominant and codominant trees:**

#1: American beech 50% of stand Age: 35-40+ Diameter: 29.5cm Ht: 14.5m

#2: balsam fir 40% of stand Age: 35-40 Diameter: 13.5cm Ht: 13.2m

**Tree source:** seed - 70%, planted - %, stump sprouts and root suckers - 30%

**Maturity class:** immature

**Canopy description:** patchy and short

**Stocking:** understocked

**Tree quality:** poor

**Regeneration:** mostly .3m balsam fir, with .1m red maple and .3m American beech

**Tree species present:** American beech, yellow birch, white birch, grey birch, red maple, sugar maple, striped maple, large-tooth aspen, trembling aspen, balsam fir, eastern hemlock, white spruce, red spruce

**Other plants present:** pin cherry, wild raisin, willow (spp), blueberry, raspberry, bluebead lily, creeping buttercup, common speedwell, bunchberry, pyrola, hawkweed (spp), heal all, starflower, wild sarsaparilla, wild strawberry, whorled wood aster, wild lily of the valley, prince's pine, ground pine, red-stem moss, pillow moss, common hair-cap moss, Indian pipe, wood fern, old man's beard, lung lichen

**Ground cover:** 40% moss, 20% wildflowers, 30% leaf/needle litter, % ferns

**Coarse woody debris amount:** medium **Size of CWD:** medium

**Number of snags:** medium **Quality of snags:** medium

**Wildlife:** American robin and older nest, black-capped chickadee, lots of woodpecker feeding sign, blue jay, red squirrel feeding sign, snowshoe hare browse

**Treatment:**

1. This stand should be capable of producing about three-four cords of wood annually, or about 10 cords every three years. This will be spread between fuelwood, balsam fir lumber and hardwood lumber. This will be done in patch cuts and with some selective harvesting. Remove trees of poorer form, while making sure to leave sufficient wildlife trees.
2. Underplant suitable areas and plant the patches with a mix of eastern hemlock, white pine, sugar maple, yellow birch, ironwood, red oak, white ash, witch hazel, hobblebush, alternate-leaf dogwood and highbush cranberry.



**Stand #16 (10.89 ha):** A large mixed wood along the northern border of the property and following along the southern edge of the stream. The stand is sloped towards the north, with a pit and mound forest floor. There are some sections with large amounts of sugar maple within the stand and some larger eastern hemlock. Along the stream, there are at least six black ash, most of which have been repeatedly chewed by beaver in the past. There is also one large witch hazel and some smaller ones, a small amount of hobblebush and one royal fern. Both of these species are quite rare in the province. The stand is quite hummocky in places and slopes towards the stream. There is good access to most of this area from the forestry road.

**Drainage:** high

**Watercourse:** yes

**Ploughed:** no

**Origin:** partial cuts

**Dominant and codominant trees:**

#1: American beech	30% of stand	Age: 75	Diameter: 26.5cm	Ht: 17.9m
#2: red maple	30% of stand	Age: 75	Diameter: 26cm	Ht: 19.9m
#3: yellow birch	20% of stand	Age: 75	Diameter: 24.9cm	Ht: 19.1m

**Tree source:** seed - 80%, planted - %, stump sprouts and root suckers - 20%

**Maturity class:** mature

**Canopy description:** mostly high and closed, with some gaps

**Stocking:** full

**Tree quality:** medium-high

**Regeneration:** mostly 1.5m-tall balsam fir, with small amounts of shorter American beech, red maple and yellow birch

**Tree species present:** American beech, red maple, sugar maple, yellow birch, white birch, trembling aspen, striped maple, black ash, balsam fir, eastern hemlock, red spruce

**Other plants present:** pin cherry, wild raisin, beaked hazelnut, ground hemlock, red-berried elder, willow (spp), witch hazel, alternate-leaf dogwood, blueberry, raspberry, bluebead lily, common speedwell, starflower, wild sarsaparilla, wild cucumber, viola, wild strawberry, common lady's slipper, wood sorrel, whorled wood aster, pyrola, wild lily of the valley, Indian pipe, beechdrops, bunchberry, ground pine, running clubmoss, cinnamon fern, royal fern, bracken fern, beech fern, wood fern, old man's beard, lung lichen

**Ground cover:** 20% moss, 20% wildflowers, 40% leaf/needle litter, 10% tree

**Coarse woody debris amount:** medium      **Size of CWD:** medium

**Number of snags:** high

**Quality of snags:** high

**Wildlife:** black-capped chickadee, barred owl, pileated woodpecker feeding sign, blue jay, red squirrel, snowshoe hare browse

**Treatment:**

1. The larger black ash should continue to be pruned up to a single stand and have metal cages placed around them for when the beavers inevitably return to this area of the stream. In bringing this species back from being so rare, we will need good seed sources.

2. Leaving a no-cut zone along the streamside, this stand should produce about 10 cords of wood annually, a mix of hardwood lumber, fuelwood and craftwood. Trees of low vigour and/or poor form should be selectively harvested throughout the stand.
3. Plant six each of ironwood, round-leaf dogwood, hairy sweet cicely, Christmas fern, crested wood fern, and rarer ferns as they become available.
4. Prune and release any good quality yellow birch and sugar maple within the stand.

**Stand #17 (0.54 ha):** This dense stand of young hardwood, a small block within Stand #16, grew up from a clearcut fuelwood harvest in 1992. It is located on the south side of the forestry road that runs through Stand #16. The trees are quite close together and of relatively good quality. There are a few larger balsam fir scattered throughout the stand, and these should be kept as long as possible to provide some shade through the stand and encourage better growth in the young hardwoods.

**Stand #17 (0.54 ha):**

**Drainage:** high

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut

**Dominant and codominant trees:**

#1: red maple	35% of stand	Age: 20	Diameter: 8.75cm	Ht: 13.8m
#2: American beech	30% of stand	Age: 20	Diameter: 10.6cm	Ht: 12.9m
#3: yellow birch	25% of stand	Age: 20	Diameter: 9.9cm	Ht: 13.5m

**Tree source:** seed - 60%, planted - %, stump sprouts - 40%, root suckers - %

**Maturity class:** immature

**Canopy description:** closed and low, with a few small openings

**Stocking:** full

**Tree quality:** medium-high

**Regeneration:** scattered balsam fir about 1m, with smaller sugar maple, striped maple and red maple seedlings that are heavily browsed

**Tree species present:** red maple, American beech, yellow birch, sugar maple, striped maple, grey birch, large-tooth aspen, balsam fir, white spruce

**Other plants present:** pin cherry, American mountain ash, red-berried elder, willow (spp), blueberry, raspberry, bluebead lily, common speedwell, pyrola, starflower, wild sarsaparilla, bunchberry, whorled wood aster, wild lily of the valley, Indian pipe, red-stem moss, pillow moss, hay-scented fern, wood fern, old man's beard

**Ground cover:** 10% moss, 20% wildflowers, 60% leaf/needle litter, % ferns

**Coarse woody debris amount:** low                      **Size of CWD:** small

**Number of snags:** low                                      **Quality of snags:** low

**Wildlife:** black-capped chickadee, red squirrel feeding, snowshoe browse

**Treatment:**

1. This crowded stand has the potential to produce excellent quality hardwood sawlogs. Prune and release good quality yellow birch, sugar maple, white birch and uncantered beech.
2. There are quite a few uncantered beech in this stand, and these should be monitored to see how they develop. They could become important seed sources for future forests.
3. As the stand gets a little older, probably in about 15-20 years, add a variety of native species that would increase the biodiversity of the stand and improve the area for wildlife. These would include eastern hemlock, red spruce, hobblebush, witch hazel, alternate-leaf dogwood, and some

of the rarer wildflowers and ferns as they become available. Any holes that occur within the stand could also be planted with these species at any time.

**Stand #18 (0.42 ha):** This young hardwood stand is also within Stand #16, across the road and from and to the north of Stand #17. The trees grew after clearcut harvesting in the early 1980's. It is older than the previous stand, but will be handled in much the same way, promoting high-quality hardwood sawlogs. There are a few large American beech and one large white spruce that were not removed during the original cutting. The stand gently slopes to the north.

**Stand #18 (0.42 ha):**

**Drainage:** high

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut

**Dominant and codominant trees:**

#1: yellow birch	50% of stand	Age: 30+	Diameter: 11.3cm	Ht: 17.1m
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#2: white birch	20% of stand	Age: 30+	Diameter: 12.1cm	Ht: 17.2m
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#3: red maple	15% of stand	Age: 30+	Diameter: 12.5cm	Ht: 17.9m
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**Tree source:** seed - 60%, planted - %, stump sprouts and root suckers - 40%

**Maturity class:** immature

**Canopy description:** closed

**Stocking:** full

**Tree quality:** medium

**Regeneration:** balsam fir 0.3m; sugar maple 0.3m; American beech 0.2m

**Tree species present:** yellow birch, white birch, red maple, American beech, sugar maple, grey birch, striped maple, trembling aspen, balsam fir, white spruce

**Other plants present:** pin cherry, wild raisin, red-berried elder, ground hemlock, beaked hazelnut, serviceberry, willow (spp), blueberry, raspberry, bluebead lily, common speedwell, heal all, wild cucumber, bunchberry, pyrola, viola, starflower, wild sarsaparilla, whorled wood aster, wild lily of the valley, Indian pipe, wood fern, old man's beard

**Ground cover:** 5% moss, % wildflowers, 70% leaf/needle litter, % ferns

**Coarse woody debris amount:** low                      **Size of CWD:** medium-large

**Number of snags:** low                                      **Quality of snags:** medium

**Wildlife:** woodpecker feeding signs, red squirrel feeding, snowshoe hare browse and tracks

**Treatment:**

1. This dense stand has the potential to produce excellent quality hardwood sawlogs. Prune and release good quality yellow birch, sugar maple, white birch and uncantered beech.
2. As the stand gets a little older, probably in about ten years, add a variety of native species that would increase the biodiversity of the stand and improve the area for wildlife. These would include eastern hemlock, red spruce, hobblebush, witch hazel, alternate-leaf dogwood, and some of the rarer wildflowers and ferns as they become available. Any holes that occur within the stand could also be planted with these species at any time.

**Stand #19 (2.05 ha):** This is a young hardwood stand that resulted from a fuelwood clearcut done in the early 1980's. The tree quality is high and it will be managed much like Stand #17 and Stand #18, though the ages and composition vary somewhat. The land is quite hummocky.

**Stand #19 (2.05 ha):**

**Drainage:** high

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut

**Dominant and codominant trees:**

#1: grey birch	30% of stand	Age: 30+	Diameter: 11.4cm	Ht: 13.2m
#2: red maple	25% of stand	Age: 30+	Diameter: 11.5cm	Ht: 12.3m
#3: sugar maple	25% of stand	Age: 30+	Diameter: 8.3cm	Ht: 12.2m

**Tree source:** seed - 50%, planted - %, stump sprouts and root suckers - 50%

**Maturity class:** immature

**Canopy description:** closed, short

**Stocking:** full

**Tree quality:** high

**Regeneration:** balsam fir 0.1m; red maple 0.3m

**Tree species present:** grey birch, red maple, sugar maple, white birch, yellow birch, American beech, white spruce, balsam fir

**Other plants present:** pin cherry, red-berried elder, ground hemlock, willow (spp), blueberry, raspberry, bluebead lily, bunchberry, common speedwell, heal all, starflower, wild sarsaparilla, wild strawberry, wild lily of the valley, ground pine, Indian pipe, wood fern, old man's beard

**Ground cover:** 10% moss, 20% wildflowers, 50% leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel feeding, snowshoe hare browse

**Treatment:**

1. This is another dense stand with the potential to produce excellent quality hardwood sawlogs. Prune and release good quality yellow birch, sugar maple, white birch and red maple. Where possible, target grey birch when releasing the more valuable hardwoods to reduce its numbers throughout the stand.
2. As the stand gets a little older, probably in about ten years, add a variety of native species that would increase the biodiversity of the stand and improve the area for wildlife. These would include eastern hemlock, red spruce, hobblebush, witch hazel, alternate-leaf dogwood, and some of the rarer wildflowers and ferns as they become available. Any holes that occur within the stand could also be planted with these species at any time.

**Stand #20 (3.54 ha):** A lovely stand dominated by the old beaver impoundments on the stream, and the very large hemlock growing both individually and in one very large group. There are seeps and springs underneath some of hemlocks that run into the stream. It also has a very diverse mix of plants, with wetland plants along the edge and shrubs and wildflowers that grow well in deep shade. The area is regularly visited by both the barred owl and the pileated woodpecker, but is also home to more common fauna, such as spotted salamanders, raccoons, ruffed grouse and hermit thrush. There will be little if any harvesting done in this stand due to its unique nature, but it will be a very important part of the educational work done on the property.

**Stand #20 (3.54 ha):**

**Drainage:** good to poor

**Watercourse:** yes

**Ploughed:** no

**Origin:** partial cutting

**Dominant and codominant trees:**

#1: eastern hemlock 60% of stand Age: 150+ Diameter: 44.5cm Ht: 22.2m

#2: red maple 20% of stand Age: 60+ Diameter: 22.5cm Ht: 21.1m

#3: yellow birch 10% of stand Age: 60+ Diameter: 21cm Ht: 20.9m

**Tree source:** seed - 95%, planted - %, stump sprouts - 5%, root suckers - %

**Maturity class:** old

**Canopy description:** mostly closed and tall, with some gaps where trees have fallen

**Stocking:** full

**Tree quality:** high

**Regeneration:** balsam fir 0.3m; small amounts of red maple, American beech, striped maple, sugar maple and eastern hemlock

**Tree species present:** eastern hemlock, balsam fir, white spruce, red maple, yellow birch, sugar maple, striped maple, white birch, American beech,

**Other plants present:** hobblebush, ground hemlock, speckled alder, mountain maple, beaked hazelnut, pin cherry, red-berried elder, willow (spp), witch hazel, alternate-leaf dogwood, blueberry, dwarf raspberry, bluebead lily, common speedwell, heal all, common lady's slipper, helleborine, creeping buttercup, starflower, viola, pyrola, wild sarsaparilla, wood sorrel, whorled wood aster, bunchberry, starflower, wild lily of the valley, Indian pipe, ground pine, bristly clubmoss, cinnamon fern, wood fern, marsh fern, crested wood fern, ostrich fern, beech fern, sensitive fern, lung lichen, old man's beard

**Ground cover:** % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** high

**Size of CWD:** large

**Number of snags:** high

**Quality of snags:** high

**Wildlife:** black-capped chickadee, barred owl, pileated woodpecker feeding sign, blue jay, ruffed grouse, hermit thrush, golden-crowned kinglet, red-breasted nuthatch, downy woodpecker, hairy woodpecker, northern flicker, red squirrel, snowshoe hare (plus tracks and browse sign), large numbers of spotted salamanders and egg masses in the remnants of the beaver impoundments, red efts, red-backed salamander

**Treatment:**

1. This is a very important stand, given its rarity, age, complexity and value to wildlife. Continue adding rare plants to the areas as they become available, especially male fern, rattlesnake fern, Braun's holly fern and royal fern.
2. There are a few areas of balsam fir that are starting to die, and these trees could be dropped and planted with red spruce, white pine, ironwood and sugar maple. This is not a priority, but the health of the balsam fir should be monitored.



**Stand #21 (0.71 ha):** Another young mixed hardwood stand that has grown up after a clearcut in the mid-1990's. The stand occupies the central area of the northern boundary of the property. It could potentially be a very productive area but will need a lot of pruning of the clumps of young hardwoods and the addition of some higher-value softwood trees.

**Stand #21 (0.71 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut

**Dominant and codominant trees:**

#1: balsam fir	30% of stand	Age: 18	Diameter: 9cm	Ht: 7.4m
#2: red maple	30% of stand	Age: 18	Diameter: 9.5cm	Ht: 11.3m
#3: grey birch	20% of stand	Age: 18	Diameter: 10.2cm	Ht: 10.9m
#4: white birch	10% of stand	Age: 18	Diameter: 10.4cm	Ht: 10.8m

**Tree source:** seed - 50%, planted - %, stump sprouts - 50%, root suckers - %

**Maturity class:** immature

**Canopy description:** closed and low

**Stocking:** full

**Tree quality:** poor-medium

**Regeneration:** red maple, 1m high; balsam fir, 2m high, small amount of sugar maple

**Tree species present:** balsam fir, white spruce, eastern hemlock, red maple, grey birch, white birch, yellow birch, sugar maple, striped maple, trembling aspen

**Other plants present:** pin cherry, ground hemlock, red-berried elder, willow (spp), hobblebush, bayberry, blueberry, raspberry, blackberry, bluebead lily, bunchberry, creeping buttercup, heal all, starflower, wild sarsaparilla, wild strawberry, hawkweed (spp) whorled wood aster, wild lily of the valley, Indian pipe, red-stem moss, common haircap moss, pillow moss, cinnamon fern, wood fern, old man's beard

**Ground cover:** 10% moss, 10% wildflowers, 50% leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. Prune and release all high-quality yellow birch, sugar maple, white birch and red maple.
2. As the stand ages, plantings can be done to improve both value and diversity, but for now the canopy is too low and shady to offer much chance of success.

**Stand #22 (5.61 ha):** This mixed wood stand runs along the north east side of the middle beaver impoundment and along the stream, and a section goes up to the northern border between Stand #20 and Stand #24. It contains a mix of long-lived species such as sugar maple, eastern hemlock and yellow birch, with many older individual trees within the stand. One large eastern hemlock is over 60cm in diameter. The forest floor is hummocky and the stand slopes south towards the stream. There is good access to the northern part of the stand from the forestry road. Along the road, there is a clearing that is growing up in yellow birch with some hemlock, but unfortunately contains a lot of industrial and household waste, everything from a large trailer to a stove. This area should be cleaned up so, the same as any dump site on public land.

**Stand #22 (5.61 ha):**

**Drainage:** medium

**Watercourse:** yes

**Ploughed:** no

**Origin:** partial cut

**Dominant and codominant trees:**

#1: red maple	40% of stand	Age: 90+	Diameter: 29.8cm	Ht: 18.5m
#2: yellow birch	40% of stand	Age: 90+	Diameter: 21.6cm	Ht: 18.6m
#3: eastern hemlock	10% of stand	Age: 120+	Diameter: 38.2cm	Ht: 20.9m
#4: sugar maple	10% of stand	Age: 90+	Diameter: 15cm	Ht: 15.6m

**Tree source:** seed - 90%, planted - %, stump sprouts - 10%, root suckers - %

**Maturity class:** mature

**Canopy description:** tall and patchy

**Stocking:** full

**Tree quality:** high

**Regeneration:** balsam under 1m high, with smaller amounts of yellow birch, red maple, sugar maple and eastern hemlock

**Tree species present:** red maple, yellow birch, sugar maple, striped maple, white birch, American beech, grey birch, eastern hemlock, balsam fir

**Other plants present:** wild raisin, pin cherry, red-berried elder, willow (spp), blueberry, bayberry, dwarf raspberry, bluebead lily, common speedwell, starflower, wild sarsaparilla, wood sorrel, whorled wood aster, wild lily of the valley, common lady's slipper, bunchberry, viola, hawkweed (spp), Indian pipe, red-stem moss, pillow moss, common haircap moss, bazzania, crested wood fern, oak fern, sensitive fern, New York fern, marsh fern, beech fern, ostrich fern, cinnamon fern, wood fern, lung lichen, old man's beard

**Ground cover:** % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** medium      **Size of CWD:** medium

**Number of snags:** medium      **Quality of snags:** medium

**Wildlife:** black-capped chickadee, blue jay, barred owl, pileated woodpecker feeding sign, red squirrel, snowshoe hare tracks

**Treatment:**

1. Leaving a sufficient buffer zone, this stand should produce 5-6 cords of wood annually in a mix of hardwood lumber, fuelwood and craftwood. Select trees for harvest that are less vigorous or otherwise starting to decline. The aim will be to have less red maple, and more yellow birch and sugar maple in the future canopy.
2. Prune and release good quality yellow birch and sugar maple.
3. There are some dense patches of balsam fir, where patch cuts could be created. When selectively harvesting the hardwood, create patch cuts in the nearby balsam fir, about 15m in diameter. Make sure that the stand doesn't lose the conditions that produce good quality hardwood logs. These can be planted with a mixture of white pine, red spruce, ironwood, witch hazel, hobblebush and alternate-leaf dogwood.

**Stand #23 (7.46 ha):** A mixed wood stand, east of Stand #22. The eastern half of the stand encompasses both sides of the stream and the eastern-most old beaver impoundment. It is a very diverse stand and quite accessible to the public, and so will be another integral part of the educational opportunities that can be offered on the property. Much of the balsam fir is dying and living trees suffer from balsam woolly adelgid infestation. Some of the white spruce in the stand is also infested by bark beetles. Yellow birch, sugar maple, white birch and eastern hemlock are present as large specimens and found in scattered patches. The forest floor has deep cradles and hills, and springs and seeps lead into the small stream.

**Stand #23 (7.46 ha):**

**Drainage:** low

**Watercourse:** yes

**Ploughed:** no

**Origin:** partial cutting

**Dominant and codominant trees:**

#1: balsam fir            25% of stand            Age: 50-60    Diameter: 24cm    Ht: 14.8m

#2: red maple            25% of stand            Age: 50-60    Diameter: 29.7cm    Ht: 15.5m

**Tree source:** seed - 80%, planted - %, stump sprouts - 20%, root suckers - %

**Maturity class:** mature

**Canopy description:** tall and patchy

**Stocking:** full

**Tree quality:** low

**Regeneration:** balsam fir less about 1m high, with smaller amounts of red maple, white birch and pin cherry

**Tree species present:** balsam fir, white spruce, eastern hemlock, red spruce, red maple, yellow birch, white birch, sugar maple, trembling aspen, grey birch, American beech, striped maple

**Other plants present:** European mountain ash, pin cherry, red-berried elder, wild rose, wild raisin, serviceberry, witch hazel, mountain maple, alternate-leaf dogwood, beaked hazelnut, willow (spp), round-leaf dogwood, highbush cranberry, bayberry, blueberry, raspberry, blackberry, dwarf red raspberry, bunchberry, viola, hairy sweet cicely, wild cucumber, bluebead lily, common speedwell, heal all, starflower, wild sarsaparilla, wild strawberry, whorled wood aster, wild lily of the valley, cinnamon fern, New York fern, beech fern, interrupted fern, marsh fern, crested wood fern, wood fern, sensitive fern, Christmas fern, Indian pipe, red-stem moss, pillow moss, common haircap moss, old man's beard, lung lichen, polypores, chanterelle mushrooms

**Ground cover:** (snow-covered) % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** hairy woodpecker, golden-crowned kinglet, black-capped chickadee, blue jay, vireo nest, red fox tracks, deer mouse, red squirrel, snowshoe hare tracks, wood frog, spotted salamander

**Treatment:**

1. Prune and release all good quality yellow birch, sugar maple, red spruce throughout the stand.
2. Selectively harvest the white spruce, balsam fir and red maple as the trees begin to lose vigour or are otherwise in decline. If the natural regeneration isn't sufficient, or of high-enough quality, add eastern hemlock, sugar maple and yellow birch to these small openings.
3. Small patches of balsam fir, about 12m in diameter, can be removed in areas where the softwood is dominant. These can be planted with white pine, red spruce, eastern hemlock, ironwood, red oak and white ash, as well as highbush cranberry and beaked hazelnut.
4. Leave all potential red spruce and yellow birch seed trees.

**Stand #24 (3.59 ha):** A young stand of poor quality that will need a lot of work to increase both its diversity and potential value for wood products. The forest was clearcut around 2003, then site-prepped and planted with 2,600 white spruce at the eastern end, 2,600 red pine in the centre and 2,400 white pine at the western end. Some of the white spruce remain, though they are overtopped by pin cherry and birches from stump sprouts that are shading them out. One red pine and two white pine were all that could be seen from the forest road. There is some yellow birch scattered throughout the stand, as well as white birch and red maple. These will be the building blocks of the future stand, through thinning the clumps, and then pruning and releasing the potential crop trees. A line of larger trees have been left along parts of the road.

**Stand #24 (3.59 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** clearcut/plantation/regeneration

**Dominant and codominant trees:**

#1: red maple	30% of stand	Age: 7	Diameter: 8.1cm	Ht: 10.6m
#2: grey birch	30% of stand	Age: 7	Diameter: 11.7cm	Ht: 11.4m
#3: pin cherry	15% of stand	Age: 7	Diameter: 11.4cm	Ht: 11.9m

**Tree source:** seed - 35%, planted - 5%, stump sprouts and root suckers - 60%

**Maturity class:** immature

**Canopy description:** low and patchy

**Stocking:** understocked

**Tree quality:** poor

**Regeneration:** balsam fir 1-2m high, with some red maple and white birch growing among the large amounts of raspberry

**Tree species present:** red maple, grey birch, white birch, trembling aspen, yellow birch, American beech, striped maple, sugar maple, wild apple (spp), white spruce, balsam fir, eastern hemlock, white pine, red pine

**Other plants present:** pin cherry, red-berried elder, ground hemlock, wild raisin, European mountain ash, American mountain ash, willow (spp), bayberry, blueberry, raspberry, dwarf red raspberry, blackberry, bluebead lily, hawkweed (spp), common speedwell, wild sarsaparilla, aster (spp), wild lily of the valley, haircap moss, wood fern, hay-scented fern, bracken fern, old man's beard

**Ground cover:** 20% moss, 30% wildflowers, 10% tree, 30% raspberry

**Coarse woody debris amount:** medium      **Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel tracks and feeding signs, snowshoe hare tracks and browse, raccoon tracks, two large moth/butterfly cocoons on the southeast corner

**Treatment:**

1. Prune and release all good quality yellow birch, white birch, sugar maple and red maple. Some of the stems will potentially grow into hardwood lumber.

2. The remaining white and red pine, as well as any hemlock, should be released.
3. Using any natural openings, or where there are high concentrations of pin cherry, make 15-20 small patch cuts, approximately eight metres in diameter. These should be replanted in a mix of red spruce, eastern hemlock, red oak, white ash and sugar maple.

**Stand #25 (0.74 ha):** A small stand of high-quality yellow birch along the northern border of the property, between Stand #24 and Stand #22. The balsam fir in the stand is dying out from the balsam woolly adelgid. This stand has a lot of potential for hardwood lumber and as a source of high-quality yellow birch seed. The seed should help establish stronger yellow birch regeneration in the neighbouring stands. There is one very large American beech within the stand, 39.5cm in diameter and 14.5m tall.

**Stand #25 (0.74 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** no

**Origin:** heavy partial cut

**Dominant and codominant trees:**

#1: yellow birch	60% of stand	Age: 50-60	Diameter: 30cm	Ht: 17.2m
#2: red maple	20% of stand	Age: 50-60	Diameter: 20.5cm	Ht: 17.6m
#3: balsam fir	10% of stand	Age: 50-60	Diameter: 23.5cm	Ht: 14.3m
#4: white spruce	5% of stand	Age: 50-60	Diameter: 31.5cm	Ht: 20.3m

**Tree source:** seed - 90%, planted - %, stump sprouts - 10%, root suckers - %

**Maturity class:** all stages

**Canopy description:** high, with a lot of patches where the balsam fir has died

**Stocking:** full

**Tree quality:** high

**Regeneration:** balsam fir, 0.3m high; red maple, 0.2m high, with smaller amounts of yellow birch, white spruce and striped maple

**Tree species present:** yellow birch, red maple, white birch, grey birch, American beech, striped maple, trembling aspen, balsam fir, white spruce

**Other plants present:** pin cherry, ground hemlock, European mountain ash, pin cherry, red-berried elder, willow (spp), wild raisin, bayberry, blueberry, raspberry, bluebead lily, common speedwell, common lady's slipper, starflower, wild sarsaparilla, bunchberry, wild strawberry, wood sorrel, aster (spp), wild lily of the valley, sedge (spp), Indian pipe, ground pine, wood fern, hay-scented fern, old man's beard

**Ground cover:** 30% moss, 10% wildflowers, 50% small trees

**Coarse woody debris amount:** high

**Size of CWD:** large

**Number of snags:** high

**Quality of snags:** high

**Wildlife:** northern goshawk, black-capped chickadee, northern raven calling overhead, lots of woodpecker feeding and nesting holes, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. Prune and release all good quality yellow birch, white birch and red maple.
2. The balsam fir should be prevented from coming back into this stand in large numbers. Some of these will be removed when releasing the young hardwoods. Others can be pulled, either individually or in small patches, where eastern hemlock, white pine, red spruce and sugar maple can be planted.



**Stand #26 (0.4 ha):** A small, mixed-up block of woodland to the west of Stand #27, running up to the northern border of the property. It is ploughed land that was abandoned earlier than Stand #27. At present it has low value as a woodland but it has good access and will become another example of the type of restorative practices that can be used to increase the economic and ecological values of degraded woodland.

**Stand #26 (0.4 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** abandoned farmland

**Dominant and codominant trees:**

#1: white spruce	30% of stand	Age: 40	Diameter: 17.4cm	Ht: 15.1m
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#2: trembling aspen	20% of stand	Age: 30-40	Diameter: 15cm	Ht: 15.9m
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#3: white birch	20% of stand	Age: 30-40	Diameter: 11.5cm	Ht: 12.6m
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**Tree source:** seed - 70%, planted - %, stump sprouts and root suckers -30 %

**Maturity class:** immature

**Canopy description:** patchy, with lots of openings

**Stocking:** understocked

**Tree quality:** poor

**Regeneration:** lots of 1m-high balsam fir with some smaller white spruce

**Tree species present:** white spruce, balsam fir, trembling aspen, white birch, grey birch, yellow birch, red maple, American beech, sugar maple

**Other plants present:** pin cherry, willow (spp), ground hemlock, bayberry, blueberry, raspberry, dwarf red raspberry, blackberry, common speedwell, starflower, wild sarsaparilla, wild strawberry, whorled wood aster, wild lily of the valley, Indian pipe, cinnamon fern, wood fern, old man's beard

**Ground cover:** 30% moss, % wildflowers, 50% leaf/needle litter, % ferns

**Coarse woody debris amount:** low                      **Size of CWD:** small

**Number of snags:** low                                      **Quality of snags:** low

**Wildlife:** American robin, black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. Prune and release all good quality yellow birch, white birch and red maple.
2. Plant any openings with a mix of red oak, white ash, yellow birch, eastern hemlock, white pine, alternate-leaf dogwood, highbush cranberry and beaked hazelnut. Some of these openings may need to be enlarged to allow enough sunlight to reach the plantings.

**Stand #27 (1.79 ha):** A black spruce plantation along the northern border of the property, running on both sides of the road. The trees are growing slowly and any suppressed or intermediate trees are unstable due to poor rooting. The stand lacks diversity, though there has been some white spruce and grey and white birch seed in naturally..

**Stand #27 (1.79 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field

**Dominant and codominant trees:**

#1: black spruce      70% of stand      Age: 25      Diameter: 13.7cm      Ht: 7.8m

#2: grey birch      20% of stand      Age: 25      Diameter: 10.7cm      Ht: 10.7m

**Tree source:** seed - 10%, planted - 70%, stump sprouts - 20%, root suckers - %

**Maturity class:** immature

**Canopy description:** some diversity in height due to the birches growing in the stand, otherwise fairly closed and low.

**Stocking:** full

**Tree quality:** low

**Regeneration:** balsam fir about 1m high, with some 1m high white spruce

**Tree species present:** black spruce, white spruce, balsam fir, grey birch, white birch, red maple, large-tooth aspen, trembling aspen

**Other plants present:** pin cherry, downy alder, willow (spp), bayberry, blueberry, raspberry, dwarf red raspberry, blackberry, creeping buttercup, starflower, bunchberry, common speedwell, wild strawberry, aster (spp), wild lily of the valley, Indian pipe, bracken fern, wood fern, old man's beard

**Ground cover:** 40% moss, 5% wildflowers, 40% leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** blue jay, old American robin nest, red squirrel, snowshoe hare tracks

**Treatment:**

1. Prune and release any good quality hardwood throughout the stand.
2. Release designated black spruce crop trees.
3. Expand 6-10 areas where the spruce have started to die and plant a mixture of red oak, white ash, yellow birch and white pine.

**Stand #28 (0.58 ha):** A small red pine plantation east of Stand #27. The larger trees have become dominant and suppressed individuals are growing slowly. Most trees show signs of pine weevil damage, causing multiple leaders. There are some grey birch and pin cherry growing within the plantation, but the diversity is very low in this area. This will be another good opportunity to showcase the restoration techniques that will add value and diversity to the plantation, especially in the area of wildlife habitat.

**Stand #28 (0.58 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field

**Dominant and codominant trees:**

#1: red pine	95% of stand	Age: 25	Diameter: 20.5cm	Ht: 11.9m
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#2: grey birch	5% of stand	Age: 20-25	Diameter: 10.5cm	Ht: 11.6m
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**Tree source:** seed - %, planted – 95%, stump sprouts - 5%, root suckers - %

**Maturity class:** immature

**Canopy description:** closed

**Stocking:** full

**Tree quality:** poor

**Regeneration:** almost nothing

**Tree species present:** red pine, balsam fir, grey birch, white birch

**Other plants present:** pin cherry, willow (spp), raspberry, wild strawberry, aster (spp), wild lily of the valley, wood fern, old man's beard

**Ground cover:** % moss, % wildflowers, 95% leaf/needle litter, % ferns

**Coarse woody debris amount:** low                      **Size of CWD:** small

**Number of snags:** low                                      **Quality of snags:** low

**Wildlife:** American goldfinch, red squirrel, snowshoe hare tracks

**Treatment:**

1. Cut four 10m strips (one strip every 30m) throughout the stand, and plant the strips in red oak, white ash, yellow birch, white pine, red spruce and eastern hemlock, plus highbush cranberry, American mountain ash, serviceberry and witch hazel.

**Stand #29 (0.20 ha):** A tiny stand of eastern larch planted along the forest road near the northeastern edge of the property. The stand is dense and suppressed and intermediate trees are tying. Bark borers are present in these trees and many have multiple leaders. The forest floor is quite dark and the stand lacks both potential economic value and diversity for wildlife.

**Stand #29 (0.20 ha):**

**Drainage:** good

**Watercourse:** no

**Ploughed:** yes

**Origin:** old field, plantation

**Dominant and codominant trees:**

#1: eastern larch	90% of stand	Age: 25	Diameter: 21.5cm	Ht: 13.2m
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#2: white spruce	5% of stand	Age: 25	Diameter: 17.1cm	Ht: 12.3m
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**Tree source:** seed - 10%, planted - 90%, stump sprouts - %, root suckers - %

**Maturity class:** immature

**Canopy description:** closed

**Stocking:** full

**Tree quality:** poor

**Regeneration:** balsam fir, 0.3m tall, with some 1m white spruce

**Tree species present:** eastern larch, white spruce, balsam fir, grey birch, white birch, red maple,

**Other plants present:** pin cherry, blueberry, raspberry, blackberry, common speedwell, purple aster (spp), wood fern, old man's beard

**Ground cover:** 90% moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** low

**Size of CWD:** small

**Number of snags:** low

**Quality of snags:** low

**Wildlife:** black-capped chickadee, American goldfinch, red squirrel, snowshoe hare tracks

**Treatment:**

1. Create four patches, 10-12m in diameter, spaced throughout the stand in the worst areas of the plantation. Plant these holes with a mix of white pine, red spruce, eastern hemlock, red oak, yellow birch, witch hazel, highbush cranberry, serviceberry and American mountain ash.

**Stand #30 (0.40 ha):** Another small black spruce plantation in the northeast corner of the property at the opening to the trail. This is another area where we can showcase restoration techniques aimed at adding value, increasing biodiversity and improving wildlife habitat.

**Stand #30 (0.40 ha):**

**Drainage:** good

**Watercourse:** along the edge

**Ploughed:** yes

**Origin:** old field, plantation

**Dominant and codominant trees:**

#1: black spruce      98% of stand      Age: 25      Diameter: 19.7cm      Ht: 10.1m

#2: white birch      1% of stand      Age: 20-255      Diameter: 10.1cm      Ht: 10.1m

**Tree source:** seed - 2%, planted - 98%, stump sprouts - %, root suckers - %

**Maturity class:** immature

**Canopy description:** closed and low

**Stocking:** fully

**Tree quality:** poor

**Regeneration:** very little

**Tree species present:** black spruce, white spruce, balsam fir, white birch, grey birch, wild apple (spp)

**Other plants present:** pin cherry, speckled alder, downy alder, willow (spp), bayberry, blueberry, dwarf red raspberry, raspberry, blackberry, common speedwell, wild strawberry, aster (spp), Indian pipe, wood fern, old man's beard

**Ground cover:** (snow covered) % moss, % wildflowers, % leaf/needle litter, % ferns

**Coarse woody debris amount:** low      **Size of CWD:** small

**Number of snags:** low      **Quality of snags:** low

**Wildlife:** black-capped chickadee, blue jay, red squirrel, snowshoe hare tracks

**Treatment:**

1. This stand will be left to get older before much work will be done, but trees that are not vigorous can be cut and any holes planted with red oak, white ash, eastern hemlock and white pine, as well as alternate-leaf dogwood, hobblebush and witch hazel.

## **ADDITIONAL AREAS**

46

The three abandoned beaver impoundments take up an additional 2.1 ha, and are growing up in a mix of native plants. These areas will probably be subject to beaver damming again in the future, so will just be allowed to grow up as natural areas. They are providing excellent wildlife habitat and will be part of the educational tours of the property in the future.

There is also a .27 ha field in the northeast corner of the property that is immediately behind the neighbour's property. A decision will have to be made as to whether to reforest that part of the property, since it is being somewhat maintained as a cleared area.

### **Priorities:**

1. Harvest some of the white spruce in Stands #1 and 4, and replant.
2. Harvest the Scots pine plantation and replant with species attractive to wildlife.
3. Prune and release young hardwoods in Stands #8, 14, 17, 18, 19 and 21.
4. Harvest some of the hardwoods in Stands #12, 13, 15, 16 and 22, and replant.
5. Prune and release white pine in Stand #5
6. Prune and release young hardwoods in the Stand #24 plantation and plant all holes.
7. Cut strips in the red pine plantation, Stand #26, and replant strips.
8. Create cages for the black ash growing along the edge of the middle beaver impoundment.
9. Erect nest boxes for tree swallows along the stream.
10. Continue the volunteer days and public involvement and usage on the property.
11. Continue working on the trail and design and erect signage.