



PROPERTY DESCRIPTION

The overall history of this property is typical of most woodlands in the province, with the area closest to the road farmed and then abandoned and the land further back left in forest. There are unploughed areas and forests growing on old fields. This property has a large amount of older conifer plantations - red pine, white pine, Scots pine, Norway spruce and Japanese larch - some of which are starting to break up. The challenge will be to find a market for these products and to harvest them as they reach the end of their life cycle. One of the original red pine plantings on this property, carried out in the 1950's, started to die and were clearcut and one has been replanted in Japanese larch. Another large area was clearcut and replanted in white pine, while other blocks were clearcut and never replanted. Towards the back of the property, there is an excellent area of mixed hardwoods. Though young, they are of high quality and should provide good value in the future.

The land is well-drained and obviously capable of growing high-quality trees. Some of the hardwoods are of very good quality, while the white pine, Norway spruce and European larch have grown into quite large-diameter trees.

The swale at the eastern end of the property was once a seasonal stream and probably continues to carry water in the spring. After a clearcut, it grew up in a mix of early successional species, but along the streambed there is a large number of beaked hazelnut. Riparian zones even of seasonal streams, are among the most productive habitats on Prince Edward Island for both plants and animals and much better stewardship should be displayed in these areas.

The roadway running the length of the property also offers a great opportunity to add large numbers of native plants that are especially-attractive for wildlife. The edge has more sunlight over a longer period and allows greater fruiting and flowering of plants such as American mountain ash, serviceberry, highbush cranberry, beaked hazelnut, hawthorn and the elderberries.

Special notes: As with most of the public forest land, there are piles of wood that have been left beside the road. There are also older garbage piles along the road and some newer dumps as well.

STAND TREATMENTS

Stand #1 (ha): An old field site that was planted in red pine and European larch around 1953. The red pine in the stand was being killed by a fungal disease in the mid-1990's and starting to break up. Some white birch and red maples were regenerating through the stand. The red pine was cut and about 30 large European larch was left. Japanese larch was planted in the stand, the second conifer plantation on the site. Site prep included burning tires to ignite the brush. The wire of the radials can still be seen. The older larch are starting to be attacked by bark beetle. There are large white spruce along the roadway.

Origin: old field turned into a plantation, then the red pine was clearcut and another plantation put in its place

Approximate age: new larch plantation is six years old, while the older larch is over 50 years.

Main trees in canopy: European larch (80%), white spruce and white birch (10% each)

Height of canopy: 15.8m, a few up to 20m **Diameter:** 45cm

Volume: this will be added before any harvesting occurs

Quality: medium with lots of branches

Other tree species: gray birch, red maple, pin cherry

Plants: speckled alder, downy alder, red-berried elder, raspberry, blueberry, veronica, tall white aster, wild strawberry, pyrola, starflower, narrow-leafed goldenrod, rough goldenrod, mouse-eared hawkweed, wood fern, bracken fern.

Regeneration: mostly grasses and forbs, with some white spruce, red maple, white birch, red pine, European larch and apple

Coarse woody debris: little except for the stumps from the cut and some small wood piles

Wildlife trees: few

Notes on wildlife: brown creeper, blue jay

Treatment: Remove larger Japanese larch before they get too damaged by the bark beetle. These areas should be planted with red oak, yellow birch, white pine and red spruce.

Plant other holes throughout the stand with the above species, plus eastern hemlock, beaked hazelnut, serviceberry and American mountain ash.

As with all the other stands that border on the roadway, the southern edges of the stand can be planted with a variety of native species attractive to wildlife. These will include red oak, serviceberry, hazelnut, American mountain ash, hawthorn, highbush cranberry, red osier dogwood and common elder.

Stand #3 (ha): A large area clearcut and replanted in 1996 with 6,760 white pine. Plantation maintenance was carried out to remove some of the competing hardwoods. Even with this, some of the pine are overtopped by hardwoods three times their size. The white pine in the stand has quite a bit of weevil damage and there are holes scattered throughout the stand that contain no young trees of any value. There are some good-quality red maple and white birch coming up in the plantation that should be promoted to help improve the future diversity and value of the stand. Japanese larch from the plantation towards the west and Scots pine from the plantation towards the east are starting to seed in and this trend should be watched carefully.

Origin: clearcut

Approximate age: 10 years

Main trees in canopy: white pine (50%), pin cherry (30%), trembling aspen (10%) and white birch and gray birch (10% in total)

Height of canopy: white pine are 4m and 5.6m, with a few up to 6.3m and 10cm dbh. The trembling aspen are up to 9.4m tall and 10.6cm dbh.

Volume: this will be added before any harvesting occurs

Quality: good

Other tree species: red maple, white spruce, balsam fir, Scots pine, Japanese larch

Plants: chokecherry, beaked hazelnut, red-berried elder, willow, speckled alder, beaked hazelnut, American mountain ash, European mountain ash, bayberry, blackberry, raspberry, blueberry, wild strawberry, fireweed, yarrow, tall white aster, Canada goldenrod, narrow-leafed goldenrod, wood sedge

Regeneration: lots of raspberry, with some white spruce, beech, trembling aspen, white and gray birch, European larch, red pine and Scots pine.

Coarse woody debris: quite a bit, lots of brush from the clearcut

Wildlife trees: scattered, but some are quite heavily used. There will be a long gap in the stand where none are available.

Notes on wildlife: robins, robin nest, blue jay, snowshoe hare, heavy browse by hare, signs of woodpecker feeding

Treatment: There are 20-30 natural holes that are large enough to plant trees, though the raspberries and brush will make this difficult. Despite this, these areas should be planted in a mix of red oak, yellow birch, white ash and red spruce.

Prune multi-stemmed white pines identified as crop trees.

Prune multi-stemmed white birch and red maple identified as crop trees.

Stand #4 (ha): Another area planted in conifers around 1953. The Norway spruce are putting on lots of girth, but many of the other trees are either limby or with lots of taper. Many of these trees have been pruned but too late in their life to give any kind of return. The trees are widely-spaced and there has been some blowdown, especially towards the south. This property is long and narrow, with fields or clearcuts on either side and there is too much wind blowing through. Anything that will help thicken up the edges would be useful, both for the woodland and for its wildlife inhabitants. The site is very well-drained and looks to be able to grow large-diameter trees. Unfortunately there is a large amount of balsam fir regeneration threatening to take over the site.

Origin: old field, plantation

Approximate age: 53

Main trees in canopy: red pine (40%), white spruce, Norway spruce and Scots pine (20% each)

Height of canopy: 18.5m **Diameter:** 28.8cm

Volume: this will be added before any harvesting occurs

Quality: medium

Other tree species: white birch, red maple

Plants: European mountain ash, willow, red-berried elder, speckled alder, downy alder, dwarf red raspberry, blueberry, purple violet, veronica, narrow-leafed goldenrod, wood sedge, bunchberry, starflower, wild strawberry, pyrola, wild lily of the valley, wood fern, Indian pipe

Regeneration: there are patches with nothing but balsam fir. Other areas have no regeneration due to the thick layer of pine needles, while there are small amounts of white spruce, white birch, beech, pin cherry and red maple

Coarse woody debris: medium, from trees that have blown over and are starting to rot

Wildlife trees: medium, some trees have snapped off

Notes on wildlife: blue jay, black-capped chickadees, red squirrel

Treatment: Harvest the Scots pine from this stand before more of it breaks up and it starts to seed in. If no market can be found, the wood should be cut and left on the ground to provide coarse woody debris for this stand and also Stands #1 and #2. Even if there is a market, the tops and brush should be piled together to improve nutrient and organic matter levels and as protection for wildlife. Plant the holes created by this harvest with yellow birch, sugar maple, red oak, red spruce, hemlock, beaked hazelnut and wild raisin.

The remainder of the stand should be selectively harvested, with an eye to creating holes for planting and removing the trees with the worst tops. These holes can be replanted with yellow birch, sugar maple, red oak, red spruce, hemlock, beaked hazelnut and wild raisin.

Improve diversity and future values by planting any holes with a mix of yellow birch, sugar maple, red spruce, beaked hazelnut and witch hazel.

Sections of the thick balsam fir regeneration should be pulled or cut with a brush saw to create planting spots for hemlock, red spruce, yellow birch and sugar maple.

Stand #5 (ha): Another area planted in conifers around 1953. These trees are more tightly grown and are tall but without large diameters. Many of the red pine have thin tops, suggesting that they are getting towards the end of their life cycle. The Scots pine are of poor form. Many of these trees have been pruned but too late in their life to give any kind of return. This property is long and narrow, with fields or clearcuts on either side and there is too much wind blowing through. Anything that will help thicken up the edges would be useful, both for the woodland and for its wildlife inhabitants. The forest floor is covered with a thick layer of pine needles. As with Stand #4, there are some areas where balsam fir regeneration threatening to take over the site. The Scots pine are also starting to regenerate in this stand.

The site is very well-drained and looks to be able to grow large-diameter trees. Unfortunately

Origin: old field, plantation

Approximate age: 53

Main trees in canopy: red pine (90%) and Scots pine (10%)

Height of canopy: 19.4m

Diameter: 22.5cm

Volume: this will be added before any harvesting occurs

Quality: red pine medium, Scots pine poor

Other tree species: trembling aspen, white spruce, white birch, large-toothed aspen, red maple

Plants: speckled alder, blueberry, raspberry, pyrola, wild lily of the valley, starflower, narrow-leafed goldenrod, wood sedge, wood fern

Regeneration: balsam fir in thick patches, a few red maple, beech, Scots pine and striped maple

Coarse woody debris: low

Wildlife trees: few

Notes on wildlife: black-capped chickadees, crow

Treatment: Harvest the rows of Scots pine from this stand before more of it breaks up and it starts to seed in even more. If no market can be found, the wood should be cut and left on the ground to provide coarse woody debris for this stand and also Stands #1 and #2. Even if there is a market, the tops and brush should be piled together to improve nutrient and organic matter levels and as protection for wildlife. Plant the holes created by this harvest with yellow birch, sugar maple, red oak, red spruce, hemlock, beaked hazelnut and wild raisin.

The remainder of the stand should be selectively harvested, with an eye to creating holes for planting and removing the trees with the worst tops. Since these are taller and thinner trees than the red pine in Stand #4, care should be taken not to open up the stand any more than necessary. These holes can be replanted with yellow birch, sugar maple, red oak, red spruce, hemlock, beaked hazelnut and wild raisin.

Improve diversity and future values by planting any holes with a mix of yellow birch, sugar maple, red spruce, beaked hazelnut and witch hazel.

Sections of the thick balsam fir regeneration should be pulled or cut with a brush saw to create planting spots for hemlock, red spruce, yellow birch and sugar maple.

Stand #6 (ha): A red pine plantation, probably created around 1953, that was clearcut approximately six years ago. There is no other way to describe it - this stand is a mess. There are piles of beech that were never hauled away, large-diameter (25-30cm dbh) white birch cut and dropped, and a large area of piled brush with very low productivity. The stand was planted with 3111 white spruce in 2000. The canopy of the hardwoods is approximately 5-6m, while the average height of the spruce is 1m.

Origin: red pine plantation, clearcut, white spruce plantation

Approximate age: 6 years

Main trees in canopy: pin cherry (40%), trembling aspen and white birch (20% each) and gray birch (10%), with a small amount of young yellow birch along the edges.

Height of canopy: 5-6m

Diameter: 3.5cm

Volume: this will be added before any harvesting occurs

Quality: poor

Other tree species: white spruce, beech

Plants: beaked hazelnut, willow, European mountain ash, raspberry, veronica, mouse-eared hawkweed, narrow-leafed goldenrod, wild strawberry

Regeneration: poor, with some red maple and white birch

Coarse woody debris: medium

Wildlife trees: few

Notes on wildlife: black-capped chickadee, robin nest, snowshoe hare browse,

Treatment: The white spruce will have to be released if they are to do anything, though the idea is not to have a stand of white spruce on the site, especially after a rotation of red pine. There are not enough trees of value on the site, so small patches or even strips about 6-7m wide should be created that will allow planting of red oak, yellow birch and white pine, along with American mountain ash and beaked hazelnut. Corrective pruning on any identified crop trees should be carried out at this time. The young yellow birch should be pruned to single leaders.

Stand #7 (ha): Still another area planted in conifers around 1953. Many of the white pine have had weevil damage, affecting their form over about 8m, but they are putting on lots of girth. The Norway spruce are also growing very large. Many of the other trees are either limby or with lots of taper. The trees have been pruned but too late in their life to give any kind of return. The trees are widely-spaced and there has been some blowdown. Everything possible should be done to thicken up the edge along the road, in order to decrease the amount of wind blowing through the stand from the blueberry field next door.

Origin: agricultural land, plantation

Approximate age:53

Main trees in canopy: white pine (30%), red pine (25%), Scots pine (20%) and Norway spruce (20%)

Height of canopy: 19 m

Diameter: 35cm

Volume: this will be added before any harvesting occurs

Quality: medium - will have to check quality of the wood itself

Other tree species: white birch, white spruce, trembling aspen, Japanese larch, beech, striped maple

Plants: speckled alder, downy alder, wild raisin, bayberry, beaked hazelnut, European mountain ash, huckleberry, blueberry, raspberry, dwarf red raspberry, pyrola, veronica, bunchberry, mouse-eared hawkweed, wild strawberry, heal-all, wood sedge, starflower, bracken fern, wood fern, Indian pipe

Regeneration: some of the areas have very little regeneration, due to the heavy needle litter, and there are some patches of dense balsam fir that should be monitored. There is a lot of white pine regenerating under the larger white pines, and small amounts of white birch, red maple, white spruce, Scots pine and striped maple

Coarse woody debris: some of the larger trees are blowing over and starting to rot

Wildlife trees: some snags forming from trees snapping off

Notes on wildlife: warbler nest in alder, cedar waxwings along roadway, squirrel feeding sign

Treatment: This stand is starting to break up and the trees should be harvested as they complete their life cycle. A few of the Scots pine can be girdled to improve the value for cavity-nesting wildlife. The rest should be harvested before it starts to seed in more. If no market can be found, the wood should be cut and left on the ground to provide coarse woody debris for this stand. Some large red pine, white pine and Norway spruce should also be harvested to enlarge existing openings that will become planting sites. This harvest will provide insight into the wood quality and what markets there might be for these species. Create 4-5 openings per hectare, approximately 20m in diameter. These openings should be planted with a mix of yellow birch, sugar maple, red spruce, hemlock, beaked hazelnut, witch hazel and hobblebush.

The rest of the stand would benefit from enrichment plantings that would improve the immediate biodiversity and increase future values. Hemlock, red spruce, yellow birch, sugar maple, red oak and witch hazel can be added throughout.

Stand #8 (ha): A small block of forest bordering a woods road running north-south across the property. Barbed wire is still in place, showing the agricultural use of the next stand to the west. The species mix is mostly short-lived, shade intolerants but there is a good mix of plants already in the stand. Some conifers were planted in the stand. The white spruce scattered through the stand are quite large and reaching the end of their lifecycle. Some of the aspen are breaking up and providing good wildlife habitat. The site is well-drained and planting conditions are good.

Origin: clearcut

Approximate age: 55

Main trees in canopy: white birch (40%), red maple, trembling aspen and white spruce (20% each)

Height of canopy: 20.7m

Diameter: 50.5cm for the largest white spruce

Volume: this will be added before any harvesting occurs

Quality: medium

Other tree species: red pine, white pine, Norway spruce, yellow birch, apple, striped maple

Plants: willow, bayberry, beaked hazelnut, veronica, pyrola, rough goldenrod, bunchberry, starflower, wild lily of the valley, prince's pine, shining club moss, ground pine, ground cedar, bracken fern, wood fern, Indian pipe

Regeneration: medium - lots of balsam fir, with some red maple, trembling aspen, white spruce and a bit of white pine.

Coarse woody debris: medium

Wildlife trees: medium, with some large ones

Notes on wildlife: squirrel feeding, signs of woodpecker feeding

Treatment: Selectively harvest the white spruce, trembling aspen and red pine. In these areas, and throughout the rest of the site, plant red oak, yellow birch, sugar maple,

Stand #9 (ha): A high-quality stand of mixed hardwoods, full of potentially-valuable sugar maple and yellow birch. A thinning was carried out over most of the stand to improve quality and species composition. The stand is quite open and from a wildlife enhancement prospective, would benefit from more conifers in the understory. This will make the woods more hospitable to wildlife, providing cover and a protection throughout the year.

Origin: partial cut, unploughed

Approximate age: 80

Main trees in canopy: white birch (40%), red maple (30%), sugar maple (20%) and yellow birch (10%)

Height of canopy: 20.5m

Diameter: 22.5cm

Volume: this will be added before any harvesting occurs

Quality: excellent

Other tree species: beech, balsam fir, white spruce, striped maple

Plants: wild raisin, mountain maple, beaked hazelnut, American mountain ash, twinflower, wood sedge, common lady's slipper, pyrola, veronica, agrimony, bluebead lily, rough goldenrod, prince's pine, wild lily of the valley, startflower, bunchberry, ground cedar, ground pine, shining club moss, bracken fern, wood fern, lady fern, Indian pipe

Regeneration: there are very large amounts of sugar maple and red maples regenerating, along with striped maple and balsam fir

Coarse woody debris: not enough, due to thinning

Wildlife trees: not enough, due to thinning

Notes on wildlife:

Treatment: This is a stand that should be left to get older and produce some highest-quality hardwoods. Small amounts of white birch can be harvested to give the sugar maple and yellow birch room as needed. Underplanting of hemlock and red spruce would be beneficial for wildlife and future wood products.

The large numbers of sugar maple seedlings would make this an good place to harvest plant material to improve other stands. These seedlings can be hand-pulled and directly planted to other areas, or grown out in a nursery for a year or two.

Stand #10 (ha): A block of mixed hardwoods that is full of very large (up to 50cm in diameter at breast height) spreading white birch. Many are starting to die, providing excellent habitat for cavity-nesting birds, small mammals and amphibians. Others appear to be quite sound and could provide wood for a variety of interesting products. This stand was not part of the hardwood thinning carried out in previous years and so is more dense with a stronger understory.

Origin: partial cut, unploughed

Approximate age: 80

Main trees in canopy: red maple (60%), white birch (30%), balsam fir (5%)

Height of canopy: 18.2m

Diameter: 30cm

Volume: this will be added before any harvesting occurs

Quality: medium

Other tree species: sugar maple, white spruce

Plants: beaked hazelnut, wild raisin, red-berried elder, winterberry holly, starflower, wild lily of the valley, bluebead lily, ground pine, ground cedar, shining club moss, bracken fern, lady fern, wood fern, Indian pipe

Regeneration: medium - mostly balsam fir with smaller amounts of white spruce and red maple.

Coarse woody debris: medium, with some large stems on the ground

Wildlife trees: excellent, lots of large, dead and dying white birch

Notes on wildlife: blue jays, hawk calling

Treatment: Selectively harvest the older white birch as they reach the end of their lifespan and when there is a market for this type of wood. Replant the holes with yellow birch, red spruce, white pine and hemlock.

Underplant yellow birch, sugar maple, red spruce, white pine and hemlock, along with witch hazel, hobblebush, beaked hazelnut and wild raisin, throughout the stand.

Stand #11 (ha): A young mixed wood stand at eastern end of the property, full of poor quality, low value trees. An old streambed runs north-south across the stand. Though dry now, it was once a seasonal stream and probably carries some water in the spring. The clearcut left little of value and most of the stems are from stump sprouts. There is an exceedingly large amount of beaked hazelnut growing along the streambed, that must have been in the hardwood understory at the time of the clearcut and responded with vigour. There is also a fair amount of alternate-leaf dogwood, which unfortunately has the same fungal disease that is attacking this species across the province. This stand has little value as it stands and will greatly benefit from enrichment plantings.

Origin: clearcut

Approximate age: 30

Main trees in canopy: gray birch (40%), red maple (30%), white birch, pin cherry and trembling aspen (10% each)

Height of canopy: 11.3m

Diameter: 10cm

Volume: low

Quality: poor

Other tree species: balsam fir, white spruce, sugar maple, yellow birch (saplings on western edge)

Plants: beaked hazelnut, alternate-leaf dogwood, willow, red-berried elder, wild raisin, bristly black currant, blueberry, veronica, pyrola, narrow-leaf goldenrod, wild strawberry, fireweed, tall white aster, wood sedge, starflower, wild lily of the valley, bracken fern, wood fern

Regeneration: little, some balsam fir with smaller amount of white spruce and red maple

Coarse woody debris: little

Wildlife trees: few

Notes on wildlife: warbler nest 2m high in hazelnut; snowshoe hare browse; skunk excavation; old fox den

Treatment: Plant existing holes with yellow birch, white pine, red spruce and hemlock.

The streambed should be an excellent place to collect seed and possibly seedlings of beaked hazelnut. These can then be moved to other properties, either through direct seeding or transplanting.

The western boundary of this stand is full of young balsam fir, which can be controlled to promote other more valuable species. There is some yellow birch regeneration in the southwest corner and these will need to be pruned and released if they are to thrive.

A future fuelwood harvest should take place in 10-15 years to give room for the new plantings.

Priorities: 1. As early as possible, carry out enrichment plantings along the roadway and in any existing openings, to get a jump on future restoration work.

2. Remove older Japanese larch in plantation closest to the road and plant the holes with a mixture of yellow birch, red oak, red spruce and eastern hemlock.

3. The Scots pine are a problem species on this site as they are of very poor form, have little value and are starting to seed in to surrounding areas. Markets should be found to allow the efficient removal of most of these trees, even if they are just to go for wood chips. The rest can be girdled to create wildlife trees or cut and left on site to provide coarse woody debris.

4. Begin removing some of the red pine plantations, creating small pockets that can be planted with a mixture of hardwoods and shrubs that are especially attractive to wildlife, such as serviceberry, red-berried elder, beaked hazelnut and highbush cranberry.

5. Work towards diversifying the young white pine plantation (Stand #3), so that it doesn't evolve into a future problem. This will involve pruning some of the weevil-damaged pine and hardwood regeneration and removing competition from selected red maple and white birch. Any openings can be planted with yellow birch, sugar maple, red oak and red spruce and eastern hemlock.

Additional comments: Once the woody plantings are done, add wildflowers and ferns that will help make the property more diverse and more attractive to wildlife.