

- OF1 White spruce / Aster – Goldenrod / Shaggy moss
- OF2 Tamarack / Speckled alder / Rough goldenrod / Shaggy moss
- OF3 White pine – Balsam fir / Shinleaf – Pine-sap
- OF4 Balsam fir – White spruce / Evergreen wood fern – Wood aster
- OF5 Trembling aspen – Grey birch / Rough goldenrod – Strawberry

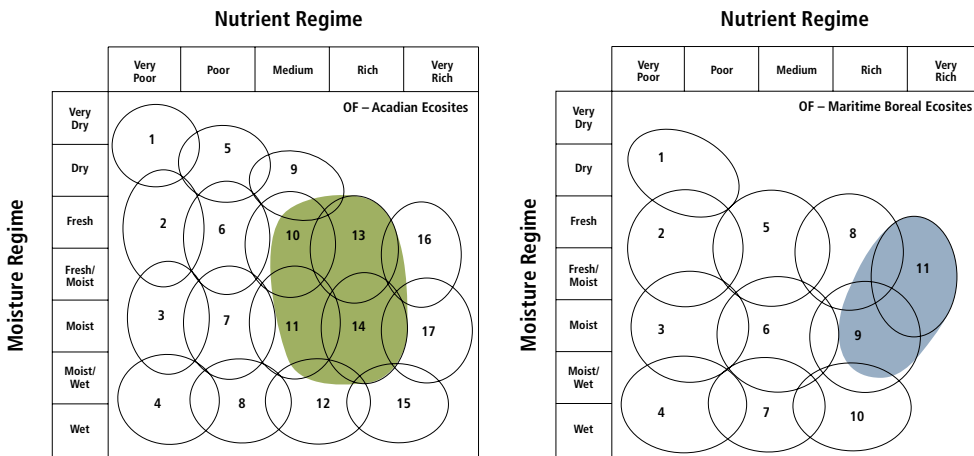
**Concept:** These are forests originating on abandoned farmland where soils have been enriched through the addition of organic matter by tillage or grass cover (pasture). Vegetation Types (VT) are early successional and typically dominated by softwood species. Old field VTs usually develop full overstory canopies with sparse understory cover and a needle carpet or moss dominated forest floor. These are short-lived, even-aged forests which often succumb to insects and disease. All VTs in this group are found in the Acadian Ecosite group, with several also found in the Maritime Boreal Ecosite group.

**Vegetation:** These closed canopy forests are typically dominated by white spruce, tamarack, white pine or balsam fir. An aspen dominated VT has also been identified. Red oak and white ash can sometimes be found on richer old field sites, but no separate VT has been described for this situation. Both the shrub and herb layers can be species diverse, but they are usually poorly developed. Herbs associated with agricultural lands are common. Schreber's moss and shaggy moss are the main bryophytes found where needle carpet or leaf litter do not dominate the forest floor.

**Environmental Setting:** Vegetation types in this group are found on a range of slope positions. Many sites have been cleared of surface rocks which have been piled or arranged as walls along property lines. Soils are mainly derived from glacial till deposits and usually have a distinctive Ap (plough layer) horizon caused by tilling or pasture cover. This organically enriched Ap horizon may be less well developed (or even absent) on some old pasture sites. Microtopography is also usually smooth (level) where tilling has occurred. A wide range of moisture levels can be found, but fertility is generally medium to rich throughout. These forests are found throughout the province, but are most common on the Nova Scotia Uplands (300) and Fundy Shore (900) ecoregions, and on drumlins in the Clare (730) and LaHave Drumlins (740) ecodistricts.

**Successional Dynamics:** Old field forests are early successional VTs that develop on sites modified by clearing and agricultural use. Clearcut harvesting of mature stands is likely to initiate another early successional stage dominated by shade-intolerant hardwood species such as grey birch, aspen, pin cherry and white birch. Stands that slowly deteriorate may provide more opportunity for shade-tolerant species to become established if seed sources are nearby. It is expected that several rotations will be needed before original forest conditions become re-established on most old field sites in the province.

## Edatopic Grids



## Ecological Features

Since the early 1900's, large areas of abandoned agricultural land have reverted to early successional softwood forest. These distinctive patches add structural diversity to the landscape, often providing strong transitional zones between fields and natural hardwood forests. These ecosystems are relatively simple, frequently dominated by one tree species with minimal understory development. Following stand collapse or harvesting some species indicative of pre-farming stand composition may develop in the next successional stage, but several rotations are required before pre-agricultural forest can be more fully returned to a site. A dense needle carpet and frequent levels of Schreber's and shaggy mosses are the most distinguishing features of the forest floor, where low light availability generally results in reduced shrub and herbaceous cover and diversity. Extensive fruiting of mycorrhizal mushrooms, including chanterelle and boletes, may occur in late summer and fall. The presence of old rock walls and foundations, apple trees and nearby fields and active farms makes this particularly unique and productive habitat for a number of wildlife species.

# OF1

## White spruce / Aster – Goldenrod / Shaggy moss

*Picea glauca* / *Aster* spp. – *Solidago* spp. / *Rhytidiadelphus triquetris*

n=25



Farmville,  
Lunenburg County

**Concept:** This early successional Vegetation Type (VT) has abundant white spruce, often with a minor component of balsam fir. OF1 stands usually develop closed overstory canopies resulting in needle carpet and/or moss-dominated forest floors with minimal shrub and herb cover. OF1 represents the dominant softwood forest associated with abandoned agricultural lands in central and eastern Nova Scotia.

**Vegetation:** White spruce is the dominant overstory tree. Common associates include balsam fir, red maple and tamarack. Both the shrub and herb layers can be species rich, but they are usually poorly developed. Hawkweeds, goldenrods, asters and several grass species are indicative of past agricultural land-use. Other common, but seldom abundant, species include strawberry, common speedwell, tall buttercup and bedstraws. Moss cover can be variable and interspersed with needle carpet. Where present, species include shaggy moss, Schreber's moss, broom moss, hair-cap moss and stair-step moss.

**Environmental Setting:** OF1 is mainly associated with fresh to fresh-moist, nutrient medium to rich soils of variable texture. This VT is found throughout Nova Scotia, but is primarily associated with several Nova Scotia Upland ecoregions (Cobequid Hills, Cobequid Slopes, Cape Breton Hills, Pictou Antigonish Highlands) and the Atlantic Coastal and Fundy Shore ecoregions.

### Ecological Features

Past cultivation across this patch forest has leveled most pre-disturbance micro topography, while rock walls and piles, old foundations and wells provide additional evidence of agricultural land use. Linear rock piles may provide habitat for small cavity dwellers including rodents, snakes, and ground dwelling insects like wasps and bees. Other

unique aspects include the forest's close proximity to open fields and active farms and the frequent presence of apple and other fruit trees. These features may attract deer, red fox, coyotes, red squirrels, small mammals, and birds including ruffed grouse, thrushes, crows and blue jays. OF1 provides excellent growing conditions for mycorrhizal

mushrooms such as chanterelle and boletes, which are allied with spruce. Although these forests add to landscape structural diversity, they have a simplified ecological make-up, reflected by low tree diversity, structural complexity, and deadwood volume. Mature forests are highly susceptible to spruce bark beetle attack, leading to their rapid collapse.

Sites that have been tilled or pastured have level micro-topography and a distinct Ap (plough layer) soil horizon.

**Successional Dynamics:** OF1 is an even-aged, early successional VT dominated by white spruce. Although white spruce has the ability to regenerate grassy microsites, old field trees tend to have a shorter lifespan than those found in natural forest conditions. They also do not re-establish under their own cover, which inevitably leads to ecosystem collapse. Natural disturbance agents include insects (e.g. bark beetles, tussock moth, spruce budworm) and windthrow. Subsequent successional stages usually include species indicative of pre-agricultural forest cover, especially if such seed sources are nearby. Stands that slowly deteriorate are more likely to succeed to such forest conditions as shade-tolerant species regenerate on site. Clearcut harvesting may initiate an earlier successional stage dominated by grey birch, pin cherry, aspen, white birch and/or other woody shrubs. Depending in part on the level of advanced regeneration at time of harvest, OF1 may also succeed to OF4 (Balsam fir – White spruce / Evergreen wood fern – Wood aster) or other VTs dominated by shade-intolerant species such as white birch, aspen and red maple. As many OF1 sites were originally tolerant hardwood sites, later successional stages are likely to include a component of sugar maple, yellow birch and/or beech, possibly leading to TH1 (Sugar maple / Hay-scented fern) or TH2 (Sugar maple / New York fern – Northern beech fern).

## Characteristic Plants

OF1

	Freq. (%)	Cover (%)
White spruce	100	60.3
Balsam fir	52	17.7
Red maple	17	4.8
Tamarack	13	2.3
<b>Tree Layer (Mean % Cover)</b>		<b>72</b>
Balsam fir	70	1.5
Red maple	57	1.0
Mountain-ash	26	0.6
Wild raisin	26	0.1
White spruce	22	1.4
White ash	22	0.2
<b>Shrub Layer (Mean % Cover)</b>		<b>4</b>
Starflower	83	1.1
Wild lily-of-the-valley	74	3.2
Evergreen wood fern	52	2.8
Bunchberry	48	3.8
Violets	43	1.5
Rough goldenrod	35	0.1
Common speedwell	30	0.8
Indian pipe	30	0.8
Fibrous-root sedge	26	5.2
Dwarf raspberry	26	1.0
Sarsaparilla	26	0.1
Goldthread	22	7.6
Tall buttercup	22	2.7
Hawkweeds	22	0.6
Three seeded sedge	22	0.4
<b>Herb Layer (Mean % Cover)</b>		<b>17</b>
Schreber's moss	83	22.4
Broom moss	74	2.8
Hair-cap moss	70	3.1
Stair-step moss	57	16.5
Shaggy moss	57	15.5
Hypnum moss	39	1.4
Plume moss	35	0.2
Wavy dicranum	22	2.2
Rhytidiadelphus moss	13	1.0
Goose neck moss	4	1.2
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>44</b>

## Distinguishing Features

This softwood forest on well drained soils is extensively white spruce. Rock foundations, rock piles, rock walls and wire fencing are indicators of past agricultural use. Level microtopography and a soil profile that shows a plough layer are good site indicators. Dense stands have poorly developed herb and moss layers.



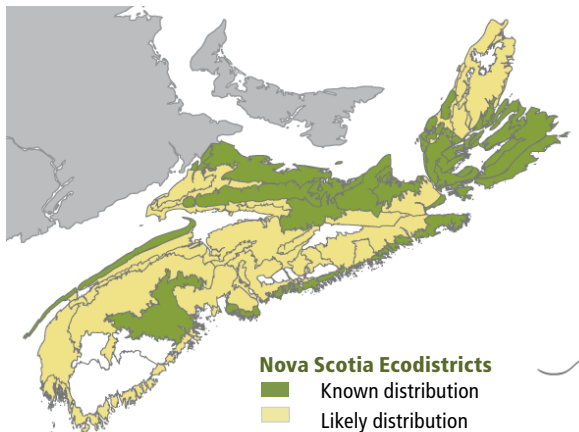
Shaggy moss

## Site Characteristics

Slope Position:	Lower <sup>4</sup> Level <sup>2</sup> Middle <sup>2</sup> Upper <sup>2</sup>
Surface Stoniness:	(Non - Slightly) <sup>8</sup> (Moderately) <sup>2</sup>
Bedrock Outcrop:	(Non-rocky) <sup>9</sup> (Slightly - Moderately) <sup>1</sup>
Elevation Range:	9 - 310m
Slope Gradient:	Gentle <sup>5</sup> Level <sup>2</sup> Moderate <sup>2</sup> Strong <sup>1</sup>
Aspect:	North <sup>1</sup> East <sup>2</sup> South <sup>2</sup> West <sup>2</sup> None <sup>2</sup> nd <sup>1</sup>
Exposure:	Moderate <sup>4</sup> Mod. exposed <sup>3</sup> Exposed <sup>2</sup> Mod. sheltered <sup>1</sup>
Microtopography:	Level <sup>7</sup> Moderate <sup>1</sup> Slightly <sup>1</sup> Other <sup>1</sup>
Drainage:	Well <sup>6</sup> Imperfect <sup>3</sup> Moderately well <sup>2</sup>

## Soil Characteristics

Soil Type:	ST8 <sup>5</sup> ST2-L <sup>2</sup> ST9 <sup>1</sup> ST11 <sup>1</sup> Other <sup>1</sup>
Parent Material:	Glacial till <sup>10</sup>
Rooting Depth (cm):	(<30) <sup>2</sup> (30-45) <sup>3</sup> (>45) <sup>5</sup>
Duff Thickness (cm):	(0-5) <sup>4</sup> (6-10) <sup>4</sup> (11-20) <sup>1</sup> nd <sup>1</sup>



## OF2

### Tamarack / Speckled alder / Rough goldenrod / Shaggy moss

*Larix laricina* / *Alnus incana* / *Solidago rugosa* /  
*Rhynchospora alba*

n=7



Sugar Camp Brook  
Quarry, Inverness

**Concept:** This early successional Vegetation Site (VT) has abundant tamarack and white spruce, often with a minor component of black spruce or balsam fir. This VT is similar to OF1 (White spruce / Aster – Goldenrod / Shaggy moss), but is usually found on moister sites. OF2 stands usually have fully developed canopies resulting in needle carpet and/or moss-dominated forest floors with reduced shrub and herb cover. OF2 is found throughout the province on imperfectly drained old field sites.

**Vegetation:** Tamarack and white spruce are the dominant overstory trees. Black spruce, Balsam fir and red maple are common associates. The poorly to moderately developed shrub layer consists mainly of regenerating trees along with wild raisin and speckled alder. The herb layer is better developed, with species like hawkweeds, goldenrods, asters, strawberry, common speedwell, tall buttercup, bedstraws and grasses; most of which reflect previous agricultural land-use. Cinnamon fern, interrupted fern, sedges and sensitive fern can also be found on sites with higher relative soil moisture. Moss cover can be variable and interspersed with needle carpet. Where present, moss species include Schreber's moss, shaggy moss and stair-step moss. Sphagnum species can also be found on wetter microsites in the stand.

**Environmental Setting:** OF2 is mainly associated with moist to moist-wet, nutrient medium to rich soils of variable texture. This VT is scattered throughout Nova Scotia wherever

imperfectly drained old field sites are found. Sites that have been tilled or pastured have level microtopography and a distinct Ap (plough layer) soil horizon.

**Successional Dynamics:** OF2 is an even-aged, early successional VT dominated by tamarack and white spruce. The short life span of these species, and their inability to re-establish themselves under their own canopy cover, are factors which eventually lead to the collapse of this ecosystem. Natural disturbance agents include insects (e.g. larch sawfly, larch casebearer, bark beetles, tussock moth, spruce budworm) and windthrow. Subsequent successional stages usually include species indicative of original pre-agricultural forest cover, especially if suitable seed sources are nearby. Stands that slowly deteriorate are more likely to succeed to such forest conditions as shade-tolerant species start to regenerate on site. Clearcut harvesting may trigger an earlier successional stage dominated by grey birch, pin cherry, aspen, white birch and/or other woody shrubs. Depending in part on the level of advanced regeneration present at time of harvest, OF2 may also succeed to OF4 (Balsam fir – White spruce / Evergreen wood fern – Wood aster), OF5 (Trembling aspen – Grey birch / Rough goldenrod – Strawberry) or other VTs dominated by white birch and/or red maple. Other possible successional stages include MW4 (Balsam fir – Red maple / Wood sorrel – Goldthread) and eventually MW1 (Red spruce – Yellow birch / Evergreen wood fern).

### Ecological Features

Past cultivation across this patch forest has leveled most pre-disturbance micro topography, while rock walls and piles, old foundations and wells provide additional evidence of agricultural land use. Linear rock piles may provide dwellings for rodents, snakes, and insects like wasps and bees. Other unique aspects include

the forest's close proximity to open fields and active farms and the frequent presence of fruit trees. These features may attract deer, red fox, coyotes, red squirrels, small mammals, and several birds including ruffed grouse, thrushes, crows and blue jays. Alders provide habitat for woodcock. OF2 has excellent growing conditions

for mycorrhizal mushrooms including chanterelle and hollow foot suillus, which are respectively allied with spruce and larch. Although these forests add to landscape structure, they have a simplified ecological make-up, reflected by low tree diversity, structural complexity and deadwood volume.



## Characteristic Plants

OF2

	Freq. (%)	Cover (%)
Tamarack	100	36.1
White spruce	71	31.2
Black spruce	43	11.7
Balsam fir	43	4.3
Red maple	29	22.5
Grey birch	14	15.0
White birch	14	4.0
Red spruce	14	0.1
Wild apple	14	0.1
<b>Tree Layer (Mean % Cover)</b>		<b>74</b>
Balsam fir	86	1.8
Red maple	71	2.0
White spruce	57	1.3
Wild raisin	57	0.2
Speckled alder	43	2.0
Black spruce	43	1.5
Lambkill	43	0.2
Mountain-ash	43	0.1
Velvet-leaf blueberry	29	0.8
Bristly black currant	29	0.3
Lowbush blueberry	29	0.3
<b>Shrub Layer (Mean % Cover)</b>		<b>6</b>
Starflower	100	0.8
Wild lily-of-the-valley	86	6.8
Rough goldenrod	71	0.6
Dwarf raspberry	57	10.1
Bunchberry	57	3.5
Violets	57	0.6
Drooping wood sedge	57	0.3
Bladder sedge	57	0.1
Evergreen wood fern	57	0.1
Goldthread	57	0.1
Common speedwell	43	3.7
Tall buttercup	43	1.7
Three seeded sedge	43	1.5
Crested wood fern	43	0.8
Sarsaparilla	43	0.2
Common woodrush	43	0.1
Tall white aster	43	0.1
Lady fern	29	3.0
Spinulose wood fern	29	2.8
Cinnamon fern	29	1.5
Poverty grass	29	1.0
Sensitive fern	29	0.3
White panicle aster	29	0.3
Lions paw	29	0.2
Bluebead lily	29	0.1
<b>Herb Layer (Mean % Cover)</b>		<b>24</b>
Schreber's moss	86	33.3
Shaggy moss	86	12.5
Stair-step moss	71	10.7
Hair-cap moss	57	1.3
Wavy dicranum	57	0.4
Common green sphagnum	43	13.7
Broom moss	43	0.4
Ladies' tresses	29	10.0
Fern moss	29	0.6
Hypnum moss	29	0.3
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>59</b>

## Distinguishing Features

This softwood forest on imperfectly drained soils is dominated by tamarack with white spruce. Level microtopography and a soil profile that shows a plough layer are good site indicators. Sphagnum moss is common in depressions.



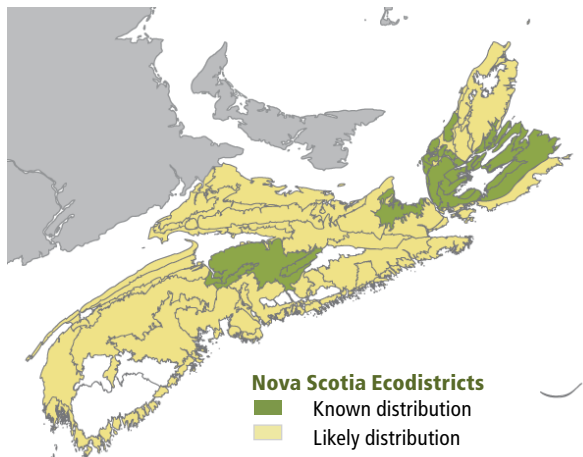
Plough layer  
(Ap horizon)

## Site Characteristics

Slope Position:	Lower <sup>3</sup> Middle <sup>3</sup> Level <sup>3</sup> Upper <sup>1</sup>
Surface Stoniness:	(Non - Slightly) <sup>9</sup> (Moderately) <sup>1</sup>
Bedrock Outcrop:	(Non-rocky) <sup>10</sup>
Elevation Range:	4 - 152m
Slope Gradient:	Gentle <sup>6</sup> Level <sup>4</sup>
Aspect:	North <sup>3</sup> East <sup>4</sup> West <sup>1</sup> None <sup>2</sup>
Exposure:	Moderate <sup>8</sup> Mod. exposed <sup>1</sup> Mod. Sheltered <sup>1</sup>
Microtopography:	Slightly <sup>6</sup> Level <sup>4</sup>
Drainage:	Imperfect <sup>4</sup> Moderately well <sup>3</sup> Poor <sup>3</sup>

## Soil Characteristics

Soil Type:	ST12 <sup>5</sup> ST13 <sup>2</sup> ST3-L <sup>1</sup> ST7 <sup>1</sup> ST9 <sup>1</sup>
Parent Material:	Glacial till <sup>10</sup>
Rooting Depth (cm):	(<30) <sup>4</sup> (30-45) <sup>5</sup> (>45) <sup>1</sup>
Duff Thickness (cm):	(0-5) <sup>8</sup> (6-10) <sup>1</sup> (11-20) <sup>1</sup>



## OF3

### White pine – Balsam fir / Shinleaf – Pine-sap

*Pinus strobus* – *Abies balsamea* /  
*Pyrola elliptica* – *Monotropa hypopithys*

n=10



Horne Settlement,  
Hants County

**Concept:** This early to mid-successional Vegetation Type (VT) has abundant white pine in the canopy with only a scattered mix of other species. OF3 stands usually develop full overstory canopies resulting in needle carpet and/or moss dominated forest floors with reduced shrub and herb cover. White pine – Balsam fir / Shinleaf – Pine-sap represents the dominant softwood forest associated with abandoned agricultural lands in western Nova Scotia.

**Vegetation:** White pine is the dominant overstory tree. Common associates include white spruce, red maple and red spruce. Scattered sugar maple and black cherry can also be found in some stands. The shrub layer is usually poorly developed with balsam fir regeneration providing most of the cover. Herb layer development is also restricted, with typical upland species such as wild lily-of-the-valley, starflower, partridge-berry and goldthread. Sporadic occurrence of hawkweeds, goldenrods, asters and common speedwell reflect past agricultural land-use. Moss cover can be variable and interspersed with needle carpet. Where present, Schreber's moss and hair-cap moss are the main moss species, with shaggy moss also found in some stands.

**Environmental Setting:** OF3 is mainly associated with fresh to fresh-moist, nutrient medium to rich soils of medium to coarse texture (although finer textures can sometimes be found).

#### Ecological Features

This forest occurs in small patches of abandoned agricultural land, primarily on drumlins in western Nova Scotia. Past cultivation has leveled most pre-disturbance microtopography, while rock walls and piles, old foundations and wells provide additional evidence of agricultural

land use. Linear rock piles may provide dwellings for rodents, snakes, and insects like wasps and bees. Other unique aspects include the forest's close proximity to open fields and active farms and the frequent presence of apple and other fruit trees. These features may attract deer, red fox,

coyotes, red and flying squirrels, and several birds including ruffed grouse and American kestrel. Although these forests add to landscape structure, they have a simplified ecological make-up, reflected by low tree diversity, structural complexity and deadwood volume.

This VT is found mainly in western Nova Scotia, often on drumlins. Sites that have been tilled or pastured will have level microtopography and a distinct Ap (plough layer) soil horizon.

**Successional Dynamics:** OF3 is an even-aged, early to mid-successional VT dominated by white pine. As a long-lived species, white pine will generally maintain its presence in these stands as they develop over time. Usually balsam fir is the first to become prolific in the understory, but eventually other shade-tolerant species (such as red spruce, hemlock, sugar maple and beech) will also appear, especially if suitable seed sources are nearby. Natural disturbance agents include insects and disease (e.g. white pine weevil, white pine blister rust), fire and windthrow. Clearcut harvesting may trigger an earlier successional stage dominated by aspen, white birch and/or red maple). Depending in part on the level of advanced regeneration at time of harvest, OF3 may also succeed to OF4 (Balsam fir – White spruce / Evergreen wood fern – Wood aster) or other VTs dominated by balsam fir, red spruce, white pine or hemlock. On many drumlins, the long and intense history of agricultural land use often masks any signs of original forest composition. However, available evidence suggests that most sites likely supported a climax hemlock-beech mixedwood ecosystem similar to MW3 (Hemlock – Yellow birch / Evergreen wood fern).

## Characteristic Plants

OF3

	Freq. (%)	Cover (%)
White pine	100	70.2
White spruce	44	8.8
Red maple	44	6.8
Red spruce	33	3.3
Grey birch	33	1.0
Sugar maple	11	13.0
Black cherry	11	12.0
Black spruce	11	7.0
Red oak	11	5.0
Balsam fir	11	0.1
Tamarack	11	0.1
White birch	11	0.1
<b>Tree Layer (Mean % Cover)</b>		<b>83</b>
Balsam fir	100	2.6
White pine	67	0.7
Red maple	56	0.9
Velvet-leaf blueberry	44	1.1
White ash	44	0.7
Wild raisin	44	0.1
Red spruce	33	1.0
Red oak	33	0.1
Serviceberry	33	0.1
Lowbush blueberry	22	0.8
Meadow-sweet	22	0.2
Black cherry	22	0.1
Hemlock	22	0.1
Mountain-ash	22	0.1
<b>Shrub Layer (Mean % Cover)</b>		<b>6</b>
Wild lily-of-the-valley	89	3.3
Starflower	56	1.0
Common speedwell	56	0.3
Shinleaf	56	0.2
Teaberry	44	0.3
Common woodrush	44	0.2
Partridge-berry	44	0.1
Pink lady's slipper	44	0.1
Goldthread	33	0.8
Poverty grass	33	0.3
Bracken	33	0.1
Checkered rattlesnake plantain	33	0.1
Pine-sap	33	0.1
Violets	22	1.5
Sarsaparilla	22	1.5
Ground pine	22	0.3
Drooping wood sedge	22	0.2
Evergreen wood fern	22	0.1
Indian cucumber root	22	0.1
<b>Herb Layer (Mean % Cover)</b>		<b>12.0</b>
Schreber's moss	78	26
Hair-cap moss	67	4.0
Hypnum moss	56	0.7
Broom moss	56	0.3
Wavy dicranum	56	0.2
Pin cushion moss	33	0.8
Shaggy moss	22	2.5
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>25</b>

## Distinguishing Features

This white pine dominated softwood forest usually occurs on drumlins in western Nova Scotia. Balsam fir regeneration is common. Level microtopography and a soil profile that shows a plough layer are good site indicators.



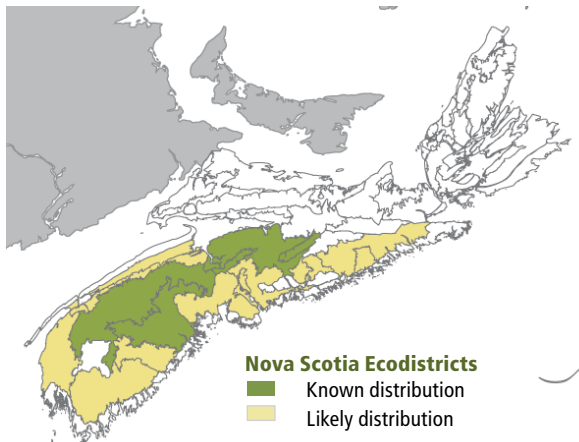
Pine-sap

## Site Characteristics

Slope Position:	Middle <sup>3</sup> Upper <sup>3</sup> Level <sup>2</sup> Lower <sup>1</sup> Toe <sup>1</sup>
Surface Stoniness:	(Non - Slightly) <sup>6</sup> (Moderately) <sup>4</sup>
Bedrock Outcrop:	(Non-rocky) <sup>10</sup>
Elevation Range:	40 - 185m
Slope Gradient:	Gentle <sup>7</sup> Level <sup>2</sup> Steep <sup>1</sup>
Aspect:	North <sup>1</sup> East <sup>4</sup> South <sup>3</sup> West <sup>1</sup> None <sup>1</sup>
Exposure:	Moderate <sup>6</sup> Mod. exposed <sup>3</sup>
Mod. sheltered <sup>1</sup>	
Microtopography:	Level <sup>4</sup> Moderate <sup>2</sup> Strongly <sup>2</sup> Slightly <sup>1</sup> nd <sup>1</sup>
Drainage:	Well <sup>5</sup> Moderately well <sup>4</sup> Imperfect <sup>1</sup>

## Soil Characteristics

Soil Type:	ST8 <sup>7</sup> ST2-L <sup>1</sup> ST9 <sup>1</sup> ST11 <sup>1</sup>
Parent Material:	Glacial till <sup>8</sup> nd <sup>2</sup>
Rooting Depth (cm):	(30-45) <sup>6</sup> (>45) <sup>3</sup> nd <sup>1</sup>
Duff Thickness (cm):	(0-5) <sup>6</sup> (6-10) <sup>3</sup> nd <sup>1</sup>





## OF4

### Balsam fir – White spruce / Evergreen wood fern – Wood aster

*Abies balsamea* – *Picea glauca* /  
*Dryopteris intermedia* – *Aster acuminatus*

n=7



Rory Neils Lake,  
Richmond County

**Concept:** This early to mid-successional Vegetation Type (VT) has an overstory dominated by balsam fir, usually with a strong component of white spruce. This VT is a second-generation old field forest which develops from previously harvested or severely disturbed OF1, OF2, OF3 or OF5 stands. Understory flora associated with this VT are more abundant and representative of natural forest conditions than those of other old field forest types. OF4 is found throughout the province, but is mainly associated with previous OF1 (White spruce / Aster – Goldenrod / Shaggy moss) stands.

**Vegetation:** Balsam fir and white spruce are the dominant overstory trees, while red maple, tamarack and white birch are common associates. The shrub layer is dominated by regenerating trees, especially balsam fir, with lesser red maple, yellow birch and sugar maple. The presence of striped maple and mountain maple indicates a return to more natural vegetation conditions. In the herb layer, fewer of the species indicative of past agricultural land use are found. Instead, evergreen wood fern, wood aster, sarsaparilla and other flora typical of upland forest are more common. Moss cover is variable, with Schreber's moss, stair-step moss and hair-cap moss the main moss species found.

#### Ecological Features

This second-growth patch forest follows stand-level disturbances of old field forests (OF1, OF2 and OF3). These disturbances may accelerate succession towards pre-agricultural forest conditions. Past cultivation has leveled most pre-disturbance microtopography, while rock walls and

piles, old foundations and wells provide additional evidence of past agricultural land use. Linear rock piles may provide dwellings for rodents, snakes, and insects like wasps and bees. These forests are often close to open fields and farms, and depending on their disturbance history,

may contain large white spruce snags and fallen stems. OF4 may attract deer, red fox, coyote, snowshoe hare, red squirrels and pileated woodpeckers. It provides excellent growing conditions for mycorrhizal mushrooms including chanterelle and various boletes.

**Environmental Setting:** OF4 is mainly associated with fresh to fresh-moist, nutrient medium to rich soils of variable texture. This VT is found throughout Nova Scotia, but is primarily associated with several Nova Scotia Upland ecodistricts (Cobequid Hills, Cobequid Slopes, Cape Breton Hills, Pictou Antigonish Highlands) and the Atlantic Coastal and Fundy Shore ecoregions. Sites that were tilled or pastured generally have level microtopography and a visible Ap (plough layer) soil horizon.

**Successional Dynamics:** OF4 is an even-aged, early to mid-successional VT dominated by balsam fir. This VT originates from advanced regeneration established under first generation old field forests (usually old field white spruce). Natural disturbance agents include insects (bark beetles, tussock moth, spruce budworm) and windthrow. Later successional stages will generally include species from the original forest cover, especially if seed sources are nearby. Possible late successional stages include TH1 (Sugar maple / Hayscented fern), TH2 (Sugar maple / New York fern – Northern beech fern), MW1 (Red spruce – Yellow birch / Evergreen wood fern) and MW3 (Hemlock – Yellow birch / Evergreen wood fern). Stands that slowly deteriorate are more likely to succeed to such forest conditions as shade-tolerant species regenerate on site. Clearcut harvesting may initiate an earlier successional stage dominated by grey birch, pin cherry, aspen, white birch and other woody shrubs.

## Characteristic Plants

OF4

	Freq. (%)	Cover (%)
Balsam fir	100	55.2
White spruce	89	20.0
White birch	44	0.8
Red maple	22	6.5
Tamarack	22	4.0
Grey birch	22	1.5
Trembling aspen	11	12.0
Red spruce	11	4.0
Black spruce	11	0.1
Large-tooth aspen	11	0.1
<b>Tree Layer (Mean % Cover)</b>		<b>78</b>
Balsam fir	100	2.7
Red maple	56	2.2
Mountain-ash	56	0.1
Yellow birch	33	1.2
Velvet-leaf blueberry	33	0.1
Speckled alder	22	12.5
Mountain maple	22	1.0
Striped maple	22	0.6
Sugar maple	22	0.5
Beaked hazelnut	22	0.3
Fly-honeysuckle	22	0.1
Lowbush blueberry	22	0.1
Red raspberry	22	0.1
Wild raisin	22	0.1
<b>Shrub Layer (Mean % Cover)</b>		<b>8</b>
Evergreen wood fern	100	2.4
Wild lily-of-the-valley	100	1.6
Bunchberry	89	4.4
Starflower	89	0.3
Sarsaparilla	67	1.4
Wood aster	67	0.2
Goldthread	56	2.4
Dwarf raspberry	44	0.5
Drooping wood sedge	44	0.4
Common speedwell	33	0.7
Bluebead lily	33	0.3
Rough goldenrod	33	0.1
Spinulose wood fern	22	2.6
Twinflower	22	1.0
Bracken	22	0.8
Hay-scented fern	22	0.3
Short husk	22	0.3
Canada goldenrod	22	0.1
Ground pine	22	0.1
New York fern	22	0.1
Violets	22	0.1
<b>Herb Layer (Mean % Cover)</b>		<b>14</b>
Schreber's moss	89	34.8
Hair-cap moss	89	3.6
Stair-step moss	67	21.3
Broom moss	67	2.2
Wavy dicranum	44	1.4
Plume moss	44	0.2
Bazzania	22	6.5
Shaggy moss	22	1.0
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>53</b>

## Distinguishing Features

This softwood forest is dominated by balsam fir that usually originates following harvesting of a previous old field forest. Shrubs and herbs tend to be more indicative of natural forest conditions.



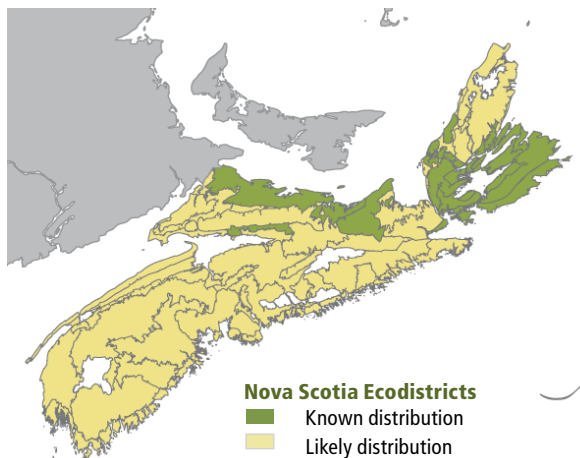
Rock wall  
[John Gillis]

## Site Characteristics

Slope Position:	Level <sup>4</sup> Middle <sup>4</sup> Upper <sup>2</sup>
Surface Stoniness:	(Non - Slightly) <sup>10</sup>
Bedrock Outcrop:	(Non-rocky) <sup>10</sup>
Elevation Range:	11 - 316m
Slope Gradient:	Gentle <sup>6</sup> Level <sup>4</sup>
Aspect:	North <sup>4</sup> West <sup>2</sup> None <sup>4</sup>
Exposure:	Moderate <sup>6</sup> Exposure <sup>3</sup> Mod. exposed <sup>1</sup>
Microtopography:	Slightly <sup>6</sup> Level <sup>2</sup> Moderately <sup>1</sup> Strongly <sup>1</sup>
Drainage:	Well <sup>6</sup> Imperfect <sup>3</sup> Moderately well <sup>1</sup>

## Soil Characteristics

Soil Type:	ST2-L <sup>6</sup> ST9 <sup>3</sup> ST8 <sup>1</sup>
Parent Material:	Glacial till <sup>10</sup>
Rooting Depth (cm):	(<30) <sup>1</sup> (30-45) <sup>6</sup> (>45) <sup>3</sup>
Duff Thickness (cm):	(0-5) <sup>4</sup> (6-10) <sup>1</sup> (11-20) <sup>5</sup>



## OF5

### Trembling aspen – Grey birch / Rough goldenrod – Strawberry

*Populus tremuloides* – *Betula populifolia* /  
*Solidago rugosa* – *Fragaria virginiana*

n=11



Telford,  
Pictou County

**Concept:** This early successional Vegetation Type (VT) has an overstory dominated by trembling aspen and grey birch, with a variety of other associates found with lower canopy abundance. This VT is associated with a range of moisture conditions, but is more common on wetter sites and previously cleared riparian forests. Shrub and herb layers are usually better developed than on other old field sites. OF5 is found scattered throughout the province, but is less common than other first generation old field types (OF1, OF2, OF3).

**Vegetation:** Trembling aspen and grey birch are the dominant overstory trees, with lesser white birch, red maple, balsam fir and/or black spruce. The well-developed shrub layer includes serviceberry, blackberry, wild raisin, beaked hazelnut and bush-honeysuckle accompanied by regenerating trees. Herb layer species are mainly those indicative of past agricultural land use, including strawberry, hawkweeds, goldenrods, asters, common speedwell, buttercups and several grasses and sedges. Leaf litter often dominates the forest floor, thereby limiting bryophyte development (although species richness may be high). Only shaggy moss is occasionally abundant, while sphagnum species can be found on wetter microsites in the stand.

**Environmental Setting:** OF5 is mainly associated with fresh-moist to moist-wet, nutrient medium to rich soils of fine to medium texture. This VT can be found province-wide, but is most

common in lowland ecoregions (Valley and Central Lowlands, Northumberland / Bras d'Or Lowlands). OF5 sites that have been tilled or pastured will also have level microtopography and a distinct Ap (plough layer) soil horizon. This horizon may also be enhanced by active worm activity on these hardwood-dominated sites.

**Successional Dynamics:** OF5 is an even-aged, early successional VT dominated by trembling aspen and grey birch. Both species are shade-intolerant and have a short lifespan – factors which will eventually lead to the collapse of this ecosystem. Natural disturbance agents include insects and disease (e.g. tent caterpillar, tussock moth, hypoxylon canker) and windthrow. Subsequent successional stages will begin to include species from the original forest cover, especially if suitable seed sources are nearby. Stands that slowly deteriorate are more likely to transition to such forest conditions as shade-tolerant species regenerate on site. Clearcut harvesting may lead to re-establishment of aspen and grey birch along with other pioneer tree species (e.g. pin cherry, white birch, red maple). Depending in part on the level of advanced regeneration at the time of harvest, OF5 may also succeed to OF4 (Balsam fir – White spruce / Evergreen wood fern – Wood aster). Possible late successional stages include TH1 (Sugar maple / Hay-scented fern), TH2 (Sugar maple / New York fern – Northern beech fern), MW1 (Red spruce – Yellow birch / Evergreen wood fern) and MW3 (Hemlock – Yellow birch / Evergreen wood fern).

### Ecological Features

Past cultivation across this patch forest has leveled most pre-disturbance microtopography, while rock walls and piles, old foundations and wells provide additional evidence of agricultural land use. Linear rock piles may provide dwellings for rodents, snakes, and

insects like wasps and bees. Other unique aspects include the forest's close proximity to open fields, active farms, and streams and the frequent presence of apple and other fruit trees. These features may attract deer, red fox, coyote, snowshoe hare, red squirrels,

beaver and game birds. Older aspen trees may provide soft snags and cavities for several species of birds, including the pileated woodpecker. Resin from aspen buds is the primary source of bee propolis, an essential hive material.

Characteristic Plants	OF5	
	Freq. (%)	Cover (%)
Trembling aspen	100	46.4
Grey birch	64	24.6
White birch	45	8.2
Red maple	36	13.8
Balsam fir	27	13.3
Black spruce	27	11.7
Large-tooth aspen	18	19.0
White spruce	18	12.5
Red spruce	18	3.5
<b>Tree Layer (Mean % Cover)</b>		<b>86</b>
Red maple	73	1.8
Balsam fir	64	6.3
Trembling aspen	64	5.7
White ash	64	0.8
Common blackberry	45	3.1
Serviceberry	45	0.9
Wild raisin	45	0.1
Grey birch	36	1.5
Alternate-leaved dogwood	36	1.4
Beaked hazelnut	36	1.3
Choke cherry	36	0.2
Lowbush blueberry	36	0.1
White spruce	27	3.3
Bush-honeysuckle	27	2.8
Meadow-sweet	27	1.0
White birch	27	0.4
<b>Shrub Layer (Mean % Cover)</b>		<b>20</b>
Wild lily-of-the-valley	73	6.6
Starflower	64	0.6
Rough goldenrod	55	16.0
Strawberry	55	1.3
Bunchberry	45	8.2
Sarsaparilla	45	4.3
Tall white aster	45	3.9
Wood aster	45	0.7
Common speedwell	45	0.6
White panicle aster	36	6.4
Calico aster	36	0.9
Cinquefoil	36	0.9
Violets	36	0.2
Yellow hawkweed	27	15.7
New York fern	27	2.7
Hawkweeds	27	2.4
Shinleaf	27	2.0
Common woodrush	27	0.8
Poverty grass	27	0.4
<b>Herb Layer (Mean % Cover)</b>		<b>44</b>
Schreber's moss	73	3.8
Broom moss	73	0.5
Shaggy moss	64	14.1
Hair-cap moss	55	1.8
Stair-step moss	36	2.1
Plume moss	36	0.5
Hypnum moss	36	0.3
Fern moss	27	2.7
Ladies' tresses	27	1.0
Wavy dicranum	27	1.0
Atrichum moss	27	0.1
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>16</b>

## Distinguishing Features

A forest, dominated by trembling aspen with a lesser, but significant, component of grey and sometimes white birch, on abandoned agricultural lands. Asters and goldenrods are typical. Evidence of old field includes rock foundations, rock piles, rock walls and wire fencing. Sites typically have level microtopography and a soil profile that shows a plough layer.



*Asters spp.*

## Site Characteristics

Slope Position:	Level <sup>6</sup> Upper <sup>2</sup> Middle <sup>1</sup> Toe <sup>1</sup>
Surface Stoniness:	(Non - Slightly) <sup>10</sup>
Bedrock Outcrop:	(Non-rocky) <sup>10</sup>
Elevation Range:	4 - 130m
Slope Gradient:	Gentle <sup>2</sup> Level <sup>5</sup>
Aspect:	North <sup>1</sup> South <sup>3</sup> West <sup>2</sup> None <sup>4</sup>
Exposure:	Moderate <sup>9</sup> Mod. exposed <sup>1</sup>
Microtopography:	Level <sup>6</sup> Slightly <sup>2</sup> Moderate <sup>1</sup> Severely <sup>1</sup>
Drainage:	Imperfect <sup>4</sup> Moderately well <sup>3</sup> Poor <sup>2</sup> Well <sup>1</sup>

## Soil Characteristics

Soil Type:	ST7 <sup>2</sup> ST8 <sup>2</sup> ST12 <sup>2</sup> ST2-L <sup>1</sup> ST3 <sup>1</sup> ST9 <sup>1</sup> ST11 <sup>1</sup>
Parent Material:	Glacial till <sup>8</sup> Alluvium <sup>1</sup> Colluvium <sup>1</sup>
Rooting Depth (cm):	(<30) <sup>1</sup> (30-45) <sup>5</sup> (>45) <sup>4</sup>
Duff Thickness (cm):	(0-5) <sup>6</sup> (6-10) <sup>1</sup> (11-20) <sup>1</sup> nd <sup>2</sup>

