

## HL3

### Yellow birch – Balsam fir / Eastern spreading wood fern – Wood sorrel

*Betula alleghaniensis* – *Abies balsamea* /  
*Dryopteris campyloptera* – *Oxalis acetosella*

n=7



Warehouse Road,  
Hunters Mountain,  
Victoria County

**Concept:** This mid to late successional Vegetation Type (VT) has an overstory co-dominated by yellow birch and balsam fir, both of which are also significant in the understory. An extensive herb layer dominated by eastern spreading wood fern is also characteristic, especially in more open stands. Yellow birch – Balsam fir / Eastern spreading wood fern – Wood sorrel is the dominant VT found in the Cape Breton Highlands transition zone, an informal ecological term used to describe the area where forest conditions blend between Acadian hardwood slopes and the balsam fir plateau.

**Vegetation:** Yellow birch and balsam fir are the dominant overstory trees. Common associates include white spruce, white birch, and occasionally red maple, sugar maple, white pine and hemlock. The shrub layer usually includes abundant balsam fir and yellow birch regeneration, as well as mountain maple, striped maple and mountain-ash. The extent and health of the balsam fir overstory strongly influences herb layer development. In more open stands dominated by yellow birch, coverage by eastern spreading wood fern can be abundant, co-occurring with lesser New York fern, evergreen wood fern and bracken. Generally common forest species like bunchberry, wood sorrel, sarsaparilla and bluebead lily may be more plentiful in closed mixedwood conditions. A moderately-developed bryophyte layer is dominated by Schreber's moss, bazzania and broom moss.

#### Ecological Features

This matrix forest characterizes the transitional zone between the Maritime Boreal Cape Breton plateau and the temperate hardwood slopes. Yellow birch is the province's longest-lived hardwood species (300+ years), and this, along with intermediate shade tolerance, promotes uneven-aged conditions with mature canopy. The balsam fir component is governed by spruce budworm epidemics,

however in this mixed forest some fir trees typically survive, resulting in multiple cohorts with rare individuals living up to 175 years. Yellow birch in this ecosystem can grow 17m tall with diameters of 75 cm, many deformed by exposure. Large diameter, living, hollow trees provide good denning and cavity nesting sites, and continue to provide valuable wildlife habitat as large coarse woody debris

after they fall. Great-horned owls may take over the former nests made by hawks or ravens in yellow birch. Songbirds such as common redpolls, American goldfinches and pine siskins eat yellow birch seeds, while ruffed grouse eat the seeds, catkins and buds available throughout the winter. These forests may provide nesting habitat for northern goshawk. Old growth potential is high.

**Environmental Setting:** HL3 is mainly associated with fresh to fresh-moist, nutrient medium to rich soils derived from glacial till and/or colluvium deposits. Richer versions of this VT occur where seepage enhances moisture and nutrient status. HL3 is generally confined to well drained upper slopes within the Cape Breton Highlands ecoregion, usually at elevations ranging from 250-350 meters. Wind and exposure may significantly limit tree growth. This VT is common in northern New Brunswick and marks the northern limit of the temperate zone in the Gaspé Peninsula and other parts of Quebec.

**Successional Dynamics:** HL3 is a mid to late successional VT dominated by yellow birch and balsam fir. Besides harvesting, the main stand-level disturbance agents are spruce budworm defoliation, windthrow and ice damage. In the absence of defoliation or harvesting, balsam fir in this ecosystem may approach 75 years. After this time tree senescence will initiate stand renewal through advanced regeneration. Yellow birch will eventually succumb to windthrow, breakage and/or dieback associated with storm events and freeze-thaw cycles. HL3 stands are generally represented by two age classes: an older yellow birch cohort and a younger balsam fir cohort. Depending on disturbance history, transition to HL4 (Birch / Wood fern – Wood sorrel) is possible.

## Characteristic Plants

HL3

	Freq. (%)	Cover (%)
Balsam fir	100	37.5
Yellow birch	100	24.8
White spruce	83	9.4
White birch	50	11.7
White pine	33	7.0
Red maple	33	6.0
Sugar maple	17	18.0
Hemlock	17	8.0
<b>Tree Layer (Mean % Cover)</b>		<b>85</b>
Balsam fir	100	4.6
Mountain maple	83	1.5
Yellow birch	83	1.4
Striped maple	67	0.4
Red maple	50	8.0
Sugar maple	50	1.6
White spruce	50	1.4
Mountain-ash	50	0.4
Fly-honeysuckle	33	0.1
Red-berried elder	33	0.1
<b>Shrub Layer (Mean % Cover)</b>		<b>16</b>
Eastern spreading wood fern	100	21.4
Sarsaparilla	100	3.6
Bunchberry	83	8.0
Bluebead lily	83	6.1
Wood aster	83	1.5
Starflower	83	0.2
Rose twisted stalk	83	0.1
Wood-sorrel	67	23.3
Northern beech fern	67	2.5
Wild lily-of-the-valley	67	0.5
Drooping wood sedge	50	0.1
New York fern	33	38.5
Bracken	33	10.0
Violets	33	0.6
Bladder sedge	33	0.1
Goldthread	33	0.1
Large-leaved goldenrod	33	0.1
Mayflower	33	0.1
Twinflower	33	0.1
<b>Herb Layer (Mean % Cover)</b>		<b>62</b>
Schreber's moss	67	4.3
Bazzania	67	2.3
Broom moss	50	1.8
Shaded wood moss	33	1.3
Stair-step moss	33	0.5
Hair-cap moss	33	0.2
Pin cushion moss	33	0.1
Grey reindeer lichen	33	0.1
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>10</b>

## Distinguishing Features

Yellow birch and balsam fir are dominant in the canopy of this mixedwood forest restricted to the upper slopes of the Cape Breton Highlands ecoregion. The canopy extent of balsam fir is influenced by the timing of the spruce budworm outbreaks. The fern component of the herb layer is well developed with wood fern species.



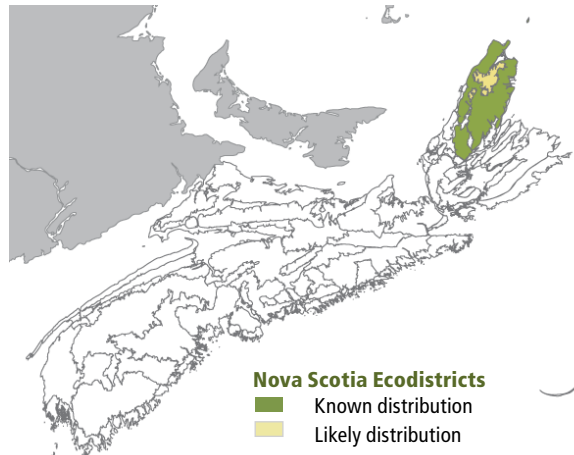
Wood sorrel

## Site Characteristics

Slope Position:	Upper <sup>6</sup> Level <sup>3</sup> Middle <sup>1</sup>
Surface Stoniness:	(Moderately) <sup>6</sup> (Non - Slightly) <sup>3</sup> (Very - Excessively) <sup>1</sup>
Bedrock Outcrop:	(Non-rocky) <sup>7</sup> (Slightly - Moderately) <sup>3</sup>
Elevation Range:	174 - 374m
Slope Gradient:	Gentle <sup>5</sup> Steep <sup>3</sup> Moderate <sup>1</sup> Extreme <sup>1</sup>
Aspect:	East <sup>3</sup> South <sup>1</sup> West <sup>6</sup>
Exposure:	Mod. exposed <sup>6</sup> Exposed <sup>4</sup>
Microtopography:	Moderately <sup>5</sup> Slightly <sup>4</sup> Level <sup>1</sup>
Drainage:	Well <sup>9</sup> Moderately well <sup>1</sup>

## Soil Characteristics

Soil Type:	ST2 <sup>5</sup> ST2-L <sup>4</sup> ST2-G <sup>1</sup>
Parent Material:	Glacial till <sup>7</sup> Colluvium <sup>3</sup>
Rooting Depth (cm):	(<30) <sup>1</sup> (30-45) <sup>2</sup> (>45) <sup>6</sup> nd <sup>1</sup>
Duff Thickness (cm):	(6-10) <sup>5</sup> (11-20) <sup>4</sup> nd <sup>1</sup>



### Nova Scotia Ecodistricts

- Known distribution
- Likely distribution