

CO4

Balsam fir / Foxberry – Twinflower

Abies balsamea / *Vaccinium vitis-idaea* –
Linnaea borealis

n=9



Halfway Island Cove,
Guysborough County

Concept: This mid to late successional Vegetation Type (VT) has an overstory dominated by balsam fir. Balsam fir regeneration and moss cover are usually extensive. Balsam fir / Foxberry – Twinflower represents the dominant forest found on fresh/moist, nutrient medium sites along the Atlantic coast of Nova Scotia.

Vegetation: Balsam fir is the dominant overstory tree along with lesser amounts of black spruce and white spruce. Tamarack can also be common on moister sites. Scattered red maple and white birch (if present) are typically in an intermediate canopy position. The shrub layer is dominated by regenerating balsam fir with scattered lambkill, false holly and mountain-ash. Herb layer diversity is low, with frequent bunchberry, wild lily-of-the-valley, sarsaparilla, twinflower and foxberry. Schreber's moss and bazzania dominate the extensive bryophyte layer, along with stair-step moss, broom moss and plume moss.

Environmental Setting: CO4 is mainly associated with fresh to fresh-moist, nutrient poor to medium soils of glacial origin. These soils are generally medium to coarse textured and often stony. The majority of this VT is found in the Atlantic

Coastal ecoregion. High winds and exposure limit tree height potential in CO4 stands. The VT likely occurs in more exposed coastal areas of both New Brunswick and Prince Edward Island, but has not been documented.

Successional Dynamics: CO4 is a mid to late successional VT dominated by balsam fir. This even-aged VT typically follows stand-replacing disturbances such as windthrow, breakage, insect infestation and harvesting. In the absence of disturbance, the typical lifespan of balsam fir in this ecosystem is 100 years, after which tree senescence will initiate renewal through advanced regeneration. Depending in part on the level of advanced regeneration at time of disturbance, CO4 can perpetuate itself or possibly transition into CO1 (Black spruce – Balsam fir / Foxberry / Plume moss), CO2 (White spruce – Balsam fir / Foxberry – Twinflower) or CO3 (Red spruce / Mountain-ash / Foxberry). Succession to CO1 would be on poorer sites while movement to CO3 would only occur in geographic areas supporting this VT. CO4 may also transition to CO5 (White birch – Balsam fir / Foxberry – Wood aster) on more sheltered sites. Forests that originate after harvesting may initially be dominated by pin cherry, raspberry, white birch and mountain-ash.

Ecological Features

This closed canopy matrix forest is primarily associated with the Maritime Boreal Atlantic Coastal ecoregion. The forest's longevity is a function of either canopy tree senescence or the frequency of catastrophic stand disturbances (usually hurricanes). Both create abundant snags, coarse woody debris,

and dense regenerating fir thickets – good cover for small mammals. Stands close to the coast or on islands are used as nesting sites and roosts for great blue herons and some seabirds. Coastal forests are often used by songbirds as they travel along the coast during spring and fall migration. Older stands with

balsam fir may have the endangered boreal felt lichen and other uncommon cyanolichens. Mature forests develop abundant old man's beard, a lichen used for nest material by warblers and other species, and winter food for deer foraging on fallen trees.

Characteristic Plants

C04

	Freq. (%)	Cover (%)
Balsam fir	100	50.2
Black spruce	78	7.1
White spruce	67	10.8
White birch	44	1.3
Red maple	33	1.7
Tamarack	22	17.3
Grey birch	11	1.0
Red oak	11	1.0
Tree Layer (Mean % Cover)		68
Balsam fir	89	20.7
Lambkill	78	0.5
False holly	78	0.1
White birch	67	0.2
Mountain-ash	56	0.7
Lowbush blueberry	44	1.6
Wild raisin	44	0.9
Black spruce	33	1.7
Serviceberry	33	0.4
White spruce	22	2.0
Downy alder	22	0.2
Shrub Layer (Mean % Cover)		23
Twinflower	78	10.5
Bunchberry	78	1.6
Wild lily-of-the-valley	78	0.8
Foxberry	78	0.3
Sarsaparilla	67	4.2
Starflower	67	0.3
Creeping snowberry	44	7.6
Bluebead lily	44	2.4
Cinnamon fern	44	1.5
Wood-sorrel	44	1.4
Goldthread	44	0.5
Bracken	33	0.1
Evergreen wood fern	33	0.1
Indian pipe	33	0.1
Wood aster	33	0.1
Herb Layer (Mean % Cover)		20
Schreber's moss	100	35.9
Stair-step moss	89	13.4
Broom moss	89	2.8
Bazzania	78	23.7
Plume moss	56	3.7
Hair-cap moss	44	10.5
Wavy dicranum	44	1.5
Hypnum moss	22	1.3
Ladies' tresses	22	0.5
Cup lichens	22	0.3
Pale fat-leaved sphagnum	22	0.1
Grey reindeer lichen	22	0.1
Bryo-Lichen Layer (Mean % Cover)		78

Distinguishing Features

Balsam fir is the dominant species in this coastal softwood forest. The presence of mountain-ash, heart-leaf birch, foxberry and bazzania are indicators of a coastal influence, though they are not always present. Extensive moss coverage and a thick duff layer characterize the forest floor.



Twinflower

Site Characteristics

Slope Position:	Upper ⁵ Level ² Middle ² nd ¹
Surface Stoniness:	(Non - Slightly) ⁴ (Moderately) ³ (Very - Excessively) ² nd ¹
Bedrock Outcrop:	(Non-rocky) ⁹ (Slightly - Moderately) ¹
Elevation Range:	5 - 41m
Slope Gradient:	Gentle ⁷ Level ¹ Moderate ¹ Steep ¹
Aspect:	North ³ East ² South ³ West ¹ None ¹
Exposure:	Exposed ⁹ Mod. exposed ²
Microtopography:	Slightly ⁴ Level ² Moderately ² Strongly ²
Drainage:	Moderately well ⁶ Well ³ Imperfect ¹

Soil Characteristics

Soil Type:	ST2 ⁷ ST3 ¹ ST15 ¹ nd ¹
Parent Material:	Glacial till ⁹ Till/Bedrock ¹
Rooting Depth (cm):	(<30) ² (30-45) ⁷ nd ¹
Duff Thickness (cm):	(11-20) ⁹ nd ¹

