

Hemlock / Cinnamon fern – Sensitive fern / Sphagnum

Tsuga canadensis / *Osmunda cinnamomea* –
Onoclea sensibilis / *Sphagnum* spp.

n=7



South Brookfield,
Queens County

Concept: Poor to very poorly drained mineral soils support the relatively uncommon Hemlock / Cinnamon fern - Sensitive fern / Sphagnum forest. This is the wettest hemlock forest in Nova Scotia. The Vegetation Type (VT) occurs in warmer ecoregions where it persists as an edaphic climax. WC8 is characterized by hemlock canopy dominance and prominent cinnamon fern, sensitive fern and common green sphagnum.

Vegetation: Crown closure is high in the typically evergreen canopy. Most stands are strongly dominated by hemlock, but some are co-dominated by moderate amounts of red maple. Other trees (e.g. red spruce, yellow birch) are frequent but very sparsely scattered. The understory is relatively open, with low woody and herbaceous density but high sphagnum cover. Characteristic species include cinnamon fern, sensitive fern, wood aster, common green sphagnum and common upland plants.

Environmental Setting: Most occurrences are on poorly drained mineral soil derived from glacial till deposits, but organic sites are occasionally occupied. Soils have moderate

nutrient availability, largely maintained by the flow of ground water and sometimes surface water. This ecosystem occurs in sites that are more sheltered than most coniferous wetlands of Nova Scotia. It is somewhat restricted to the warmer western ecoregion, but may also be found in the eastern ecoregion. This ecosystem has been observed in parts of southern New Brunswick and on Prince Edward Island but is much more common in Nova Scotia.

Successional Dynamics: This is a mid to late successional ecosystem, typically supporting uneven-aged stands. Most occurrences are maintained by gap dynamics, but some stands show evidence of small-scale timber harvest. Windthrow and harvesting are the main stand-level disturbance agents. The mature forest may succeed from WC6 (Balsam fir / Cinnamon fern – Three seeded sedge / Sphagnum), WD6 (Red maple – Balsam fir / Wood aster / Sphagnum) or WD8 (Red spruce – Red maple / Wood sorrel – Sensitive fern / Sphagnum). Depending on disturbance history and nearby stand composition, WC8 may transition from WC5 (Red spruce – Balsam fir/ Cinnamon fern / Sphagnum).

Ecological Features

A common landscape component in northern New England, this uncommon wet forest is the most temperate coniferous wet forest in Nova Scotia. It occurs in sheltered basins, sometimes near open wetlands, but more often as small to moderate sized patches in upland matrix forest. The dense canopy

overtops a sparse woody understory but usually extensive herbaceous and bryophyte cover. In western Nova Scotia, where most stands occur, this ecosystem is a locally important component of landscape structure. It supports unique habitat values including thermal cover for moose, foraging habitat for numerous

birds, and shelter for invertebrates, amphibians and reptiles. Few rare plants are documented, but black ash, alder-leaved buckthorn and various Atlantic Coastal Plain species have been observed. Old growth potential is moderate to high.

Characteristic Plants	WC8	
	Freq. (%)	Cover (%)
Hemlock	100	41.3
Red maple	100	11.1
Yellow birch	86	6.2
Red spruce	71	8.8
Balsam fir	43	11.3
White ash	43	8.0
White pine	43	5.3
Hybrid spruce	14	40.0
White spruce	14	2.0
Tree Layer (Mean % Cover)		81
Hemlock	100	3.3
Red spruce	86	1.5
Red maple	86	0.2
Balsam fir	71	6.5
Yellow birch	57	0.6
White pine	57	0.1
Red oak	43	0.1
Witch-hazel	29	6.0
Poison ivy	29	1.6
Velvet-leaf blueberry	29	0.8
Striped maple	29	0.6
White ash	29	0.6
Winterberry	29	0.5
Shrub Layer (Mean % Cover)		16
Cinnamon fern	100	3.6
Goldthread	100	0.5
Wild lily-of-the-valley	86	0.3
Sensitive fern	71	1.6
Bunchberry	71	0.5
Wood aster	71	0.2
Sarsaparilla	57	0.6
Evergreen wood fern	57	0.2
Partridge-berry	57	0.2
Starflower	57	0.2
New York fern	43	15.0
Teaberry	43	0.4
Three seeded sedge	43	0.2
Trailing blackberry	43	0.1
Painted trillium	43	0.1
Twinflower	43	0.1
Wood-sorrel	43	0.1
Water-horehound	29	0.5
Crested wood fern	29	0.3
Creeping snowberry	29	0.1
Dwarf raspberry	29	0.1
Herb Layer (Mean % Cover)		17
Bazzania	100	13.4
Stair-step moss	100	10.0
Schreber's moss	86	5.4
Common green sphagnum	71	10.2
Pale fat-leaved sphagnum	57	16.6
Hypnum moss	57	3.3
Ladies' tresses	43	5.5
Broom moss	43	0.4
Wavy dicranum	43	0.4
Prickly sphagnum	29	3.5
Rhizomnium	29	0.8
Mniums	29	0.4
Bryo-Lichen Layer (Mean % Cover)		64

Distinguishing Features

Hemlock is diagnostic of this poorly drained mixedwood or softwood forest. Yellow birch, red maple, balsam fir and red spruce are common.

The woody shrub layer is primarily regenerating tree species.



Red fat-leaved sphagnum

Site Characteristics

Slope Position:	Level ⁹ Toe ¹
Surface Stoniness:	(Very - Excessively) ⁴ (Non - Slightly) ³ (Moderately) ³
Bedrock Outcrop:	(Non-rocky) ⁹ (Slightly - Moderately) ¹
Elevation Range:	44 - 167m
Slope Gradient:	Level ¹⁰
Aspect:	North ¹ None ⁹
Exposure:	Mod. sheltered ⁶ Moderate ⁴
Microtopography:	Level ⁸ Slightly ¹ Moderately ¹
Drainage:	Poor ⁷ Very poor ³

Soil Characteristics

Soil Type:	ST4 ⁷ ST10 ¹ ST13 ¹ ST14 ¹
Parent Material:	Glacial till ⁷ Organic ² Alluvium ¹
Rooting Depth (cm):	(<30) ¹⁰
Duff Thickness (cm):	(6-10) ³ (11-20) ⁶ nd ¹

