

## MW1

### Red spruce – Yellow birch / Evergreen wood fern

*Picea rubens* – *Betula alleghaniensis* /  
*Dryopteris intermedia*

n=30



Shepherders Junction,  
Colchester County

**Concept:** This late successional mixedwood Vegetation Type (VT) has an overstory co-dominated by red spruce and yellow birch, with lesser amounts of mostly shade-tolerant trees. It is similar to MW3 (Hemlock – Yellow birch / Evergreen wood fern), but with greater red spruce prominence. In eastern Nova Scotia, balsam fir can take the place of red spruce in this VT (e.g. St. George's ecodistrict). The longevity and shade tolerance of the dominant overstory tree species aids in the development of old forest characteristics, maintained by gap disturbances.

**Vegetation:** Red spruce and yellow birch are the dominant overstory trees. A suite of other shade-tolerant trees (e.g. sugar maple, hemlock, beech, balsam fir, red maple, white pine and white ash) may also be present to varying degrees. The shrub layer is moderately developed and includes mainly regenerating trees, striped maple and fly-honeysuckle. Several fern species are common in the well-developed herb layer including evergreen wood fern, New York fern and hay-scented fern. Wood sorrel, wood aster, rose twisted stalk, Indian cucumber root and some club-mosses are also common. Herb layer species can be used to assess relative site conditions, with hay-scented fern usually found on drier, poorer sites, and Christmas fern, northern beech fern and shining club-moss found on moister, richer sites. Bryophyte development varies, with coverage directly related to relative softwood abundance in the overstory. Schreber's moss and stair-step moss are the main species. *Bazzania* can also be common where coarse woody debris has accumulated on the forest floor.

#### Ecological Features

This closed canopy forest is matrix-forming in central Nova Scotia and a large patch forest elsewhere. The shade tolerance and longevity of red spruce and yellow birch promotes development of uneven-aged canopy structures and old growth. Large trees can provide nest sites for pileated

woodpeckers, barred owls, red-tailed hawks and northern goshawks. Downed coarse woody debris may provide cover for red-backed salamanders and small mammals. Mixedwood forests can also provide both shelter and food for overwintering deer. Yellow birch is

an abundant source of seed during the winter for many species of birds and small mammals. Birch trees in these forests may be deformed, and eventually killed, by birch cinder conch, a fungal growth occasionally harvested for Chaga tea.

**Environmental Setting:** MW1 is mainly associated with fresh to fresh-moist, nutrient medium to rich soils of variable texture. This VT can be found throughout mainland Nova Scotia, but is most common in central and eastern sections of the province and along the Bay of Fundy shore. Coarse woody debris coverage can be quite variable on MW1 sites due to the short lifespan of balsam fir which is always a significant component of this VT. Red spruce – Yellow birch / Evergreen wood fern is a climax Acadian mixedwood VT found on zonal sites throughout mainland Nova Scotia. This VT is also found throughout New Brunswick, but is absent from Prince Edward Island.

**Successional Dynamics:** MW1 is a late successional climatic climax VT dominated by red spruce and yellow birch. It can develop from several early and mid-successional VTs including SH5 (Red spruce – Balsam fir / Schreber's moss), SH6 (Red spruce – Balsam fir / Stair-step moss – Sphagnum), SH8 (Balsam fir / Wood fern / Schreber's moss) and MW4 (Balsam fir – Red maple / Wood sorrel – Goldthread). Early successional stages can be by-passed if, at the time of disturbance, advanced red spruce and yellow birch regeneration is present and retained. Depending on disturbance history, this VT can be even-aged, but it will develop an uneven-aged structure as it matures. Between large-scale disturbance events, this VT will maintain itself through gap replacement or possibly transition to MW3 (Hemlock – Yellow birch / Evergreen wood fern).

## Characteristic Plants

	MW1	
	Freq. (%)	Cover (%)
Red spruce	100	38.2
Yellow birch	100	20.9
Red maple	73	13.5
Sugar maple	43	6.2
Balsam fir	40	6.8
Beech	30	4.2
Hemlock	20	9.3
White birch	20	2.5
White ash	13	4.5
White pine	10	4.3
<b>Tree Layer (Mean % Cover)</b>		<b>79</b>
Balsam fir	87	7.9
Red spruce	87	3.5
Yellow birch	87	0.7
Red maple	73	1.5
Striped maple	70	4.5
Sugar maple	60	1.3
Beech	57	2.4
Fly-honeysuckle	50	0.7
White pine	27	0.4
Hemlock	20	1.8
Velvet-leaf blueberry	20	0.7
Red oak	20	0.1
<b>Shrub Layer (Mean % Cover)</b>		<b>19</b>
Wild lily-of-the-valley	90	2.9
Starflower	90	0.6
Evergreen wood fern	77	6.1
Wood-sorrel	63	6.4
Sarsaparilla	63	1.7
New York fern	60	6.3
Bunchberry	60	3.5
Goldthread	60	3.0
Partridge-berry	57	0.2
Hay-scented fern	53	9.9
Rose twisted stalk	43	0.2
Shining club-moss	40	1.6
Ground pine	40	0.6
Bluebead lily	40	0.5
Wood aster	40	0.3
Indian cucumber root	40	0.1
Painted trillium	33	0.1
Twinflower	30	2.3
Violets	30	0.3
Indian pipe	30	0.1
Christmas fern	27	0.2
Northern beech fern	27	0.2
Eastern spreading wood fern	20	2.6
Pink lady's slipper	20	0.1
<b>Herb Layer (Mean % Cover)</b>		<b>30</b>
Bazzania	90	3.9
Broom moss	83	1.7
Stair-step moss	77	13.4
Schreber's moss	77	5.2
Hypnum moss	77	1.9
Hair-cap moss	47	0.6
Fern moss	37	0.9
Wavy dicranum	33	1.3
<b>Bryo-Lichen Layer (Mean % Cover)</b>		<b>22</b>

## Distinguishing Features

Yellow birch and red spruce dominate these mixedwood forests that occur on well drained soils.

In eastern Nova Scotia the red spruce is often replaced by balsam fir. An assortment of ferns, notably evergreen wood fern, New York fern and hay-scented fern dominate the herb layer.



Evergreen wood fern

## Site Characteristics

Slope Position:	Middle <sup>4</sup> Upper <sup>3</sup> Lower <sup>2</sup> Level <sup>1</sup>
Surface Stoniness:	(Non - Slightly) <sup>4</sup> (Moderately) <sup>4</sup> (Very - Excessively) <sup>2</sup>
Bedrock Outcrop:	(Non-rocky) <sup>9</sup> (Slightly - Moderately) <sup>1</sup>
Elevation Range:	54 - 246m
Slope Gradient:	Gentle <sup>7</sup> Moderate <sup>2</sup> Level <sup>1</sup>
Aspect:	North <sup>1</sup> East <sup>3</sup> South <sup>3</sup> West <sup>2</sup> None <sup>1</sup>
Exposure:	Moderate <sup>6</sup> Mod. exposed <sup>3</sup> Mod. sheltered <sup>1</sup>
Microtopography:	Moderately <sup>4</sup> Slightly <sup>3</sup> Strongly <sup>3</sup>
Drainage:	Well <sup>5</sup> Moderately well <sup>4</sup> Imperfect <sup>1</sup>

## Soil Characteristics

Soil Type:	ST2 <sup>3</sup> ST2-L <sup>3</sup> ST2-G <sup>1</sup> ST3-L <sup>1</sup> ST6 <sup>1</sup> Other <sup>1</sup>
Parent Material:	Glacial till <sup>10</sup>
Rooting Depth (cm):	(<30) <sup>1</sup> (30-45) <sup>5</sup> (>45) <sup>4</sup>
Duff Thickness (cm):	(0-5) <sup>1</sup> (6-10) <sup>7</sup> (11-20) <sup>2</sup>

