

The Morris Tract Provincial Nature Reserve: A New Gem For Ontario's Provincial Parks System*

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Introduction

The Morris Tract Provincial Nature Reserve is a 58 hectare park on the Maitland River approximately five kilometers southeast of Goderich, Ontario (Figure 1). It forms part of one of the largest forest patches in Huron County, where only 13% of the landscape remains under forest cover. In 1996 the Nature Conservancy of Canada purchased the property and leased it to Ontario Parks as a Provincial Nature Reserve under the Ontario Parks Legacy 2000 program.

In the park, limestone bedrock of the Dundee Formation outcrops as limestone flats along the river bed, and as low cliffs along the base of the valley (Jin, 1998). The base of the cliff is regularly ice scoured, but the upper cliff supports an old-growth community of Eastern White Cedar (*Thuja occidentalis*). Tree rings have been dated to 1744, from trees that are probably close to 300 years old.

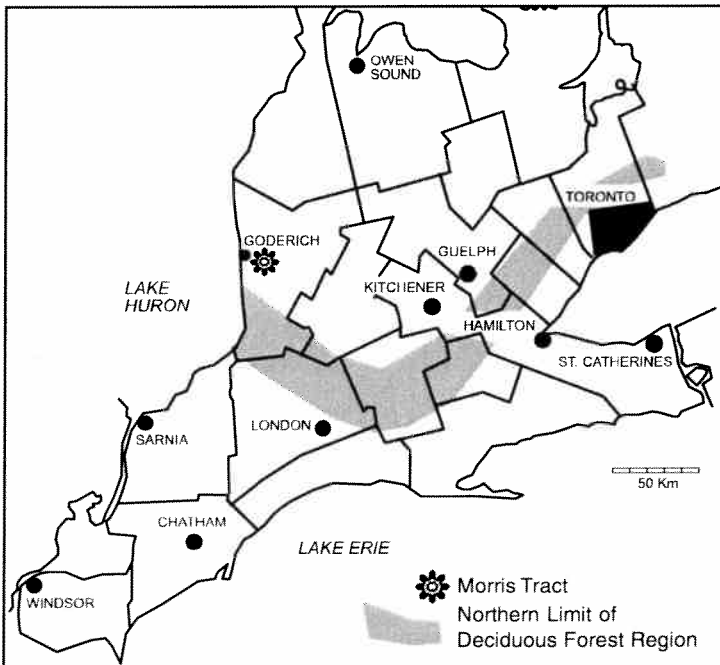


Figure 1: Morris Tract

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Other forests in the in the Morris Tact occupy rolling uplands, terraces, bottom lands, valley slopes and deep, steep-side ravines. Most were heavily logged at the turn of the century and there was more logging about 60 years ago, but there had little recent disturbance until salvage was done following a windstorm in 1995.

The northern boundary of the Deciduous Forest Region lies south of Goderich, but a number of Carolinian species are found in the Morris Tract and along adjacent sections of the valley, including some that are provincially rare. The limestone flats support an alvar-like community comprising species with prairie affinities. Cool seeps and ice-scoured rocks along the cliffs adjacent to the park also support fen and arctic species.

Some inventory was done in the Morris Tract before the site was purchased. Further life sciences inventory, including mapping and evaluation were completed as part of the park management plan process.

Vegetation Community Types

Vegetation community types in the Morris Tract have been mapped and characterized according to the Ecological Land Classification framework (Lee *et al.*, 1998). They are listed in Table 1. Most upland, slope and bottomland communities represent common forest types in the region, but the bedrock communities of the cliffs and river shore represent provincially significant types according to Bakowsky (1996).

Old Growth Cedars

Eastern White Cedar thickets occupy the highly weathered, fractured limestone cliffs at the Morris Tract. No trees are rooted below an ice scour-line about 3-4 m above the river. Trees that topple down the cliff grow adventitious roots at secondary points and are grossly deformed.

In December 1998, Doug Larson counted rings on fifteen core samples from nine trees. Diameter of trees was measured at core height. Most cores were taken 1.0-1.5 m above the rooting plane. For trees 3-5 m tall, such a coring height underestimates age by a factor that varies from 0.3 to 0.4.

Most of the trees sampled (Table 2) germinated this century, but three cores were over 100 years old and one was 254 years old. The germination date of this tree is probably 300 years ago. All of the mature trees were of similar size, therefore it is very difficult to predict age based on size for this population.

Growth rates here are faster than for similar trees on the Niagara Escarpment, but the single ancient specimen was growing as slowly as many of the trees on the escarpment (D. Larson pers. comm.). The highly fractured rock probably allows for greater root volume, and greater above-ground productivity.

Conclusions: The Eastern White Cedar cliff thicket at the Morris Tract, represents old-growth forest of a similar type to that found on the Niagara Escarpment.

Site	Substrate	Topographic Feature	Community Type	Plant Form	Community	Moisture Regime	Age	S-Rank		
Surficial Deposit	Mineral Soil	Rolling Upland	1.1 Sugar Maple - Beech	Deciduous	Forest	Fresh	Mature	S5		
			1.2 Sugar Maple	Deciduous	Forest	Very Fresh	Mid-aged	S5		
			1.3 Sugar Maple - Black Cherry - Beech	Deciduous	Forest	Fresh	Mid-aged	S5		
		Terrace	1.6 Sugar Maple - Black Cherry - White Birch	Deciduous	Forest	Very Fresh	Forest	Very Fresh	Young	S5
			1.4 Sugar Maple - Bitternut Hickory	Deciduous	Forest	Fresh	Forest	Fresh	Mid-aged	S4
		Tableland	1.5 Sugar Maple	Deciduous	Forest	Fresh	Forest	Fresh	Young	S5
			1.7 White Cedar	Coniferous	Forest	Moderately Fresh	Forest	Moderately Fresh	Mid-aged	S5
		Valley Slope	2.1 White Ash - Sugar Maple	Deciduous	Forest	Very Fresh	Forest	Very Fresh	Mature	S5
			2.2 Sugar Maple - White Ash	Deciduous	Forest	Very Fresh	Forest	Very Fresh	Mid-Aged	S5
			2.3 White Ash - Basswood	Deciduous	Forest	Fresh	Forest	Fresh	Mid-aged	S5
			2.4 Sugar Maple - Beech - White Ash	Deciduous	Forest	Fresh	Forest	Fresh	Mid-Aged	S5
			2.5 Sugar Maple - Basswood - White Cedar	Deciduous	Forest	Fresh	Forest	Fresh	Mid-aged	S5
			2.6 Sugar Maple - Yellow Birch	Deciduous	Forest	Very Moist	Forest	Very Moist	Young	S5
			3.1 Bitternut Hickory	Deciduous	Forest	Very Fresh	Forest	Very Fresh	Mid-aged	S5
			3.2 Sugar Maple - White Ash	Deciduous	Forest	Fresh	Forest	Fresh	Mid-aged	S5
			3.3 Red Maple - Yellow Birch	Deciduous	Swamp	Very Moist	Swamp	Very Moist	Mid-aged	S5
			3.4 Bitternut Hickory - Garlic Mustard	Deciduous	Swamp	Moist	Swamp	Moist	Young	S5
Beach Bar	Parent Material	3.5 Ninebark - Reed canary Grass	Deciduous	Thicket	Thicket	Moist	Pioneer	S5		
		3.6 Reed Canary Grass	Graminoid	Meadow	Moist	Moist	Pioneer	S5		
		2.7 White Cedar	Coniferous	Thicket	Fresh	Fresh	Old Growth	S3		
Beach Bar		3.7 Little Bluestem	Graminoid	Barren	Very Dry	Pioneer	S3			

Table 1: Vegetation community types in the Morris Tract Provincial Nature Reserve. Communities are arranged according to the ELC description framework (Lee *et al.*, 1998) and numbered according to topographic position. S-Rank follows Bakowsky (1996).

Species	Date (yr)	Ring Count	Inner Ring Diameter (cm)	Age Estimate (yr)
Ce	1967	31	3.6	31
Ce	1960	48	32	54
Ce	1958	40	35	73
Ce	1938	48	30	48
Ce	1925	73	32	89
Ce	1922	76	45	139
Ce	1919	79	8	79
Ce	1920	78	25	114
Ce	1744	254	35	254
He	1935	63	30	104

Table 2: Inner ring date, ring count, diameter, and age estimate for trees sampled on cliffs within the Morris Tract. Ce = Eastern White Cedar; He = Hemlock

Floristics

Four hundred and sixty-five vascular plant taxa in 93 families have been identified from the Morris Tract. Three hundred and ninety-two taxa are native species, while 73 species (16%) are introduced in Huron County. Eleven species of vascular plant are considered provincially rare, with an S-Rank of S3 or above (Oldham, 1996) and 47 species have conservatism scores of 8 and above (Oldham *et al.*, 1995). One plant species is listed as threatened in Ontario. Rare plant species are listed in Table 3. A further 36 species found in the Morris Tract are considered regionally rare, 16 of these were recorded from Huron County for the first time in the Morris Tract (Tom Lobb, pers. comm.).

Most of the species are typical of the Great Lakes-St. Lawrence forest, but a number show southern and western affinity. The Maitland River valley is north or what is generally considered to be the northern limit of the Carolinian zone (Figure 1), and yet a number of species found in the Morris Tract are either Carolinian, or are southern species near the northern limit of their range.

Scientific Name	Common Name	S Rank
<i>Arisaema dracontium</i>	Green Dragon	S3
<i>Cacalia plantaginea</i>	Indian-plantain	S3
<i>Carex formosa</i>	Sedge	S3S4
<i>Carex tetanica</i>	Sedge	S3
<i>Eupatorium purpureum</i>	Sweet Joe-Pye-Weed	S3
<i>Hybanthus concolor</i>	Green Violet	S2
<i>Lithospermum latifolium</i>	(American) Gromwell	S2S3
<i>Muhlenbergia tenuiflora</i> var. <i>tenuifolia</i>	Muhly	S1S2
<i>Onosmodium molle</i> var. <i>hispidissimum</i>	False Gromwell	S2
<i>Panicum clandestinum</i>	Hidden Panic Grass	S2

Table 3: Provincially Rare Vascular Plants of the Morris Tract

Some prairie species associated with limestone flats along the river have the centres of their range to the west of Ontario. These include Big Bluestem (*Andropogon gerardii*), Little Bluestem (*Schizachyrium scoparium*) and Indian Grass (*Sorghastrum nutans*). Two species, Indian Plantain (*Cacalia plantaginea*) and Ohio Goldenrod (*Solidago ohioensis*), have ranges confined to the Great Lakes Basin.

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References

- Bakowsky, W.D. 1996. *Natural Resources of Ontario: vegetation communities of southern Ontario*. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario.
- Bowles J.M., D. Kirk, D. McLeod and T. Lobb 1999. *A life science inventory and evaluation of the Morris Tract Provincial Nature Reserve*. Ontario Ministry of Natural Resources, Ontario Parks.
- Chapman, L.J. and D.F. Putnam 1984. *The physiography of southern Ontario (3rd edition)*. Ontario Geological Survey, Special Volume 2.
- Jin, J. 1998. *Earth Science Inventory Checklist: Morris Tract Provincial Nature Reserve*. Ontario Ministry of Natural Resources.
- Larson, D.W. 1998. *Age Characteristics of Thuja occidentalis on the cliffs of the Morris Tract on the Maitland River*. Unpublished report.
- Lee, H.T., W. Bakowsky, J.L. Riley, J.M. Bowles, M. Puddister, P.W.C. Uhlig and S.C. McMurray 1998. *Ecological Land Classification for southern Ontario: first approximation and its application*. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- Oldham, M.J. 1996. *Natural Heritage Resources of Ontario: Vascular Plants*. Natural Heritage Information Centre, Peterborough, Ontario.
- Oldham, M.J., W.D. Bakowsky, and D. A. Sutherland. 1995. *Floristic quality assessment system for southern Ontario*. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario.