

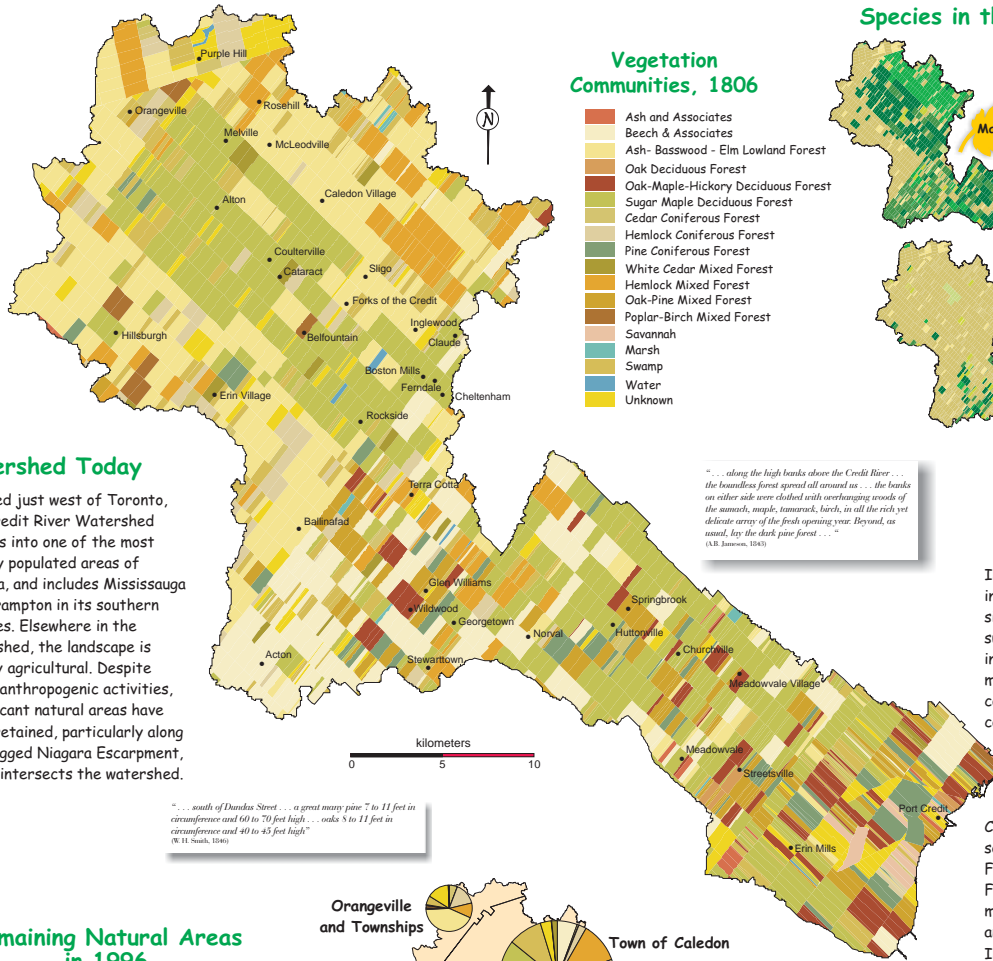
Mapping Pre-Settlement Vegetation from Surveyor's Records

Credit River Watershed ca. 1806



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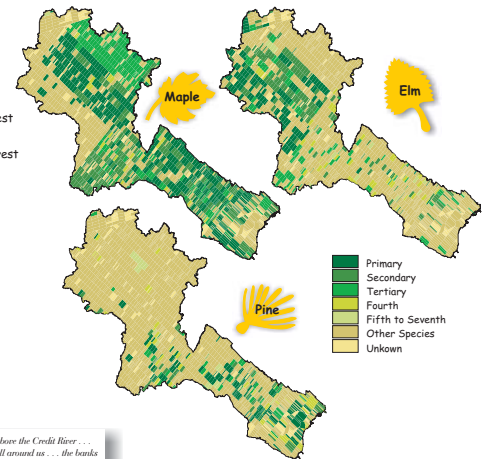
Michael Puddister
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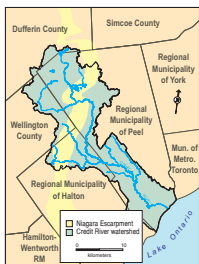
Vegetation Communities, 1806

- Ash and Associates
- Beech & Associates
- Ash- Basswood - Elm Lowland Forest
- Oak Deciduous Forest
- Oak-Maple-Hickory Deciduous Forest
- Sugar Maple Deciduous Forest
- Cedar Coniferous Forest
- Hemlock Coniferous Forest
- Pine Coniferous Forest
- White Cedar Mixed Forest
- Hemlock Mixed Forest
- Oak-Pine Mixed Forest
- Poplar-Birch Mixed Forest
- Savannah
- Marsh
- Swamp
- Water
- Unknown

Distribution of Selected Species in the Watershed, 1806



The Credit River Watershed Today



Located just west of Toronto, the Credit River Watershed merges into one of the most heavily populated areas of Canada, and includes Mississauga and Brampton in its southern reaches. Elsewhere in the watershed, the landscape is largely agricultural. Despite these anthropogenic activities, significant natural areas have been retained, particularly along the rugged Niagara Escarpment, which intersects the watershed.

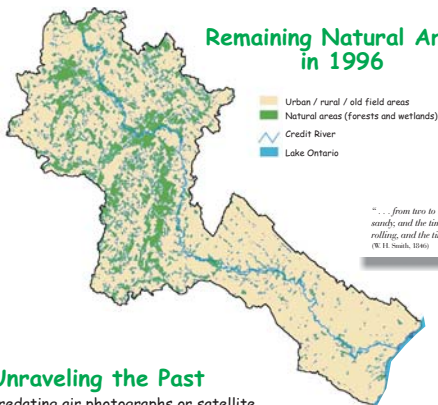
"... south of Dundas Street ... a great many pine 7 to 11 feet in circumference and 60 to 70 feet high ... oaks 8 to 11 feet in circumference and 40 to 45 feet high" (W.H. South, 1846)

"... along the high banks above the Credit River ... the boundless forest spread all around us ... the banks on either side were clothed with overhanging woods of the sassafras, maple, tamarack, birch, in all the rich yet delicate array of the fresh opening year. Beyond, as usual, lay the dark pine forest ..." (A.B. Lawson, 1847)

From Species to Vegetation Communities

Initial maps focusing on dominant species in the watershed downplayed the significance of less common species, and suggested that a more meaningful interpretation of the early landscape might be gained by adopting a vegetation community approach. Vegetation communities were developed by examining the primary, secondary and tertiary vegetation types, and grouping them into fewer broader classes. The Ecological Land Classification system, developed for southern Ontario, was used as a guide. For example, a Sugar Maple Deciduous Forest includes all polygons where sugar maple is the primary (dominant) species and all associates are secondary or less. In addition, maps showing all occurrences of a single species were produced.

Remaining Natural Areas in 1996

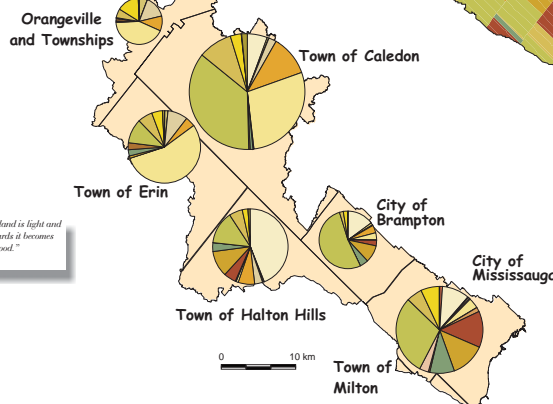


"... from two to three miles from the lake the land is light and sandy, and the timber principally pine, afterwards it becomes rolling, and the timber the best kinds of hardwood" (W.H. South, 1846)

Unraveling the Past

Predating air photographs or satellite images, the records of early land surveyors provide a valuable glimpse of the pre-settlement forested landscape. Under the direction of the Surveyor General and Lord Simcoe (the Lieutenant-Governor of Upper Canada) early surveyors traversed township lines and access roads in the Credit Valley, recording the vegetation observed at the boundary of every surveyed lot. The vegetation, particularly forest composition, was described in considerable detail. For some lots, up to the seventh dominant species was recorded; for others only a more general description was provided such as swamp or savannah.

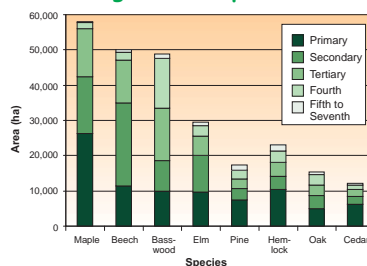
Forest species observations from the surveyor's records were manually annotated onto county maps. Using ArcView and an OBM digital township boundary file, a digital database of this information was created. New polygons were created extending halfway across lots; thus each observation point used by the surveyors became the midpoint of these new polygons, which were assigned the annotated vegetation type.



Dominant Vegetation Communities by Municipality, 1806

- Ash and Associates
- Beech & Associates
- Ash- Basswood - Elm Lowland Forest
- Oak Deciduous Forest
- Oak-Maple-Hickory Deciduous Forest
- Sugar Maple Deciduous Forest
- Cedar Coniferous Forest
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- Unknown

Area of Most Frequently Occurring Forest Species, 1806



Visualizing the Pre-Settlement Landscape

Before the plough and the bulldozer transformed the landscape, sugar maple deciduous forest dominated much of the Credit River watershed, especially in the southern and headwater regions. Nearer Lake Ontario, on the well drained soils of the Iroquois Plain, pine and oak forests were more prevalent with pockets of savannah grasslands. Twenty-nine different species were recorded with maple, beech, basswood, elm, pine and hemlock receiving most frequent mention. Early surveyor records provide unique historical documents which provide a fairly dense network of first hand observations of vegetation type. This research demonstrates how these records can be used in a digital environment to reconstruct a generalized overview of the extent and composition of the pre-settlement forested landscape.

Acknowledgments

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