

THE 933rd MEETING OF THE BRODIE CLUB MINUTES

The 933rd meeting of the Brodie Club was held on October 20, 1998 in the Ramsay Wright Building, University of Toronto.

Chairman: Paul Aird

Recording Secretary: Ann Falls

Attendance: 20 members plus Charlie Lennox, a corresponding member, and 3 guests:

Mary Boswell, guest of Falls

Claire Muller, guest of Carrick

Mary Tasker, guest of Tasker.

Carrick gave notice of motion to change the official start of the club year from January to September. Seconded by Riley. Election of officers was postponed until this motion is voted on. The nominations were circulated in the previous minutes.

Bruce Falls introduced the speaker, club member **John Riley**. John has been an active conservationist since his days as a graduate student in Botany. When he worked for the Ministry of Natural Resources, he was Regional Ecologist for Southcentral Ontario. He is currently Conservation Co-ordinator for the Federation of Ontario Naturalists.

Ecological Survey of the Niagara Escarpment World Biosphere Reserve

John's topic was a detailed life science inventory that he, Jarmo Jalava, Steve Varga and others worked on from 1990 to 1996. His talk was illustrated with excellent slides shown in pairs using two projectors.

The Niagara Escarpment is the most prominent landform in southern Ontario, extending over 900km. It has some of the best exposures of Ordovician and Silurian fossils found anywhere. It has extensive wetlands and woodlands which provide habitat for 198 species of breeding birds, 52 mammal species, 37 amphibians and reptiles, 101 species of fish, and 1840+ species of plants and mosses identified so far. One of Canada's longest trail systems, the Bruce Trail, hugs its rim.

Because of concern over urban growth and cliff-edge quarries, Ontario established the Niagara Escarpment Plan in 1983, Canada's first environmentally-based land-use plan. The plan covers almost 1400 km² from Niagara Falls to the Bruce Peninsula. In 1990 the escarpment was declared a UNESCO World Biosphere Reserve. The plan protects a linear band along the escarpment and connects it to valleys below the crest and to forests and wetlands back from the rim. Over \$20 million has been spent to purchase natural areas, and most of a \$5 million research fund administered by the Ontario Heritage Foundation has also been spent. Almost 1/5 of the area is now protected in one way or another. Private landowners are encouraged to protect their woodlands, wetlands and ANSIs by property tax reductions.

Detailed inventories were done for more than 150 sites and a two-volume summary report was released in August 1998.

The escarpment is the eroded edge of the basin of an inland sea which existed 400 to 450 million years ago. Clays and sands eroded from the ancestors of today's Appalachian Mountains became the escarpment's shales and sandstones. The dolostones and limestones formed from ancient reefs. When the seas retreated differential erosion created the escarpment and continues to shape it. Forty-one provincially significant earth science sites have been identified along the escarpment to represent the diversity of escarpment landforms. Some are chosen to illustrate bedrock diversity. Waterfalls illustrate the erosion process, and create bowl-shaped pools at their base, the size of which indicates the relative volume of water which formed them. Spencer Gorge's largest punchbowl (in a series of >10) would have been formed by a water flow equivalent to Niagara's Horseshoe Falls. Great volumes of meltwater from

retreating glaciers about 14,000 years ago carved great channels through the escarpment and created fields of giant potholes. Postglacial Lake Algonquin created wave-cut shoreline features at Hope Bay by undercutting shoreline cliffs creating a chain of large caves now raised 45 metres above the present Georgian Bay.

These landforms support a diverse flora and fauna. Cliffs sustain a number of rare ferns, and a 'forest' of stunted White Cedars which have been shown to be up to 1600 years old (commonly up to 1000 years old). Bats hibernate in the caves. The rare Hart's Tongue Fern thrives on some talus and rock plain forests, as do a number of other calciphile ferns. Back from the edge in the Bruce Peninsula are alvars which support many interesting plants. Many of Ontario's rare wildflowers occur on the escarpment. The endangered Dusky Salamander occurs only at two springs along the Niagara Gorge.

To represent biological diversity 106 provincially and regionally significant areas have been selected along the escarpment. There is a latitudinal gradient from Carolinian forest in the south to forest with boreal affinities in the north, and the flora and fauna reflect this. In the northern part of the escarpment there are also disjunct populations of western species of plants. Even a few breeding birds with western affinities such as Dickcissel and Clay-coloured Sparrow have been recorded here.

The Niagara Escarpment is an important wildlife corridor and a refuge for forest interior species since many of southern Ontario's largest forests are along the escarpment. Breeding bird surveys in this study show that area-sensitive species such as Least Flycatcher, Veery and Red-eyed Vireo have dramatically higher population densities in sites greater than 1000 hectares. Sites with <100 ha of forest interior averaged 14 species per site while sites with >300 ha of forest interior averaged 34 species per site. Sites smaller than 50 to 90 hectares in overall size have no forest interior left.

The study increased concern for protection of old-growth forests and for those forests which have been left uncut for almost a century since settlers first cut them. These are now rare community types. The White Cedar cliff-rim forests are threatened by foot traffic on too many trails too close to the edge of the escarpment and from rock climbing and bonsai collecting. Logging is a concern in older second growth forests. The quality of many forests have suffered from repetitive selective cutting over too many years. The percentage of forest cover is actually increasing in townships overlapping the biosphere reserve, but it will be decades before these woodlands provide forest interior conditions.

There is concern over the continuity of the escarpment corridor in some areas due to urban development etc. There is an ecological need to widen the corridor and restore breaks in it. There is also a need to link the primary corridor of the escarpment with secondary lateral corridors along river valleys and east to the Oak Ridges Moraine.

As a World Biosphere Reserve the escarpment deserves the best protection we can give it.

The survey should be useful in land planning. Its conclusions are similar to those of a cursory earlier survey but this one was much more complete. A detailed inventory has been done of 23% of the planning area. We know that 70 species have been extirpated from the planning area, mostly from the Niagara gorge which has been invaded by many alien species.

Although the report was delayed in its release by the government it is now available through the Niagara Escarpment Commission for about \$60.

Title: Ecological Survey of the Niagara Escarpment World Biosphere Reserve

Authors: J.L. Riley, J. V. Jalava and S. Varga

Questions:

Are extirpated species available for reintroduction? Yes. Development caused much extirpation, e.g. a golf course wiped out a good black oak savanna.

Hart's Tongue fern distribution? Central Grey County has biggest population. The most southerly site on Rattlesnake Point was on a climbing route and has been knocked out.
 Did you get permission to go on private land? 85% of landowners co-operated.
 Could municipalities be encouraged to restore forest corridors? Good idea.

Fred Bodsworth thanked the speaker for his excellent talk and slides. He remarked on the great progress which has been made since the 1960's when the FON was concerned about quarries and was involved in acquisition of Dorcas Bay Nature Reserve on the Bruce Peninsula, and in the initial development of the Bruce Trail. The speaker was given enthusiastic applause.

Notes and Observations:

McAndrews- "Bring Back the Don" Committee plans a marsh restoration project at the mouth of the Don River in what is now the Portlands. This will be a reincarnation of the Ashbridges Bay marsh.

This summer a bear raided a honeybee yard near Morganston just north of Brighton.

Beavers on the Humber River floodplain at Bloor St have been cutting cottonwood and white ash. They are probably using bank burrows. He saw a chinook salmon of about 25 lbs caught on hook and line.

Bodsworth- Large flocks of grackles (1000) in his neighbourhood are feeding in oak trees. Are they eating acorns or oak galls which are very abundant?

Boyer- His martin houses had 2 nesters and lots of attendant males. They left in late July. In the fall he found that both nests contained unhatched eggs, 2 and 7.

Carrick reported that he had 39 Trumpeter Swans in training to follow ultra-light aircraft with the intention of leading them from Cootes Paradise to Muskatatuck National Wildlife Refuge in Indiana.

Riley- In central Manitoulin Island 2 weeks ago he saw 600 Sandhill Cranes in ½ hour.

Hussell- at Thunder Cape saw a fox kill an immature Blue Goose. Tree Swallows nested unusually early but were set back by a cold spell in June.

Claire Muller- More Grey Jays in Temagami than usual, and lots of Hermit and Swainson's Thrushes.

Yesterday in the Don Valley south of Cummer saw Pine Warblers, also a Sharp-shinned Hawk attacking a Rock Dove.

Charlie Lennox - saw two possum roadkills in the past month in the

Orangeville area and asked if this was unusual. Riley said they have been increasing since the early '80s. There are now reports from Simcoe County.

Tasker- finds foxes common in Rosedale. Reports that Cranes are now common on Manitoulin. He also saw them when Riley did. Lots of Grey Jays on Manitoulin.

Abraham- reports that a reliable person saw 10 *Whooping* Cranes west of Iron Bridge. It was on the weekend of a big snowfall in Saskatchewan.

Speakman- saw a huge movement of Cormorants 2 weeks ago on the east side of Lake Simcoe.

Norma Martin- groups of 1000 -2000 Cormorants are seen at Belleville.

Aird- spoke to Toronto district beekeepers last night and noted that toads are often found under beehives. He comments that impending rain can be forecast when swallows fly low, and bees go back to their hives. Bees are bad-tempered during storms.

THE NEXT MEETING: will be held November 17, 1998 at 8.00 pm in room 432 of the Ramsay Wright Building (Harbord and St. George Streets)

SPEAKER: Bob Curry

SUBJECT: Uncommon Butterflies of the Hamilton-Toronto Area

Come and bring your guests!