

THE  
BRODIE  
CLUB



ROYAL ONTARIO  
MUSEUM OF ZOOLOGY

### **THE 1,026th MEETING OF THE BRODIE CLUB**

The 1,026th meeting of the Brodie Club was held at 7:30 pm on January 20, 2009 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chairman: Oliver Bertin  
Secretary: Ed Addison

The meeting was attended by 23 members and three guests:  
Terry Marescaux was a guest of Oliver Bertin.  
Beverley and Ron Thorpe were guests of Ed Addison.  
Several members sent regrets including Ken Abraham, Yvonne Bendell, Jim Bendell, Bob Curry, Harry Lumsden, Kevin Seymour and Glenda Slessor.

Erica Dunn was welcomed by Ann Falls as a new member.

The minutes were approved with apologies to Ed Bousfield for misspelling his name and correcting that it was lemmings, not voles, that had been abundant last summer in the eastern Arctic.

There was no business arising from the minutes, no new business and there were no committee reports.

John Sparling's passing was acknowledged by Bruce Falls.

#### Thoughts about John Sparling at the January 2009 Meeting of the Brodie Club

Our member, John Sparling, passed away January 13, 2009. He was 71. He had been seriously ill for over a year and recently went into hospital to wait for a lung transplant. He died suddenly after having spent the day with his wife Brenda.

I first met John when he arrived from England in 1962, fresh and eager from his doctoral studies. He joined the Department of Botany at the University of Toronto as a plant ecologist with a special interest in wetland ecology. We gave a course in ecology together and he was a valued colleague and friend. John and I both served on the Ontario Conservation Panel of the International Biological Programme which began in 1968. John was a great help to the group.

In the mid 1970s John left the university to join an environmental consulting firm and our paths drifted apart. A few years later he formed his own company. During this period he expanded his interests and traveled widely.

We met again in December 2004 on the occasion of a Black-throated Gray Warbler in High Park and I discovered that John was a keen birder as well as a botanist. Indeed he had been interested in many areas of natural history since childhood. He became an expert in fungi and lichen, and had a vast knowledge of nature from his broad experience. He freely shared his expertise with others including the local mycological society.

After attending several meetings John joined the Brodie Club in September 2006. His letter of application is in the minutes of the 1002<sup>nd</sup> meeting. In the following year his health began to fail but he and Brenda attended most of the meetings. Last September he gave a presentation on member's night and he last attended the Club in October 2008. Sadly, many of the members hardly got to know John before we lost him. Ann and I and others who knew him will miss a man of integrity, curiosity and good humour, a good friend who was an excellent naturalist. John is survived by his wife Brenda and a son Jonathon.

A celebration of John's life will be held in the spring and I hope that several of us from the Brodie club will be able to attend. Donations in John's memory may be made to the Nature Conservancy of Canada, the Bruce Trail Conservancy or the Toronto Monthly Meeting of the Religious Society of Friends – the Quakers.

We send our heartfelt sympathy to Brenda Gibson and family.

Bruce Falls.

**SPEAKER:**

The speaker, Dr. Paul Gray of the Ontario Ministry of Natural Resources [OMNR], was introduced by Ed Addison. Paul grew up in Toronto, was involved in resource protection in parks as a student, did research on wildlife in Algonquin Park and attended University of Waterloo. Following a number of jobs in Ontario, Paul worked on wildlife in the Northwest Territories. While there he collected data for his Ph.D. on wildlife habitat classification in Nahanni National Park with his degree being received from York University. Paul returned to work with OMNR in a number of capacities and now coordinates OMNR initiatives on impacts of global warming on natural resources.

**CLIMATE CHANGE IN ONTARIO: SOME EMERGING AXIOMS**

Paul began with a vignette of a recent visit to some world heritage sites in Egypt- the minarets of Cairo, the pyramids, Tunis and finally the Valley of the Whales. The latter



has recently been developed in an ecologically sensitive way under the guidance of Dan Paleczny who has worked with management of natural areas in Ontario, Egypt and Zimbabwe. This 20,000 ha area on the edge of the Sahara desert had been



under a warm shallow sea at one time. Now it is a sand valley where skeletons of prehistoric whales have been found.

All materials used in the facilities are from the park. Materials include sand, straw, grass and pottery. The washrooms are made of sandstone and designed like Bedouin buildings. Paul used this marvelous example of a small ‘ecological foot print’ as a prelude to his discussion of the potential association between our excessively large ecological foot print and the impacts of development on climate.

Paul quoted Sir Martin Holdgate and the concept of ‘enoughness’ which promotes that there is a sufficiency of material goods with which people can and should be content.

Paul identified the uniqueness of the earth’s climate by referencing James Hansen of NASA who refers to Earth as the “Goldilocks Planet”, uniquely far enough from the sun to not have runaway greenhouse gases [not too hot] and just close enough to not experience runaway glaciation [not too cold]. Without greenhouse gases, Earth would be 33°C colder.

Contributors to climate are both “natural”, such as volcanic dust and solar variation and those arising from human factors such as greenhouse gas emissions, ozone in the lower atmosphere, aerosols and land use changes. CO<sub>2</sub> emissions are increasing vastly. Decades of monitoring by Charles Keeling in Hawaii, documented annual atmospheric CO<sub>2</sub> almost tripling from 0.7 ppm/yr in 1959-1963 to 2.0 ppm/yr in 2000-2004.

Climate is primarily an amalgamation of temperature, precipitation, and wind. Over the past 100 years, temperatures recorded in some provincial parks have increased as much in northern Ontario as 1.2 °C [Tidewater on James Bay] and in southern Ontario by 0.98 °C [Sandbanks on Lake Ontario].

The world human population in 2000 was 6.1 billion. By 2050 it is expected to be 9 billion with most of the increase being in the less economically developed countries of Asia. Concomitantly, there will be a much increased demand for access to resources.

Since we do not know how humans will behave in the next 100 years, the estimates for temperature increases vary from 2-6 °C. An inter-governmental panel on carbon emissions has developed 40 models for emissions based on variations in human behaviour. Model 'A2', a somewhat industrialized scenario, has been considered possibly realistic although some feel that carbon emissions will exceed those in the A2 model. The following extrapolations are based on the A2 model.

Under the A2 model, the surface temperature of the earth will increase 3.6 °C by 2100. By 2071-2100, winter temperatures in southern Ontario will increase 5-6 °C, at the latitude of Thunder Bay by 5-6 °C and increasing to up to a 9-10 °C on the Hudson Bay coast. For Lake Superior, Lake Huron, Lake Erie and Lake Ontario there will be 90, 62, 61 and 76 fewer winter days, respectively, below 4 °C. Surface water temperatures of these Great Lakes are anticipated to increase 4-5 °C.

Just as there are problems to be dealt with there are also benefits from the increased carbon emissions in Ontario. There will be longer growing seasons, increased availability of agricultural lands in the clay belt area of northeastern Ontario, lower snow removal costs and less ice in the lower Great Lakes. Within the national Capital Commission there could be zero cross-country ski days left by 2050 yet the days available for swimming could increase from 100 in 2020 to 160 days in 2080.

There will be differing futures for differing biota. For example, red squirrels are seen as adapting to the changes, opossums and bluebirds as migrating to new areas and some butterflies being extirpated from Ontario. Warm water fishes such as bass will flourish with up to 75% increased thermal habitat and conversely cold water fishes such as trout will have up to 75% reduced thermal habitat. The length of the forest fire season is expected to increase by a number of days/decade with the greatest increases of 6-8 days earlier/decade occurring in the Lake of the Woods and nearby parts of northwestern Ontario adjacent to Manitoba.

From 1971-2000, ecoregion 3W stretched from Thunder Bay and north and slightly west of Thunder Bay eastward to the Quebec border and beyond. By 2041-2070 the last remnant of this ecoregion in Ontario will be a tiny area at the base of James Bay with an increasing representation up the eastern Quebec shore of James Bay.

Average summer temperatures in Ontario are predicted to increase 3-6 °C depending on the region. In parts of the Great Lakes, algal blooms may discourage swimming, washing, waterskiing, wading and drinking of the water. There could be an increase in extreme events [e.g. ice storms].

Having delineated many challenges that Ontarions could face with climate change, Paul did address what could be done about it.

Pessimism saps our will. It's time to be positive and embrace the challenges. Paul proposes that we manage for climate change with an ecosystem approach to management. Within this approach we must look at things from the context of space and time. We must recognize the utility of three "enablers" with them being "philosophy and values", "partnerships" and "institutional culture and function". Using these contexts and "enablers", we must apply the tools of "strategic planning", "policy and legislation", "knowledge gathering", "knowledge dissemination" and "on-site management".

A key question that must be addressed is "Do we have a strong social fabric to support a commitment to sustainable living, a key to managing for climate change?"

We also need to increase communication about methods for limiting our ecological footprint, mitigate by reducing sources, adapt by changing our living habitats with such things as living off the grid, less transportation by personal vehicles to the workplace and designing an alternative to automobile-oriented urban planning and development amongst other initiatives.

Referring to the work of Gordon Nelson, Paul noted that our actions are about civics, not only our rights but also our duties of citizenship.

Paul provided additional examples of possible impacts of climate change and potential responses that we might take. Throughout his talk he acknowledged each of the scientists whose work he was referencing and as the talk progressed he started to unfold what he called "some emerging axioms". By the end of the talk these included:

- **"It is risky to make medium and long-term decisions that assume a stable climate.**
- **Every species and every ecosystem will respond to climate change in a unique way.**
- **Human health will be an issue.**
- **Every town and city and every industry will be confronted with a unique set of climate-induced impacts and associated management issues, and will need to plan for a range of impacts with a range of solutions and adaptation strategies.**
- **The concept/ideal/target of sustainability will require re-evaluation.**
- **Making decisions about natural assets in climates that have not arrived yet may require new robust governance tools and techniques.**
- **A commitment to civic duty and participation is critical.**

Paul ended his talk with a quote from Dietrich Bonhoeffer [1906-1945]:

**“The ultimate test for a moral society is the kind of world it leaves its children”**

**QUESTIONS/COMMENTS:**

Population growth was not discussed yet it has been a huge part of the problem. Yes, it is important and needs to be talked about.

In the north, methane release could have a large non-linear increase of CO<sub>2</sub>. The extent of the methane release will be influenced by the speed of drying out of the ground.

Is there a temperature in the models where a positive feedback loop leads to a ‘runaway’ of CO<sub>2</sub> emissions? Yes, particularly in active systems.

It is pretty depressing that after 2-3 years of gaining a fairly good understanding, that we have activities of some “crooks” on Wall Street leading to a societal downgrading of investing in the environment. More is known but less will be done because monitoring and other important activities will not receive adequate funding during a downturn in the economy. There is a need for further monitoring. For example, we have few climate monitoring stations between Big Trout Lake in Ontario and Iqaluit in Nunavut.

Given the limited distribution of meteorological stations, what is your assessment of the reliability of the climate change models? The use of glacial cores and other measures of long term trends give us a reasonable degree of understanding about the past but projecting into the future we could be very wrong. Having said that, we must use models to identify the range of challenges and reactions that may have to be considered.

There is a great emphasis on global warming, a condition that has been going on periodically forever. We have areas such as Quebec and Baffin Island that are getting colder. Shouldn't we be addressing the risks of cooling in addition to warming? Aerosols have been polluting for a long time and the light that they deflect leads to cooling. Should we be using this tool as a “deal with the devil”? The questions of cooling could be dealt with in about 15 different ways.

Trees are main source for sequestering of CO<sub>2</sub>. Under the Kyoto Agreement, the cutting of a tree is interpreted as carbon being emitted. The forestry oriented countries disagree and point out that products from trees go into houses, tables, etc. and the carbon remains sequestered for 100 more years.

How is the Kyoto Agreement doing? There are problems but it is hoped that the less economically developed countries will become willing to participate, something they were unwilling to do in the first round.

In the large conference in Rio de Janeiro, discussions around climate change and biodiversity were developed into two separate unlinked conventions. In the Montreal initiative, they are trying to bring climate change and biodiversity together because biodiversity is every much a value as is carbon.

How can we protect natural areas and why do so if they are all going to change? We will still have a variety of areas within which some new ecosystems will emerge.

The bright light on the horizon may be reduction in the rate of growth of human populations. Yes, it is declining and the total population is projected to peak at 9 billion in mid-21<sup>st</sup> century. Stephen Lewis identifies that part of the solution is for impoverished women to say yes or no in male dominated societies.

Do you see a united front to deal with climate change in Canada? Yes at both the municipal and provincial levels but at the federal level it is difficult to know their position. At the policy level the federal government basically disappeared. What they will be like when they re-emerge is unknown.

In education in Ontario a unit on “weather” was placed in the curriculum in 1998 and in the new curriculum to be implemented in September 2009, the new unit is “climate change”. In the new curriculum there is a huge loss of biology, ecology, etc.

The speaker was thanked by Paul Aird.

### **FIELD OBSERVATIONS:**

Jock MacAndrews mentioned new papers of which he is an author. One is on limno-geology of Lake Simcoe, another a commentary on studies around the influence of a comet on extinction of mastodons and a third on a past dry climate resulting in disconnection of the Laurentian Great Lakes.

Please see the following website for further information <http://labs.eeb.utoronto.ca/mcandrews/>

Helen Juhola reported a towhee on January 13<sup>th</sup> before the cold snap and still there on the 18<sup>th</sup>. Also saw a beaver at the foot of Bay Street with fallen trees and another trumpeter swan with yellow tags.

Fred Bodsworth advised club of a three part series on climate change based pm Gwynn Dyers book of wars based on water shortage. The first program had a definite pessimistic point of view. They are available as podcasts.

Ellen Larson reported a lot of moose tracks and a number of moose beds on her property up on the Carden alvar. This is relatively new observation on her property.

Glenn Coady spoke of the current White-winged Crossbill invasion as one of the largest during his lifetime.

John Speakman was at Amherst and another island looking for owls and was having little success. Adam Scott, a local, provided expertise and with his help John saw Boreal and Saw-whet Owls. Moral; get someone local and you will see a lot more!

The meeting was adjourned (Helen and Trudy) at 9:27.

## **NEXT MEETING:**

The next meeting will be held at 7:30 pm on Feb 17, 2009 in Room 432 of the Ramsay Wright Zoological Laboratories. The speaker will be Dr. Ronald F. Williamson, chief archeologist for Archeological Services, Inc. Dr. Williamson will speak on "From Paleo-Indians to Parliament: Serving Ontario's Archeological Past."

## **Our Birds by the Sea**

**By Yorke Edwards**

### **Our Western Correspondent**

**Red-winged Blackbirds** – Twice, I found their nest in our garden beside our ocean shore.

**Sandhill Crane** – Early one spring, I saw one on the edge of an island near the shore.

**Glaucous-winged Gull** – Dozens fly over our house every day. Once, on an island, I found 51 nests.

About 900 live daily in our city, sleeping and eating on big golf courses.

**Glaucous Gull** – On one August morning, I saw one passing by from its Arctic shores.

**Common Murre** – Once, in May, I saw some go by our island, heading south.

**Meadowlarks** – We have a few here. Once, I found a nest on a small and grassy island.

**Black Oystercatchers** – In August, almost daily, I see young ones with their cries going by.

**California Quails** – Twice, we had a nest in our garden. Once, in May, we saw six young ones.

**Killdeer** – We once heard one nesting on a small island not far beyond our shore.

**Tufted Puffin** – Some years, we see young ones on the sea going by with their adults.

**Shearwaters Sooty** – Crowds of them fly by in late summer; some are going to live near Australia.

**Song Sparrow** – Its songs are heard most of the year, but we seldom find their nests.

**White-throated Sparrow** – Through many summers, they sing loud and clear beside our house.

**Bald Eagle** – Seen almost daily on a post by the sea, but it goes up rivers to eat dead fish.

**Thayer's Gulls** – Hundreds from the Arctic go to our big island, and stay all winter by the sea.

**Dunlin** – All winter, there is often a line of them along the edge of a distant island.

**Canada Goose** – On most days, we see them eating grass on a golf course by the sea.

**Mew Gull** – In fall, they often stop beside the sea while going to Mexico for the winter.

**Northwest Crow** – At food stores at noon, both crows and kids eat lunch together,

**Double-crested Cormorant** – We see them on the small and rocky islands near our shore.

**Starling** – They were sent years ago to New York. Now, they live everywhere.