THE BRODIE CLUB

ROYAL ONTARIO MUSEUM OF ZOOLOGY

THE 994TH MEETING OF THE BRODIE CLUB

The 994th meeting of The Brodie Club was held on May 6, 2005, in Rm. 432 of the Ramsay Wright Zoological Laboratories at the University of Toronto.

Chair: Enid Machin
Secretary: Trudy Rising

There were 25 members present, along with nine guests.
Dot Andrews was the guest of Fred Bodsworth.
Kay Hodgins was Marc Johnson's guest.
John Tyacke and Julie Berger were guests of Jean Iron.
Ian Sturdee was Mary Boswell's guest.
Sharon Hick was Jock McAndrews' guest.
Guests of Bruce Falls were Sara Shettleworth and Nicholas Mrosovsky.
Rosalind Holeton was Trudy Rising's guest.

The April minutes were approved with no changes. Mary Boswell corrected the minutes of the 993rd meeting, however. It was a Boreal Owl not a Barn Owl that Glenn Coady saw on the Leslie Street Spit in March.

NEW BUSINESS:

Discussion of the June field trip comprised half of the new business. Marc Johnson highly recommended the Royal Botanical Gardens, and all were in agreement. The other two venues discussed were Carden Alvar and the Bendell's rural property, as Jim Bendell had invited the Club to come there. All were most appreciative but felt that because of the distance, this time the botanical gardens would be preferred. Marc agreed to check on the better of two dates, and has now informed me that Saturday, June 25, is the preferred date for us to have a guided tour. A map and time will be attached to these minutes so all know where to go and when.

Jennifer Young addressed the second priority for new business. The 1000th meeting of the Brodie Club will be held on February 21, 2006 at the Faculty Club of the University of Toronto. Jennifer has asked us all to consider names for an excellent speaker for that evening's meeting/festivities.

This will be the last newsletter before September. Have a good summer!

SPEAKER:

The speaker was Peter Ewins, World Wildlife Fund – Canada's Arctic Conservation Director. Bruce Falls introduced Peter, who comes originally from Oxford, England. In recent years, he has directed the WWF work in Nunavut and the Northwest Territories.

THE EFFECTS OF CLIMATE CHANGE ON AN ARCTIC SYSTEM

Peter brought a WWF Arctic Bulletin for each member that provides further information on the situation in Canada's Arctic.

Peter began his presentation with the question: "So what if the Arctic is melting?" He divided his presentation into three parts: The Situation, the Significance, the Solutions. He gave thanks to Dan Scott and Tim Stewart who provided many of the maps and slides for his presentation.

Peter asked how many members have signed up for the One Tonne Challenge — each of us cutting down our energy use — and was disappointed that so few of the group indicated they had done so.

Peter mentioned that his doctoral work was on Black Guillemots. He's done most of his work in the north, and led a high Arctic trip on a Russian ship.

Peter explained that the Yukon and NWT economies — mining and mineral exploration, tourism, fisheries and agriculture — all are in transition. There are also rapid cultural shifts. The Inuit population is about 41-42 K, most are under 21. The Inuits have a tremendous understanding of seasonal cycles, tracking changes that are now occurring. They are now faced with industrial opportunities, but have faced major pressures. Whaling and the fur trade are disappearing, and now the climate is changing. In their culture, people are not distinguishable from the land. The community of Sachs Harbour was highlighted.

Peter described a study started in the 1940s that tried to discover how much could be learned from observations in the absence of scientific data. It remains one of the best series of information we have and was used on the international stage when Kyoto was being negotiated.

Projected impacts of climatic change in Arctic ecosystems were identified and discussed. They include:

- Reductions in sea and lake ice
- Degrading permafrost
- Rising sea levels
- Changes in vegetation
- Disturbance regimes
- Changes in wildlife populations and migration patterns

He showed the IPCC Global Climate Change Projections, a graph showing historic climate variability since 1000. At about 1950, mean temperatures started to increase slowly until 2100 when there will be an enormous increase. If all greenhouses gases were stopped, there would still be warming for 100 years.

The review of global climate simulations suggests that if nothing is done, the earth will have warmed by two degrees C above pre-industrial levels (c. 1750) by some

time between 2026 and 2060. In the Arctic, the models show that it will warm up to three times that amount (3.2 to 6.6 degrees C depending on the model).

Reductions in sea and lake ice: Because of the higher temperatures, the trend is for open water for longer periods in the summer. Fresh water glaciers drive a pump. Switching it off means that warming will occur (example, UK will become like Manitoba). Even a conservative sea ice model shows that there will be no sea ice surviving through the summer by 2095.

Peter showed a graph of current world energy consumption: 37% oil, 25% natural gas, 26% coal, 6% hydro, 6% nuclear. Other sources were too small to show. The USGS petroleum assessment showed that Canadians are the largest consumers per capita, but we are too small to make much impact. There are still pockets of energy to be exploited – the tar sands is the biggest. LNG – many more liquid natural gas ships today and to come. Nuclear aircraft carriers will be needed to protect the LNG carriers, and so it goes.

Peter showed, as well, that there is still a lot of oil and gas in the Arctic – Suerdrup Basin, Baffin Bay, etc. Inuits used to hunt belugas and bowhead whales; now they're after the jobs in the oil business, etc.

Ecological Impacts: Ian Sterling's work supported by WWF is a long-term study. He's tracking the impact of the length of the ice free season on polar bears and ring seals. After ice leaves, polar bears fast. It used to be October, but now it is November. The bears are getting thinner, have lower fecundity, and fewer cubs survive. [They are closely related to grizzlies. It's only been a species for about 10Kyears. People are now seeing grizzlies in the north.] Sterling is retiring, but the team is continuing. This is an example of a government researcher who was able to keep funding going to do a long term study.

There will be 14,600 square kilometres more open water at the Northwest Passage. An open passage is a realistic option in our lifetime, with an impact on many species. For example, Inuits are seeing more killer whales in the Arctic. They couldn't get enough food for a long enough period in the past, but now they can.

Bowhead whale are the longest lived mammal, at 220 years – Ewin runs the survey of these. Killer Whales will eat bowheads. Bowheads are adapted to ice, giving them a good defence. Killer Whales have a big advantage in open water. Narwhales, too, in open water, will be eaten by Killer Whales. Likewise, walrus. The balance is changing quickly.

Kittiwakes, Arctic Terns, etc. Tony Gladston has done much work on birds, including planktivorous and fish eating birds, too. There have already been many changes with more open water.

Dovekies — they saw a million in their 22 hour crossing. There's a short term improvement in plankton-feeding birds. Thick-billed Murre has shifted from cod to capelin; Ivory Gulls feed in association with polar bears so their numbers will be affected; Eiders, Guillemots and Fulmars are increasing;

Shorebirds. There are changes related to changes in permafrost, but they are hard to quantify.

Permafrost is now continuous down through much of Canada. This will change and trees will spread. Tundra will become taiga.

Canada has 60 percent of the world's polar bears.

Musk oxen and caribous: There are nine main caribou herds across the top of Canada with 30 years of information on their movements. They wait for ice to cross; ultimately the population at James Bay will be wiped out. They expect 20 per cent fewer pregnancies, etc., in caribou. Mudslides and forest fires will increase. Peat dens of female polar bears are collapsing because of fires on top.

Solutions:

Turn down the heat. All must think globally, act locally.

Establish extensive networks of well-connected protected areas, to allow nature and people to deal adequately with inevitable impacts/uncertainties of climate changes.

He recommended Jared Diamond's two books:

Guns, Germs and Steel: The Fates of Human Societies. Zebra Bouquet, 1999 $24.99 (Indigo $14.99) and

Collapse, Viking USA 2004 $44 (Indigo $26.40).

QUESTIONS:

- Marc asked about the possibility of long term solutions when governments function on the short term. Peter acknowledged that this is a concern.
- Peter again stressed the importance of the One Tonne Challenge.
- Nature services – 1.4 trillion contributed by nature into its nature account. Canada needs to lead the G8 so that "natural capital" is included in any forthcoming negotiations.
- There were question about Inuits seeing more polar bears today than in the past. He feels they're just seeing more because the bears are having to come in for food, etc.

Fred Bodsworth, in his usual eloquent way, thanked Peter.

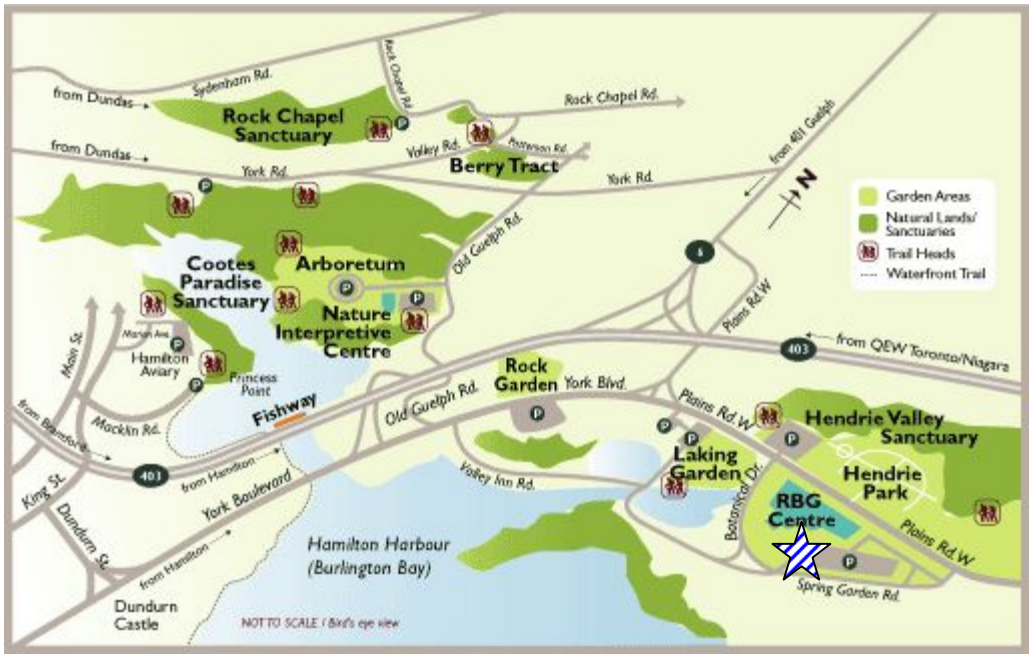
OBSERVATIONS:

- Norma Martin commented on the presence of more Mute Swans in their area. They are being fed at Wellington. Due to this, there are now no waterfowl nests on Presque-Iles.
- Marc mentioned his transect on I75, and the fact that the introduced ash beetle is moving across Ontario. He urged people to watch for it.
- Bruce commented on more warblers coming through.
- Jock commented on the Hiscock mastodon site. There are now an estimated 20 mastodons at the location. Clovis man was there (known because of a tool found – the tip of a projectile modified to be a graver to score antlers). Caribou are also found at the site.
- Glenn Coady gave us an update on the Ivory Woodpecker sitings (to be in *Science* this month) – So wonderful!

The meeting adjourned at 9:30 p.m.

FIELD TRIP

Our annual field trip will be to the Royal Botanical Gardens in Hamilton on Saturday, June 25. Please meet at the main parking lot at 9:00 a.m. A map, provided by Marc, follows:



Meet here at 9am

Directions to RBG

Royal Botanical Gardens Centre is located at 680 Plains Road West, on the border of Burlington and Hamilton in Ontario, Canada.

BY CAR

From Toronto and East

Queen Elizabeth Way to Highway 403 West (Hamilton). Exit at Highway 6 North. Turn right onto Plains Road West. Turn left at the lights to continue on Plains Road West for about 1 km. Turn right onto Spring Gardens Road and right again into the main parking lot.

From Kitchener-Waterloo and West

Highway 401 East to Highway 6 South. Follow Highway 6 South for about 25 km. Turn left onto Plains Road West. Turn left at the lights to continue on Plains Road West for about 1 km. Turn right onto Spring Gardens Road and right again into the main parking lot.

Five Dangers

By Yorke Edwards
Our Western Correspondent

In 1965 in late spring, I was in Wells Gray Park with two young and husky men about my age. We were going to walk eight miles up the Murtle River to its large and level flats, hoping to see moose. When ready to go, my two friends had a rope and knew I had seen a raven's nest on a ledge high above on a rock wall. I had my camera and knew their plan. I was to go down the high rock wall for pictures of the nest. They were a husky pair, so later I was dropping

down and looking farther down wishing that I was still not so far up from below. In the nest, were four young crowded ravens. I took photos, called for up, but dangled still for what seemed to be a long time. Then very slowly I was inched up for half an hour. Never have only two "danglers," but I did get a photo in the Wilson Bulletin.

The same day we walked our seven miles along the river, then ate beside its drying river flat. Wandering over the large area, we found a baby moose that stumbled up and ran surprisingly fast along the flat. We overtook it and put a small red marker onto one ear, hoping it might be seen at the end of its life. But just then mother moose appeared, bigger than a horse, and came charging toward us, the whites of her eyes showing rage and fear. At only twenty five feet from us, she veered to go across the river. Some years later, we heard that a hunter found a moose with a spot of red plastic on its ear. It died miles west of the park, showing that a moose is a wanderer through many miles.

Except for poison ivy problems when young, another kind of plant once attacked me. It entered my sleeping bag. A cactus was with me while sleeping on the ground by the lake at Long Point. I was several times awakened but soon slept on in my big thick sleeping bag. While rolling it up in the morning, I found I had been lying on patches of cactus "leaves," a small lot of many small needles. My sleeping bag was thick so few got to me. Those that did were few in number and not able to get much into me. Such sharp patches seem to be rare in Ontario, but oddly there are said to be patches near Kaladar, north of Napanee.

My fourth danger was when cycling near Toronto one autumn day. I saw to the south the sky was filled with hawks of many kinds, not very high and circling about. I climbed a fence and walked to the next field. There for a long time I watched through binoculars, seeing the lazy circlings of many species. Suddenly, for some reason I looked down. A skunk was ambling by my feet. The hawks became of much less interest.

Here is the quick one. In a 1940 summer near Agincourt, I was high in a barn spreading hay coming up from below, when a little house mouse darted up inside my pant leg. Never was I quicker to undress.

Y.

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