THE BRODIE CLUB

Established 1921

THE 1,060th MEETING OF THE BRODIE CLUB

The 1,060th meeting of the Brodie Club was held at 7:30 pm on Tuesday, November 20, 2012 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chair: Glenda Slessor
Secretary: Sandra Eadie

The meeting was attended by 28; 25 members and 3 guests.

Roll Call:
Present: Abraham, E. Addison, R. Addison, Bertin, Crins, Currie, Curry, Dunn, Eadie, A. Falls, B. Falls, D. Hussell, J. Hussell, A. Juhola, H. Juhola, Larsen, Machin, McAndrews, C. Muller (warmly welcomed as a visiting Corresponding member after an absence of many years), Reading, Slessor, Seymour, Speakman, Sutherland, and Johnson.
Regrets: Aird, Beadle, J. Bendell, Y. Bendell, Boswell, Bousfield, Bryant, Dunham, Iron, Martyn, J. Rising, T. Rising, Young, Zoladeski
Guests: Peter Kotanen, guest of Marc Johnson; Sharon Hick, guest of McAndrews; Patrick Schaefer, guest of R. Addison.

Minutes: Minutes of the October meeting were acclaimed without correction (Ellen Larsen moved, seconded by Marc Johnson). No Business arose from the minutes.

Announcements and New Business

- **Ontario Nature:**
  - Glenda Slessor reported that the Club owes $75 membership to Ontario Nature.
  - Harry Lumsden received Ontario Nature's W.E. Saunders Natural History Award at its most recent AGM. Trumpeter swans had disappeared from the province until Lumsden launched the Ontario Trumpeter Swan Restoration Program in 1982. Today, Ontario has four thriving populations.
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- **Web Site Committee**: Ricky Dunn reported for the Website Committee, presenting a draft lay-out for content and structure on the screen. There would be a simple front page describing the club and recent talk titles, and giving a contact email. Most of the site would be password-protected, for members only. That section would have information on members (names and contact info, mini-bios), history (including narratives, photos, brief info on deceased members and by-laws), and meeting archives (past topics with links to minutes,

field trip reports and notable Club correspondence). There was general approval for proceeding on these lines. The EEB liaison will be contacted to assist with the next step to getting the website "live".

- **Rosemary Addison** spoke about updating the Brodie Club logo. The words "Royal Ontario Museum of Zoology" are out-of-date, particularly since we do not meet there anymore. The scanned image we are now using is a bit fuzzy. The silhouette and distinctive "Brodie Club" lettering seem to have first been used on the cover of the Proceedings No. 1, published in 1936, fifteen years after the formation of the club. R. Addison speculated the profile may have been taken from an oil painting of William Brodie, which hung in the ROM. It seems possible that Terry Short, who joined the ROM in 1930, and became a Brodie Club member in 1931 D.1986) was the artist who created the black and white silhouette of Brodie for the Club logo.
  There was a consensus to keep the logo simple.
  Oliver Bertin, the club secretary for many years, originally had the idea to use the logo as a header for the minutes stationery back in 2000.
  (Note: a revised header has been used in these minutes. Members are welcome to comment to the secretary or at or December meeting… RA)

- The whereabouts of the full portrait of William Brodie was discussed. Kevin Seymour has since located the oil painting at the Royal Ontario Museum in the Ornithology lunch room. A clear plastic covering on it makes it very difficult to photograph. It is signed "Owen Staples 1914" although the last digit of the date might be a "9" instead of a "4". The label says "Dr. William Brodie, 1831 to 1908, First Provincial Biologist".

- Ricky Dunn of the Archives Committee has circulated the file of compiled minibios of members. R. Addison has a printed copy available to be borrowed by Club members. A printed copy will be mailed to those members who do not use email.

- **Program Committee:**

  - Bruce Falls announced that the speaker at the next meeting, December 11 (a week early), will be club member Ellen Larsen speaking on lichen.
  - It was agreed to move the date of the December meeting one week forward to reduce scheduling conflicts around Christmas. Please bring Christmas goodies to share.
  - Falls said he still has copies of The State of Canada's Birds a report, released by the North American Bird Conservation Initiative (NABCI-Canada), under the leadership of Environment Canada, Bird Studies Canada, Ducks Unlimited Canada, Nature Canada, the Nature Conservancy of Canada and Wildlife Habitat Canada.
  - Falls has a copy of ***A Pocket Full of Galls: William Brodie and the Natural History Society of Toronto,*** written and self-published by Louise Herzberg, which he will lend to members. Falls will check with the Herzberg heirs to see if we may scan it.

SPEAKER:

Ed Addison introduced the speaker for the evening, Jeff Bowman, Research Scientist, Wildlife Research & Development Section, Ontario Ministry of Natural Resources. He is also Adjunct Professor with the Environmental & Life Sciences Graduate Program at Trent University

Flying Squirrels in Southern Ontario

Ontario's Flying Squirrels:

There are two kinds of flying squirrels in Ontario (and in North America): northern flying squirrels, *Glaucomys sabrinus* and southern flying squirrels, *Glaucomys volans*. They are related to tree squirrels, a diverse group which includes grey and red squirrels. Flying squirrels are nocturnal, and they glide in a controlled descent. They can turn and navigate as they fly. The marsupial sugar glider of Australia is a convergent species that is also nocturnal. It is still a question about what the advantage of being nocturnal and able to glide is: energetic or predatory concerns? Bowman suspects gliding/flying developed to avoid predation

Southern flying squirrel

The northern species is bigger and more robust. It has a pure white belly. The southern is smaller and has a buffy-grayish belly. Both have large eyes and can steer and avoid obstacles. Both species cache food. The northern prefers to eat fungi and spreads spores. The southern eat mostly beechnuts and acorns. The southern was considered a species of special concern in 1988 by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) but was declared not at risk in 2006. Owls are the major predators. Neither species hibernates.

Northern flying squirrel

Today the territories of these two flying squirrel species border on each other; the distribution of the northern remains closely associated with northern boreal forests and the southern distribution follows the hardwood forests of eastern North America. There are a few areas of unstable local common areas where these forest types overlap in eastern North America

Climate Change and Ontario's Flying Squirrels

Bowman undertook a large-scale survey of the distribution of northern and southern flying squirrels in Ontario. During 2002 and 2003, southern flying squirrels occurred >200 km farther north than expected. However, the range of this species appeared to contract to the south by about 240 km after the winter of 2004. Weather and food data suggested that cold temperatures during January and February 2004 combined with a failed mast (nuts and tree fruit) crop in the autumn of 2003 resulted in an energetic bottleneck and subsequent population crash—no southerns were found in the expansion area in 2004. It appears that prior to 2004 southern flying squirrels had expanded their geographic range in response to recent climate warming. In particular, the nine winters between 1994 and 2004 were relatively warm.

Climate Change and Hybridization of Flying Squirrels

Another surprise of the survey was the capture of "strange looking" squirrels that were shown to be hybrids by DNA analysis—4%. There was some evidence of backcrossing but it was not extensive, consistent with recent rather than historic hybridization. This may be the first report of hybrid zone formation following a range expansion induced by contemporary climate change. This is also the first report of hybridization between North American flying squirrel species.

There is now unequivocal evidence for global climate change; however, its potential impacts on evolutionary processes remain unclear. Many species have responded to contemporary climate change through shifts in their geographic range. This could lead to increased common ranges between recently diverged species; likely increasing the potential for hybridization. Recently, following a series of warm winters, southern flying squirrels in Ontario rapidly expanded their northern range limit resulting in increased common ranges with the closely related northern flying squirrel.

Bowman's study indicated that the mechanism of hybridization was sharing winter nesting cavities by the two species of flying squirrels. Communal winter nesting is necessary for thermoregulation Mating occurs at the end of the winter. Researchers injected tags into all the squirrels in the territory and had readers near the mouths of tree cavities. Thus they knew which squirrels were using which cavities, though not which animal mated with which. .

The natural history of *Glaucomys* species suggests some non-exclusive hypotheses for mechanisms by which range expansion could have increased the likelihood of hybridization. Low densities of southerns on the expanding edge of the species range may have reduced mate choice options leading to a relaxation of usual mating patterns. Second, these species remain active throughout the winter and social thermoregulation is important for winter survival during the cold months. This could lead to tolerance of the other species within nests for social thermoregulation whereas typically southerns are expected to aggressively evict northerns. Mating behaviour begins in late winter when squirrels are still nesting in large winter aggregations and so this scenario could lead to mating opportunities.

Sociology of Southern Flying Squirrels

Bowman's group examined the social structure of southern flying squirrels and tested for a role of kinship and prior familiarity in predicting social structure. They found that nesting groups are not based on kinship and that association endures from season to season. They are obligatory social nesters.

To quantify social structure, nest group composition of southern flying squirrels was monitored. All squirrels at the study site were marked with passive integrated transponder (PIT) tags and nest cavity entrances were monitored with automated PIT tag recorders for a period of 28 months. Squirrels were genotyped. Permutation tests of associations suggested that individuals nested with other specific individuals more often than expected by chance and that relationships were stable and persisted across seasons and years. Multiple summer nest associates came together in winter to form larger nest groups which were likely important for social thermoregulation. A measure of prior familiarity, but not kinship, was related to the proportion of time individuals nested together during winter. They concluded that the evolution of sociality in southern flying squirrels is driven largely by mutually beneficial behaviors related to social thermoregulation although other, as of yet unidentified, mechanisms are needed to explain sociality in the warm season. It was also

hypothesized that minimum group size requirements associated with social thermoregulation could explain the absence of this species in patchy landscapes and aspects of range boundary dynamics near their northern range boundary.

SELECTED QUESTIONS/ANSWERS:

- Dunn asked for a clarification about "nesting" cavities. Bowman responded that "nesting" means roosting in his mammal work. Nesting implies breeding in ornithology. Actual mating starts in February, with offspring in April. Mating may also occur in May and June.
- Nesting groups are smaller in the summer and they have several nesting cavities. Foraging is usually done individually.
- In response to Johnson, no studies have shown variation in size due to external temperature.
- Individuals usually stay with a nesting group until they die.
- Summer proximity is predictor of winter nesting together; they nest with squirrels they know.
- 22 hectares is the minimum wood lot size for a population. Seems to be because they require a certain number of individuals to survive. The southerns need a larger woodlot than northerns.
- Flying squirrels tend to almost always forage alone.
- Every squirrel has a few caches.
- Some squirrels move off territory. Some have to move farther to cache than others. Squirrels move farther in winter than summer.
- How do squirrels know which nest to return to? They think there is information transfer among individuals. Bat detectors have been used to study their vocalization but it was not effective. The squirrels do not vocalize usefully when captured.
- Summer dynamics are more difficult to study.
- How much does it cost? PIT tags cost $800 each. The radio collars used to help find the cavities are externally funded.
- The southern carries a parasite to which the northern is susceptible. This parasite is killed by cold weather.
- Helen Juhola asked about their longevity: ten years in captivity, three years in wild. Barred Owls are a major predator. PIT tags are often found in owl pellets.
- Falls pointed out that fisher are also a predator.
- Females are larger.

OBSERVATIONS:

Robert Curry: Mentioned some interesting birds carried into Canada by Hurricane Sandy. At Van Wagner's Beach, on Oct. 30th, forty birders saw Leach`s Storm Petrel and Wilson's Storm Petrel. Jaegers and Black-legged Kittiwakes were quite abundant. Members David Beadle, Bob Curry, Glenda Slessor, and Hugh Currie were there. It was a one-day wonder. The storm was very broad and did not have a well-formed eye that would have pushed more birds up. The strongest winds went through at night.

Oliver Bertin: Responded to Curry's observation by noting the immense power of tornadoes and other natural events. He reminded members of the tornado that swept through Ontario in May 1985, past Orangeville where it tore a shopping mall apart, across the Holland Marsh and through Barrie. After the storm, an old-style rotary desktop telephone with an Orangeville telephone number was found in Barrie. They traced the phone to that mall in Orangeville, nearly 50 miles away! The storm

also carried a 200-pound front wheel of a tractor about 100 yards and moved a two-story brick house about one foot off its concrete foundations.

Claire Muller: Snowy Owl, Tundra Swans and Snow Buntings have arrived on Wolfe Island and a Lesser Yellowlegs has been seen recently. At Big Sandy Bay, a dune divides the beach from a marsh behind. About 17 chorus frogs were on the beach near the water line. When Muller approached the frogs went into the lake. She has no idea why they left the marsh and is pessimistic about their fate away from the marsh.

CORRESPONDENCE

27 November 2012 15:21
The Membership Committee received an application for membership from Peter Kotanen: " his application has been welcomed and approved by the committee" and they have forwarded Pete's bio for inclusion in these minutes.

Peter M. Kotanen

Born: Listowel, Ontario, 1961
Brodie Club: 2012
Interests:

- Plant ecology, diversity, and evolution
- Herbivory
- Birds
- Insects
- Invasive species

Education and work history:

- B.A. (University of Toronto), M.Sc. (University of Toronto), Ph.D. (University of California, Berkeley)
- Postdoc, University of Chicago
- Associate Professor, University of Toronto, Mississauga

Key influences:

- Algonquin Park Museum; I was a summer naturalist there from 1980-1983
- Bob Jefferies, my M.Sc. supervisor
- Roger Tory Peterson and many other authors of field guides

Activities:
Most of my research has been concerned with interactions between plants and herbivores, including insects and Snow Geese. In recent years, I've been particularly interested in insects and pathogens attacking invasive plants. I've worked in the Arctic Archipelago (Bylot and Southampton Islands), the Hudson Bay Lowlands (Churchill, Cape Henrietta Maria, Akimiski Island), southern Ontario (Algonquin Park, the Koffler Scientific Reserve), California (the Bodega Marine Lab, the Angelo Reserve), the Great Plains (the Colorado Shortgrass Steppe LTER), and Europe (England, France), and have birded and botanized in China, Japan, Central America, South Africa, and Australia.
Web page: www.utm.utoronto.ca/~w3pkota/.

On Fri, Nov 30, 2012 Oliver Bertin wrote:
"The Brodie Club is on the verge of another leap in technology with Erica's proposed website. This is the next generation of the ever-changing minutes so I thought it might be of

interest to the archivists if I pulled together a short summary of my involvement with the minutes and the logo. By the way, the mock-ups look very good!

When I joined the club in 1990, the meetings were held in the anthropology collection in the Borden Building, surrounded by elephant skulls and stuffed birds. It was a wonderful place to visit, especially with kids in tow. My kid, who was about four years old at the time, found a dead sparrow on the sidewalk and proudly gave it to Howard Savage, who accepted the donation with great thanks. Howard returned the favour by presenting Geoff with a moth-eaten green cockatiel, which my kid took home and proudly kept for years. In fact, it might still be here somewhere, buried in the clutter under the bed.

In those days, the minutes were written, typed and distributed by Howard – a huge job. Those minutes were short and tight, about three pages of Gestetner printing with good, pertinent content. But their presentation could not compare with some of the minutes I've seen from the 1930s. The very early ones were set in type, printed and stapled, just like a reprint – a mammoth and expensive job that would be impossible to repeat nowadays.

I suspect I was recording secretary for the first time at meeting 936 in January 1999 and again for 939, in April 1999, by which time we were up to six pages. I seemed to have settled in for good in September 1999.

The minutes were written in WordPerfect, printed in Courier on my prehistoric dot-matrix home printer and reproduced on the Globe's Xerox machine long after everybody had gone home. The Globe unwittingly helped with envelopes and sticky address labels too. A belated thank you.

The layout was, umm, crude. I moved to Times New Roman in February 2000 and introduced the fulmar logo as a space filler a month later, courtesy of Google Images. The fulmar was augmented by a variety of other logos, including a cormorant, a penguin, a moose, a turtle and, on one occasion, a gorgeous halibut. That appeared when a member, who shall remain nameless, kept pestering me about some obscure subspecies of Canada Goose. I told him I'd stick a fish in the minutes if he emailed me again. He did, and the halibut appeared a week later!

The Brodie Club logo appeared for the first time in 951/Oct 2000, along with a much cleaner layout. I remember playing with the logo, trying to add a bit of professional pizzazz to the minutes. Having nothing better at hand, I snipped the logo off a piece of ancient Brodie Club letterhead with a pair of scissors and glued it onto the front of my minutes before xeroxing. I kept the ROM's Bloor St. address until February 2001, when I snipped it off.

I remember Sandra Eadie, a fellow staffer at The Globe & Mail, telling me off for my amateur attempt at nifty graphics. I had no idea how to do it properly – this was before InDesign revolutionized layouts – so she took me in hand, scanned the letterhead on her computer and came up with a much nicer looking logo. I'm not sure when this was, but I suspect it was in early 2001.

The page box appeared in 969/Oct 2002, when I wanted to pull the graphics together into a neater package. The problem with the Brodie minutes is that the line length is highly variable, giving a ragged right that looks terrible. After all, we have the officers of the day, guests, new business, the talk, notes and then the upcoming notice. I felt a box was needed to keep it tight so in it went. Graphics people have told me off many times for the box, but I like it.

Lots of other ideas came and went through the years – columns, the late Yorke Edwards with his monthly column, photographs, everything but a video of Cadborosaurus. But that can come with Erica's new website.

Anyway, my new computer allowed me to merge photos into the text, replacing the old line drawings and the fulmar space filler, and the Internet allowed us to ship the minutes out very cheaply and efficiently in short order. Rosemary still sends out a handful of minutes by snail-mail, a method that several members consider far superior to the digital version. After all, you can't take your laptop into the bathtub!

By the way, people ask me why I always put a "-30-" at the end of every set of minutes. That's an old journalistic convention that goes back to the days when news by sent by telegraph. "-30-" or "dit dit dit daaaah" means "End of Transmission" – I'm done. Time to go home for dinner."

And in an E-mail dated Nov.30 from Sandra Eadie
"It was meeting 953 / Dec 2000 that a scanned William Brodie image (rather than a physical cut and paste) first appeared on the minutes. I was the recording secretary that meeting. I guess it took a couple more meetings before Oliver incorporated into his minutes. I had excluded the address when I did it."

NEXT MEETING

One Week Early! The next meeting will be held Tuesday, December 11th at 7:30 pm in Room 432 of the Ramsay Wright Zoological Laboratories.

Ellen Larsen will speak on lichens. It is our Christmas Meeting. Please bring Christmas treats and drinks to share and celebrate the holiday season.

The meeting was adjourned at 9:21 pm.