THE BRODIE CLUB

ROYAL ONTARIO MUSEUM OF ZOOLOGY

THE 1,054th MEETING OF THE BRODIE CLUB

The 1,054th meeting of the Brodie Club was held at 7:30 pm on Tuesday, February 21, 2012 in Room 432 of the Ramsay Wright Zoological Laboratories of the University of Toronto.

Chair: Jean Iron
Secretary: Kevin Seymour

The meeting was attended by 34; 27 members and 7 guests.

Roll Call:
Present: E. Addison, R. Addison, Aird, Bodsworth, Coady, Crins, Currie, Dunn, Eadie, A. Falls, B. Falls, D. Hussell, J. Hussell, Iron, A. Juhola, H. Juhola, Larsen, Lumsden, Machin, McAndrews, Pittaway, Rapley, Reading, Seymour, Speakman, Tasker, Tomlinson.
Regrets: Abraham, J. Bendell, Y. Bendell, Bertin (England), Boswell, Curry, Gray, Norm Martin, Norma Martin, J. Rising, T. Rising, Seymour, Slessor, Strickland, Sutherland.
Guests: : Iga Stasiak, guest of Rapley; Kristen Martyn, guest of Currie; Chris Zoladeski, guest of B. Falls; Sachi Schott, guest of D. Hussell; Paula Radovanovich, guest of Glenn Coady; Sharon Hick, guest of McAndrews; and Sam Scnaga, guest of Larson.

Minutes: The following corrections for the minutes of meeting 1053 were received by email:

1. The date to be corrected from January 17, 2011 to January 17, *2012*.
2. Pittaway to be recorded only as *present*. (is listed as both present and in regrets)
3. In NOTES & OBSERVATIONS; "D. Hussell on December 30 observed two White-fronted Goose at his neighbourhood Simcoe Park. Were they of the Greenland race or North American, one with a pink bill, the other green?" To be added to this observation: *Field guides make these flesh colour differences seem easy but in the field not so obvious. There are three North American subspecies of the Greater White-fronted Goose. Bird field guides say that NA birds have pink bills and Greenland birds have orange bills. Studies show that the orange bill colour is unreliable to identify Greenland birds because NA birds often appear to have orange bills in the field.*
4. Under Bob Curry's observation; Blue-grey Gnatcatcher should be *Blue-gray*.

5. Patagonian picnic table effect should be *Patagonia* after the town of said name in Arizona.

With these corrections and amendments, the minutes of the January meeting were accepted, with H. Juhola as proposer and R. Dunn as seconder.

Announcements and New Business:

A welcome was extended to guests and to long time member Fred Bodsworth, attending his first meeting since spending some time in hospital.

Suggestions for the annual field trip:
Options proposed for the June field trip included:
1. The behind-the-scenes trip at the zoo (proposed previously)
2. Rice Lake Plains, led by Don Sutherland/ Bill Crins
3. Muskoka Wildlife Centre
4. Long Point area (about 2 hours drive from Toronto). Mary Gartshore has offered to lead a walk through Lake Erie Farms, a habitat restoration site with interesting Carolinean flora and fauna. Hog-nosed snakes are often found; Hooded Warblers and Grasshopper Sparrows breed, and because vegetation is still short it is possible to see many insects normally found in the canopy. Other options in the area include Carolinean woods (lots of special trees and birds -- but also tons of mosquitoes in June), the Long Point Bird Observatory (where we could see David Hussell's on-going Tree Swallow research), and the St. Williams nursery where native plants and seeds are grown for restorations of native habitat. Activities could be arranged both for one-day or two-day visitors.

Please consider these options and come to the March meeting with your preferred option.

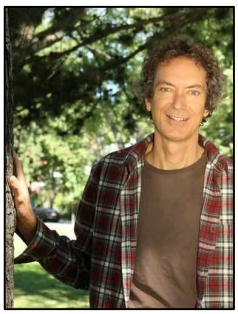
Program Committee
B. Falls announced that Club member Ricky Dunn will speak at our May meeting.
The roster for our spring meetings is now complete:

Mar. 20	Bill Crins	Birding in Northern Peru
Apr. 17	Don Sutherland	The Sutton Ridges
May 1	Ricky Dunn	Citizen Science and the Study of Natural History
Field Trip	??? Come prepared with your preference to the March meeting☺	

Other Announcements
Bill Rapley advised members of three upcoming events:
1. Grasslands in Crisis symposium at ROM this week: BRODIE members welcome
2. May 12 is Migratory Bird Day at the zoo
3. June 15, 3 pm to June 16, 3 pm: the 24 hr Bio-Blitz in the Rouge Park to celebrate International Biodiversity Day. A traditional 24-hour bioblitz in Rouge Park begins on Friday June 15, and a child and family-focused bioblitz at the Toronto Zoo on Saturday June 16. Species experts are needed, so if you have a sound knowledge of local wildlife or flora, please contact Lisa Richardson at lisar@ontarionature.org or 416-444-8419 ext. 222.

Membership Committee: Dave Beadle has been nominated as a member of the BRODIE Club by George Bryant. The membership committee has endorsed this application. David's information follows:

David D. Beadle



Dave grew up in various parts of Kent in UK. Strangely he had absolutely no interest in the natural world until one day at school, when for no particular reason, most of his friends decided that the cool thing to do was to get into birding! Not something that would easily happen in today's world. Shortly thereafter, a close encounter with a Eurasian Curlew sealed his fate – he could not imagine a bird could look like that!

After school Dave decided to make some kind of career out of birds. First by working at various bird observatories in UK, followed by lengthy spells at both Long Point and Point Reyes bird observatories in the New World. This proved to be invaluable experience and also great fun. Seabirds became a bit of a focus for a while and Dave was lucky to spend some time on many of the great seabird islands off the west coast from the Pribilof Islands of Alaska down to SE Farallon Island off San Francisco. The seaside has always been a great influence.

However, one cannot travel forever so something else had to be done. Luckily Dave likes to draw and paint so it was decided to have a go at bird illustration, so for the past 20 years or so that is what he has done. He has contributed work to over thirty books and countless journals and tour company brochures, and even a few t-shirts! Some of the books include "New World Warblers", "Sparrows of United States and Canada" and "A Field Guide to the Birds of Chile". He also writes and made major contributions to recent photographic guides to sparrows and finches of North America.

At the moment Dave is preparing many plates for two major new field guides covering Brazil and Bolivia. Also, there is much on-going work with National Geographic Society updating their field guide to North American birds. He even finds the time to paint the odd commission from time to time!

He has always thought it essential to actually see the birds he is going to paint so traveling to remote destinations is a feature of his life. South America is his region of choice and he has made over twenty trips to the "bird continent" over the years, with more planned. However, he will go just about anywhere with little persuasion and Africa has recently taken a hold. He's hoping to reach 6000 birds in the next couple of years. Most of these trips are with friends, but he will arrange and lead tours on occasion.

When not painting birds Dave likes to catch and photograph moths. He'll go anywhere and drop almost anything for a new Ontario moth. With co-author Seabrooke Leckie, Dave has recently completed a new Peterson Field Guide to the Moths of Northeastern North America. It will be published by Houghton Mifflin and will be in all the book shops sometime in mid-April 2012.

His main passion though is music and playing the guitar, though he's not particularly good at this. He lives in Toronto, way away from the seaside he loves, with his wife Katie and the "boy" James.

SPEAKER:

The speaker, Dr. Brock Fenton, was introduced by Ed Addison. Brock completed graduate degrees at Queen's and Toronto. He was a professor at each of Carleton and York universities for many years and Chair of Biology at Western. He is currently Professor Emeritus at U.W.O. and one of the world's foremost authorities on bats. He has studied the ecology and biology of bats all over the world, including Costa Rica, Australia, Zimbabwe and South Africa. One of his subjects, the pallid bat (*Antrozous pallidus)* is among British Columbia's most endangered and rarest mammals. His books on bats include Communication in the Chiroptera (1985), The Bat: Wings in the Night Sky (1998), and The Bat (2001). Fenton is acknowledged as an exceptional communicator in science. His presentation to the club was titled:

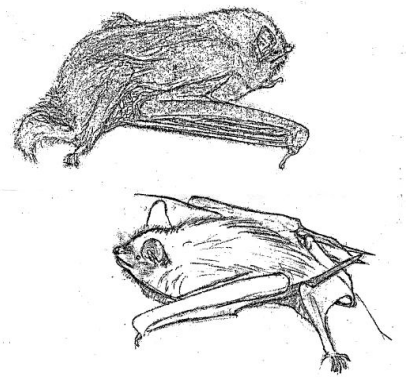
The World through the Ears of a Bat

Bats are a diverse lot with 1200 species described so far. They are easy to recognize as they are the only flying mammals. Their fossil record goes back at least 52.5 million years, but even back then, they look pretty much like bats.

Bats are characteristically small. Fenton illustrated the range in sizes of bats from the world's smallest bat from Thailand weighing 2 gm (same as a Canadian dime) to the largest bats, flying foxes, with a 2 m. wingspan and weight of 1500 gm (about 3 lb butter). The largest Canadian bat, the hoary bat, weighs 30 gm., but is seldom observed even though it has a broad distribution because of its habit of roosting alone in trees.

Bats are good at taking advantage of the structures people build. Fenton showed several examples: an abandoned mine that now houses 20,000 to 30,000 bats, an old bunker in the mine-filled area of the Golan Heights, and numerous churches and other buildings. Bats are a positive symbol in Asia, where they are often depicted in red (= joy in Chinese culture) and/or carrying coins. In Papua/New Guinea, they are depicted as a symbol of fertility. Bats have been frequently used as military emblems since the 1920s.

Bats are amazing creatures. An Ontario little brown bat baby consumes its own weight in milk every day, and is full grown in size in 18 days (but not yet full-grown in weight). The mother makes a huge investment in her single baby, as it is fully 30% of her weight when it is born. Consequently, she has only one baby per year, which sounds more like a large mammal in its breeding strategy. For their small size, bats live a long time, at least 15 years (the record in the wild is a European bat that was at least 44 years old; it weighed 8 grams). As with most animals, many of the young-of-the-year (~ 60 %) do not survive the first winter.



Top: red bat. Bottom: little brown bat
(Ken Reading, late 1940s)

"Portrait" of hibernating *Pipistrelle*
(Ken Reading, late 1940s)

For northern bats that hibernate, individuals cluster together not to stay warm (as they lower their body temperature to be the same as their surroundings), but to minimize water loss. In hibernation, heart rate drops to five times/hour and breathing to once/hour. Waking up costs a lot of energy, and this is the problem with White-nose syndrome, in that it disrupts their hibernation cycle, causing them to not have enough energy to survive the winter.

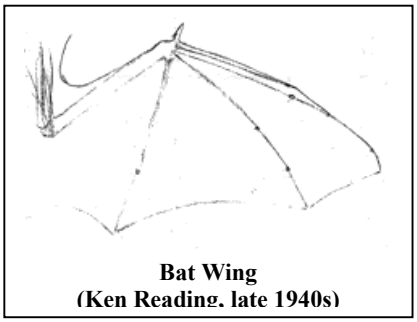
Bats copulate in the fall but don't give birth until June, so the female stores the sperm *in utero* for about 200 days, and then ovulates in the spring. Ontario big brown bats give birth to twins, and genetic studies have shown that 60% of these twins have different fathers. The mechanism for implantation is unknown. In the fall, males mate with more than one female and females mate with more than one male.

Of all the characteristics of bats, their biosonar (or echolocation ability) is the most amazing to us. Recent DNA bar coding work has allowed the stomach contents of bats to be determined, opening up a new window of opportunity for future studies. Bats actually do eat some mosquitoes, although these do not appear to be a major part of their diet.

Echolocation was first discovered by Lazzaro Spallanzani in 1794, working in an Italian monastery, but virtually no one believed him, not even the great Baron Cuvier. In modern times, echolocation was first (re)discovered in 1944 by Don Griffin. (Fenton recommends Griffin's book, Listening in the Dark: The Acoustic Orientation of Bats and Men). Other animals, including Cave Swiftlets, Oilbirds and toothed whales, use some form of echolocation. Flying foxes don't echolocate. Echolocation allows bats to be active when light levels are uncertain. Self-deafening is a problem for bats, as they need a loud enough primary signal in order to detect the faint echoes off prey items.

CT scans of living bats demonstrate that the shape and arrangement of the stylohyal bones (hyoid bones in the throat that connect to the ear region) indicates whether a bat is a laryngeal echolocator, a tongue-click echolocator, or a non-echolocator.

Bats echolocate by either separating the pulse and echo in time, or by separating the pulse and echo in frequency; the latter are called high duty cycle (or HDC) bats. One characteristic of HDC bats is that their ribs are broad and flat, for unknown reasons. In addition the laryngeal bones look quite different between echolocating and non-echolocating bats.



Bat Wing
(Ken Reading, late 1940s)

Fenton discussed some recent developments affecting bats. It has been documented that wind turbines kill bats, not only by direct strikes but also by changes in pressure. White-nosed syndrome has caused a 90% decline in little brown bats in Ontario; this species may be gone from Ontario by 2015. Hoary Bats do not seem to be affected by it. In Belize the clearing of forest for crops and subsequent use by cattle has been a boon for vampire bats!

Hugh Currie thanked the speaker on behalf of club members for an outstanding presentation much enjoyed by all in attendance.

QUESTIONS:

Q. B. Falls: What are the common bats that roost in houses?
A. Big brown bats. Little brown bats tend to roost underground in caves. In Newfoundland and BC, little brown bat colonies are without White-nosed syndrome.

Q. Coady: Presumably bats tell difference by dopler shift between prey and non-prey?
A. Yes.

Q. Dunn: Are eyes becoming vestigial in bats?
A. No, bats actually see quite well.

Q. Reading: Is rabies actually carried by bats?
A. Yes, ...paralytic more than furious… 27 different strains are carried by bats. Between 1980 and 2000 there have been 43 human deaths by rabies.

Q. Eadie: How good is the resolution of echolocation – is it something like seeing?
A. Good enough for the bat to decide which objects are worthy of attack. If they need more data then they produce more calls.

Q. Currie: Why do bats get killed by wind turbines?
A. There are two parts to this… The tips are moving very fast and they are not there when the bat sends the pulse and secondly, the negative pressure area behind the blade causes a fatal lung embolism.

Q. Kristen Martyn: How do fishing bats catch their prey? Do their calls penetrate the water?
A. The sound does not penetrate the water. The sound deflects off the ripples caused by fish near the surface, and the bat then scoops up the fish using its hind feet.

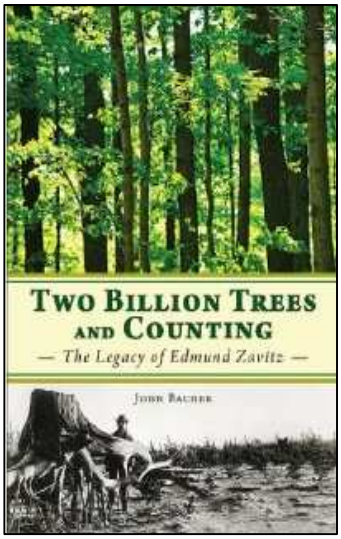
Q. Aird: I have observed moths seemingly avoid the attacks of bats. Has this been studied?
A. Yes, many moths have "bat-detecting ears". The result is that 70% of bats are unsuccessful on their first try to catch a moth, but they are 90% successful on their second try. They have had millions of years to perfect the system!

Q. E. Addison: With the high energy demands of birth and feeding young, do female bats preferentially select a high energy food?
A. They probably take the largest prey they can handle. DNA barcoding of stomach contents could supply data for this idea.

Q. Zoladesky: How do bats sort out the confusion of sound when there are several bats hunting in the same area?
A. When several bats are feeding in the same area, they alter their calls, as a sort of air-traffic control mechanism. Also they use a different kind of call to leave a cave.

NOTES & OBSERVATIONS

Currie noted an amazing numbers of Finches, Crossbills, etc. in Algonquin Park.
Pittaway commented about the lack of winter Finches in Toronto, compared to the abundance in Algonquin.
H. Juhola observed snowdrops flowering this year on Feb 1 (last year, Feb 12th). House Finches arrived back on Feb 12 (last year, Feb 12th!). She also recommended a book titled Two Billion Trees and counting – The Legacy of Edmund Zavitz. Review from Amazon; "Edmund Zavitz (1875–1968) rescued Ontario from the ravages of increasingly more powerful floods, erosion, and deadly fires. Wastelands were taking over many hectares of once-flourishing farmlands and towns. Sites like the Oak Ridges Moraine were well on their way to becoming a dust bowl — and all because of extensive deforestation. Zavitz held the positions of chief forester of Ontario, deputy minister of forests, and director of reforestation. His first pilot reforestation project was in 1905, and since then Zavitz has educated the public and politicians about the need to protect Ontario forests. By the mid-1940s, conservation authorities, provincial nurseries, forestry stations, and bylaws protecting trees were in place. Land was being restored. Just a month before his death, the one billionth tree was planted by Premier John Robarts. Some two billion more would follow. As a result of Zavitz's work, the Niagara Escarpment, once a wasteland, is now a UNESCO World Biosphere. Recognition of the ongoing need to plant trees to protect our future continues as the legacy of Edmund Zavitz."



McAndrews is looking for research helpers in both the field and in the archives, to assist with several projects on Passenger Pigeons. Information sent by Jock can be found in this month's correspondence.
Rapley commented on arrangements for two giant pandas to visit the Toronto Zoo beginning in the spring of 2013. There are now 62 preserves in China for giant pandas; in 1990 there were only 10. These reserves also now protect Takin, golden monkeys, red pandas and various Pheasants. Pandas are now being re-introduced into some areas.
Rapley reported that 61 species were tallied on the Rouge Valley Christmas Bird count (not part of the Toronto CBC),
Addisons observed Tundra Swans flying over in Thunder Bay in early February. First Robin for them in Thunder Bay was seen on Feb 6th. Pine Grosbeaks there also seemed to be eating only the buds at the ends of the spruce branches.
Pittaway commented that Pine Grosbeaks have been reported eating spruce seeds too. In captivity, they will eat the buds of a variety of different trees.

CORRESPONDENCE

Further to the subject of winter finches *Bill Addison*, Kakabeka Falls, emailed March 6: "*This has been the winter of finches, flock after flock of them. They are eating up to 4 litres of black*

sunflower seed a day, if we give them that many. The male pine grosbeaks started heading north by the second week in February and their numbers are now almost zero. The females and immature pine grosbeak numbers started decreasing by the end of the third week in February. There are still some of them left but tomorrow is supposed to +6 C as is Thursday, so my guess is that the pine grosbeaks will be gone by the end of the week. Redpolls are still here in fair numbers. Redpolls are scrappy little critters and we watched a few of them go beak to beak with pine grosbeaks and win. Chickadees have been scarce this winter, perhaps because they don't stand a chance against the other species. We had a few intermittent evening grosbeaks. Hairy woodpeckers and red-breasted nuthatches were regular visitors. The nuthatches existed almost exclusively on deer suet while the woodpeckers ate sunflower seeds almost exclusively, rarely visiting the suet. We have rarely had as many winter finches as this year."

Letter was received from Ken Reading dated February 6, 2012 with a photocopy of some drawings done in the late 1940s which he has allowed me to include as illustrations for these minutes. Thank you Ken, for sharing these sketches with the club☺.
Ken wrote: "The bats were late '40's… The Pipistrelle I found asleep in a talus scree in mid-January in N. Manitoba. Not dead, just hibernating under a big flat slab of rock!"

On 25 February 2012 14:17, John H. McAndrews <jock.mcandrews@utoronto.ca> wrote:

Research collaborators invited to find, collect and describe passenger pigeon fossils. Fossil bones, usually the stout humerus and gizzard stones of white or pink quartz occur in archaeological sites (cemeteries and middens) and in peat bogs.

http://labs.eeb.utoronto.ca/mcandrews/PDFs/gizzard%20stones.pdf

In southern Ontario, passenger pigeons nested in colonies. Soils beneath these colonies should contain abundant gizzard stones, especially small discarded stones. Because the birds were hunted, lead shot should also be preserved in the soil. The project is to locate sites from publications and archives, to collect soil samples (1 liter in size), to sieve to concentrate stones and shot and to describe and interpret the results. Reply to:

jock.mcandrews@utoronto.ca

The meeting was adjourned at 9:05.

NEXT MEETING

The next meeting will be held Tues., March 20 at 7:30 pm in Room 432 of the Ramsay Wright Zoological Laboratories. The speaker will be BRODIE Club member Bill Crins who will speak on "Birding in Northern Peru".