THE BRODIE CLUB

ROYAL ONTARIO MUSEUM OF ZOOLOGY

THE 1,043rd MEETING OF THE BRODIE CLUB

The 1,043rd meeting of the Brodie Club was held at 7:30 pm on Tuesday, December 14, 2010 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chair: Sandra Eadie
Secretary: Kevin Seymour

The meeting was attended by 37; 24 members and 13 guests. This is our highest attendance this fall in spite of the difficult driving conditions.

Roll Call:
Present: Abraham, E. Addison, R. Addison, Bertin, Bodsworth, Boswell, Bryant, Currie, Dunn, Eadie, A. Falls, B. Falls, D. Hussell, J. Hussell, Iron, A. Juhola, H. Juhola, Larsen, Pittaway, J. Rising, T. Rising, Seymour, Tasker, Strickland.
Regrets: J. Bendall, Y. Bendall, Bousfield, Crins (Huntsville Christmas Bird Count), Curry, Gray, Lumsden, Machin, Norm Martin, Norma Martin, McAndrews, Reading, Slessor, Speakman, Tomlinson.
Guests: Lynne Freeman, John Nishikawa, Greg Stuart, guests of Kevin Seymour; Mark Cranford, guest of Jean Iron; Gisela and Simon Curuon and Wendy Dey and Steven Rowe, guests of Trudy Rising; Nancy Hannah and Barbara Welch, guests of Fred Bodsworth; Ross Harris and Dan Kozlovic, guests of Jim Rising; and Emma Horrigan, guest of Ken Abraham.

Minutes:
Minutes of the November meeting approved (T. Rising, seconded by E. Larson).

Announcements and New Business:

- B. Falls announced the speaker for the January meeting will be Laurence Packer, from York University. The title of his talk is Bees.
- Ontario Nature is encouraging all members to add their support to Ontario Nature's 20/20 Vision: A Biodiversity Charter for Ontario. Through this petition, ON is hoping to continue raising awareness of the importance of biodiversity and encouraging the provincial, federal and municipal governments to stop the loss of the plant species, animal species and ecosystems on which all of us depend. Members were invited to sign the paper petition. There is

2010 International Year of Biodiversity

an on-line sign up at
http://www.ontarionature.org/protect/campaigns/biodiversity_2020_vision.php

- T. Rising suggested the club finance the purchase of a kettle so members could have the option of tea. Members voted in agreement.

- B. Falls gave a history of the locations where the Brodie Club has met over the years. From earliest to latest: ROM (there even was a Brodie Club room), Planetarium, Howard Savage lab, and our present location, Room 432, University Zoology Dept. (through association of Falls/Rising). Bruce suggested that preliminary discussions with the Department Head of the University of Toronto Ecology and Evolutionary Biology Department gave a good indication that a more permanent association with EEB might be appropriate. Discussion will continue.

- R. Tasker informed the club of the death of corresponding member Charles Lennox and shared some personal reflections about Charlie. Ron's written comments are included in the correspondence section of these minutes.

- R. Addison pointed out that the latest issue of ON Nature has an article, "Sanctuary for Shorebirds", written by Ray Ford, that describes the work at Long Ridge on James Bay about numbers of migrating shore birds. Member Jean Iron is profiled in the article. http://onnaturemagazine.com/sanctuary-for-shorebirds.html

SPEAKER

This month's speaker, Dr. Jim Rising, is a long time member of the BRODIE Club. Bruce Falls gave a brief introduction. Jim has recently migrated from full time to an emeritus position in the Department of Ecology & Evolutionary Biology at the University of Toronto. Jim is an expert on North American sparrows and other birds.

"Speciation, Hybrid Zones, and Geographic Variation in Birds"

Studies of hybrid zones and geographic variation feed back into systematics: the nomenclature and classification of species, which have as their goal the uncovering of the relationships of species. Clades, those groups of species that are derived from a single species, plus all its descendant species, are sought.

The Geographic Speciation model (originally proposed by Darwin and Wallace) was more fully explored by Ernst Mayr in his book "Systematics and the Origin of Species". He described how speciation works using this model. Natural selection selects to adapt a species to its local environment, but gene flow throughout the population compromises this

selection. Mayr claimed that you cannot get a species separating off from the parent species without a physical separation of some sort. This separation might be caused by a change of climate, or environment, or even continental drift. Once a small population has become separated (perhaps by dispersal to an island) and there is no gene flow with the main population, then speciation can occur. This is called vicariance biogeography. If this new species is differentiated enough, and sympatry later occurs with the parent species, they will not interbreed, as they have become separate species.

An example of this is thought to be the five species comprising the Black-throated Green Warbler complex. These species (Black-throated Green, Townsend, Hermit, Black-throated Gray and Golden-cheeked Warblers) all feed in needle-leafed forests, and their ranges are largely non-overlapping. Mengel proposed that they formed during Plio-Pleistocene glaciation events: each glaciation event split some groups into separate refugia in the south, which later moved north into new ranges during interglacial times (such as today), but by that time theyhad speciated.

Similar proposals have been put forward to explain the formation of the various North American Junco species or variants, and the Eurasian Hooded and Carrion Crows.

The study of hybrid zones has been undertaken in order to clarify the relationship of the two parent species. Some hybrid zones can be stable for a long time. Moore documented the shift of a hybrid zone in Scotland over 50 years: the zone itself did not get wider, but the geographic location of the zone shifted over time. Lester Short studied the North American Flicker hybrid zone in Nebraska, and came up with five characters that varied geographically, from which he constructed a hybrid index. George Sutton studied the Baltimore/Bullock's Oriole hybrid zone in the 1930; it was 150 miles wide.

Rising himself has studied the geographic variation in the Savannah Sparrow (*Passerculus sandwichensis*) for many years. This species breeds and is widespread in all Canadian provinces and territories and in the northern half of the USA, with 23 subspecies originally described. Rising has studied the variation in this species throughout its range and has come to a different conclusion as to the taxonomic status of the various subspecies. In general he found that on the continent, birds were larger and darker in the east than in the west, larger on islands, and that the subtle variation patterns of the majority of the continental subspecies were clinal in nature. This suggests gradation between the subspecies and hence an arbitrary definition for the majority of these subspecies. Generally, most workers prefer a definition of a subspecies to be a geographic subdivision in which the variation is identifiably different from the next geographic subdivision. Since this apparently cannot be done for the Savannah Sparrow, he prefers to lump the majority of the subspecies into one clinally variable continental form (*P. s. sandwichensis*), keeping only the larger paler Ipswich Sparrow (which breeds on Sable Island) as a separate subspecies (*P. s. princeps*).

However, there are three other groups, all in the South-west of the continent, that do appear to be geographically separate in range and morphologically differentiated from the majority

of continental Savannah Sparrows. He recommends splitting these three into valid species, a concept which has not yet been accepted by the AOU. These three groups are:

1. "Belding's" Sparrow (*P. beldingi*): these non-migratory, genetically and morphologically distinct sparrows live only in the salt marshes of southern coastal California and southern and central Baja California, Mexico. He suggests two subspecies can be recognized: the more northern *P. b. beldingi* and the more southern *P. b. guttatus*.

2. "Large-billed" Sparrow (*P. rostratus*): largely non-migratory and genetically distinct salt marsh sparrows from coastal Mexico, ranging from Sonora in the north to Sinaloa in the south. He suggests two subspecies can be recognized: the paler, more northern *P. r. rostratus* and the darker, more southern *P. r. atratus*.

3. "San Benito" Sparrow (*P. sanctorum*): resident only on three small Mexican islands off the west coast of Baja California, where it is common. There are no salt marshes on these islands, and so these sparrows inhabit the desert scrub. They are morphologically distinctive, apparently do not breed with mainland birds, and are on a different breeding cycle from mainland birds.

San Benito Sparrow
(Photo by J. Rising)

Secretary's Note: a beautifully illustrated summary of this work, with photos of all these distinctive species, was published in the November 2010 issue of the American Birding Association journal called "Birding" (volume 42, number 6: pages 44-55). The scientific version of this work was published in the Wilson Bulletin in 2009 and a PDF of the paper is available at http://www.aba.org/birding/v42n6p44.pdf

QUESTIONS:

Q. B. Falls: There was a question about ring species. There were several additional questions and ensuing discussions concerning the limits of subspecies versus species, and the contribution that DNA might make to this issue (E. Addison, D. Hussell, E. Dunn).

Q. Bodsworth: The Leopard frog ranges from the East to the West across North America…yet the Atlantic Frogs can't breed with the frogs in California.
A. Leopard frog is really about five species.

Bertin noted similarities between the behaviour of some fish species and Jim Rising's sparrows. For instance, there are several species of Red Horse Sucker in the rivers of the Eastern Townships that are slightly different from the ubiquitous Common White Sucker.

One theory is that the pre-glacial white suckers retreated to the Yukon during the last Ice Age, leaving a small, isolated group in Eastern North America. The Yukon population re-populated Canada after the ice retreated and became the modern Common White Sucker, while the Eastern population evolved into a variety of RedHorse Suckers.

Q. *E. Addison; Easy to see divergence with geographical separation. Are there examples of temporal, but not spacial, divergence?*
A. Yes, cicadas with varying years to maturity…..prime numbers.

Q. K. Abraham; Can you comment on the splitting and merging of the Oriole (Baltimore/Bullock's) example? They were thought of as two species, then lumped as one as the prevailing taxonomic philosophy was if they hybridized often, then they were all one species.
A. They were considered as two species, then merged, then split again recently. I am responsible for the most recent situation, as I argued that hybridization was limited to one area and there is no evidence of significant gene flow outside of that zone. In the middle of the hybrid zone, Baltimores mate with Balimores and Bullock's with Bullock's- that may be temporal separation.

Q. *Dunn. The sparrow in the photo on San Benito Island (Jim's photo included in minutes) had very large feet. Can you comment on that?*
A. I never noticed the foot size, but they do walk about on mud and the size will correlate to the substrate. If you think about Longspurs, they walk a lot and the long toes are stabilizing.
David Hussell added that the claw length does seem to be associated with walking, not perching.
However, Jim has noted Lapland longspurs perching and singing on telephone wires on the Alaskan Peninsula.

Q. *Strickland: Is there any correlation of bill size with diet in the salt marsh birds?*
A. The stomach content in really big-bill birds looks like chitin – Fiddler Crabs. On the beaches of both San Bonito and Ipswich Islands, the sparrows feed like Sanderlings in the beach wrack.
Independent of that, why are the island dwelling Savannah sparrows bigger?
It is a complex thing; island birds are often living in impoverished areas. On Sable Island, there are Ravens and no other songbirds. On San Bonito, there are wintering Orange crowned warblers and Ravens.

Erica (Ricky) Dunn thanked Jim for his thought-provoking talk.

NOTES & OBSERVATIONS

E. Addison noted that a Fox Sparrow that had been in their yard but disappeared over a month ago, was back again today. Also, at his brother-in-law's house in Kincardine (Bruce County), there was a female (or first-year male) Painted Bunting for several days, also seen by at least one other Brodie Club member (K. Seymour).

G. Bryant noted that an excellent book on the life of painter Tom Thomson has just been published (Sept 2010). It is titled "Northern Light" and was written by Roy MacGregor.

The meeting was adjourned at 9:28 pm and Christmas goodies were enjoyed by all. A number of members remarked on the yummy snack brought by Sandra Eadie. Here is the recipe, kindly supplied by Sandra:

Breton Brittle

Preheat oven to 425.
Line a smallish cookie sheet (one with sides) with aluminum foil.
Break half a box of Original Breton Crackers (26 crackers) into large chunks and spread over the cookie sheet.
In the microwave, or on the stove, mix: 1 cup butter and 1 cup packed brown sugar and bring to a boil.
Remove from heat and pour mixture over crackers, stirring to coat. Spread relatively evenly over the sheet.
Put it in the oven for 5 minutes. When removing it from the oven, it will be boiling.
Wait a couple of minutes until boiling stops, then sprinkle between 1 ½ cups to 2 cups (depending on the size of the cookie sheet) semi-sweet chocolate chips evenly over the surface.
Wait until they are completely softened, then spread with a knife to cover the surface.
Cool thoroughly in the fridge, then peel from the foil and break into pieces to serve.

CORRESPONDENCE

These remarks about Charlie Lennox were written by Ron Tasker, November 10, 2010.

> *The BRODIE Club is saddened to hear of the passing of long time member, Charlie Lennox, on Tuesday September 28, 2010, at 3:21 a.m. at the Deer Lodge Veterans Home in Winnipeg after a fall in the late summer that had to be treated surgically despite the risk in an 89-year-old man.*
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> *Charlie was a Winnipegger; the son, if I am not mistaken, of a rather dour appearing Scots lawyer. All his life Charlie had been interested in natural history and knew the people in Winnipeg of similar bent such as Terry Short. He loved to talk about his prairie ramblings and visits to poplar bluffs where Sharp-tailed grouse abounded.*
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> *Charlie's brother died in the Liberation of Holland when his bren gun carrier slid down a bank into a canal. He had two sisters who, with their families, live in Winnipeg. Charlie married Charlotte, a Bluenoser, whose father was the bank manager in Baddeck on Cape Breton Island, ancestry included a Prime Minister, Borden. Sadly their only child, Sheena, suffered from cystic fibrosis.*
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> *Charlie and Charlotte devoted their lives to Sheen's care to the point that she, partly with the help of a lung transplant, survived remarkably long. Unfortunately, Sheena died of complications of her disease and Charlotte within a few months. Charlie then moved to Deer Lodge in Winnipeg. The family still owned their*

biologically fantastic property at Jersey Cove on Cape Breton Island where they face on the sea and their backyard climbs a small mountain replete with Bicknell's thrush and Boreal chickadees amongst other specialties. They once had a Long-eared owl nest within steps of their house. Their son-in-law, Gordon Filewych, has taken a very active interest in this wonderful retreat.

I first met Charlie when I was a summer student in the Banting and Best Department of Medical Research working under Best and Hartroft. One morning at the mandatory coffee break where everyone gathered Charlie appeared. He had just returned from New York University where he had done a chemistry degree and was working with Wilbur Franks who headed up an air force research lab on the same floor. Franks at that time was perfecting the famous Franks flying suit that prevented air crew from blacking out in deep dives and Charlie's job was to collect brain samples from any RCAF victims from crashes to look for evidence of anoxia. One of these crashes took place on our property at King, Ontario where you can still see the spot through the forest where the aircraft crashed into the maple forest on the divide between Lakes Ontario and Simcoe.

At our very first meeting, it was obvious that Charlie was an avowed naturalist and we became and remained close friends. Within a few days of meeting him, we went to Van Wagner's Beach so that I could show him some of the birding locations near Toronto. We were lucky enough to see a Parasitic jaeger. Charlie and later his whole family often accompanied us on visits to Manitoulin Island where Charlie excelled as a deer hunter and elsewhere. Charlie continued his work with Franks and had the rank of squadron leader. Eventually he changed places and became the Dean of Devonshire House, a men's residence, in the University of Toronto. All the while he remained an active and eventually a corresponding member of the Brodie club. He was one of my closest and dearest friends.

On December 24th, Robert Ritchie sent an email to inform the club of the death of Margery Ritchie, wife of BRODIE member Robert Ritchie (d. April, 2010). Margery Louise (Scott) Ritchie died on December 23rd, 2010. She would have been 90 in February.

NEXT MEETING

The next meeting will be held Tuesday, January 18 at 7:30 pm in Room 432 of the Ramsay Wright Zoological Laboratories. Laurence Packer will speak on bees.