THE BRODIE CLUB

ROYAL ONTARIO MUSEUM OF ZOOLOGY

THE 1,057th MEETING OF THE BRODIE CLUB

The 1,057th meeting of the Brodie Club was held at 7:30 pm on Monday, May 1, 2012 in Room 432 of the Ramsay Wright Zoological Laboratories of the University of Toronto.

Chair: Bob Curry
Secretary: Rose Addison

The meeting was attended by 32; 26 members and 6 guests.

Roll Call:
As a change, the roll was called by year of election.
Present: B. Falls-1949, Bodsworth-1950, D. Hussell-1962, J. Rising-1971, Crins-1981, A. Falls-1987, Bertin-1990, Currie-1995, McAndrews-1995, Abraham-1997, T. Rising-1998, Boswell-1998, Iron-2000, E. Addison-2001, A. Juhola-2003, H. Juhola-2003, Machin-2003, Seymour-2003, Tomlinson-2003, Pittaway-2004, R. Addison-2006, Curry-2006, Slessor-2006, J. Hussell-2008, Dunn-2009, Beadle-2012.
Regrets: Lumsden-1950, Tasker-1958, J. Bendell-1975, Reading-1978, Riley-1979, Bryant-1995, Y. Bendell-1996, Eadie-1999, Larsen-2003, Bousfield-2007, Sutherland-2010.
Guests: David Dunham, guest of T. and J. Rising; Sharon Hick, guest of McAndrews; Peter Hussell, guest of J. Hussell; Scott McClure, guest of E. Addison; David Shilman, guest of Bodsworth; and Chris Zoladeski, guest of Robert Curry and Glenda Slessor.

Minutes: The following correction for the minutes of meeting 1056 was received:
In the Q and A, the minutes read that Bertin said "*This is really a comment about how big the biomass of fish in Toronto waters must be. The cormorant population has grown to 4000 and it is thought each bird consumes 100 fish/ day*."
This should be revised to "*The biomass of fish in the local area was surprisingly high. One very rough, but interesting, estimate is to look at the feeding behaviour of cormorants. If we assume there are about 4,000 cormorants in the Toronto area and they each eat about one pound of fish per day for six months of the year, the total intake is about 300 tons. That's a lot of fish!*"
With this correction, Dunn moved the minutes of the April meeting be accepted. Seconded by Bodsworth and passed.

Announcements and New Business:

- Program Committee: B. Falls reminded members that the September meeting is traditionally "Members' Night" and encouraged members to consider topics for sharing.
- Bruce has a copy of the biography of the Brodie Club namesake, William Brodie, which is available for members to borrow.
- Bruce and Ann Falls are participating in the Baillie Birdathon again this year and would welcome any and all support.
- Currie circulated the recently published Birds of Algonquin Park by Ron Tozer. Currie found it excellent with less commonly known information. It will be available at Point Pelee. The first edition is almost sold out.
- Field Trip: Bill Crins spoke about the upcoming field trip. It will be on Sunday, June 10. A visit to Peter's Woods Provincial Park (a Nature Reserve class park) in the morning, followed by an afternoon at nearby Burnley-Carmel Complex (recently added to Peter's Woods Provincial Park), will take us through mature hardwood and hemlock forest as well as black oak savannah. Members should meet at Peter's Woods at 10:00 a.m. We'll also have lunch there; people need to bring their own lunches and drinks. There are picnic tables and an outhouse, but no stores anywhere nearby. Maps and any additional information will be sent prior to the date.
- Membership Committee: The Membership Committee has received a biography from Christopher Zoladeski. Chris has expressed a tentative willingness to speak to the learned membership about his trip to South Korea 2 years ago.

Born: 1954, in Gdansk, Poland

Education:

- M.Sc. Biology, University of Gdansk, 1978
- M.Sc. Forest Ecology and Soil Science, Laval University, 1984
- Ph.D. Botany, University of Toronto, 1989. Thesis on the phytosociology of the boreal forests of northwestern Ontario (Supervisor: late Dr. Paul Maycock of Erindale College.)

Work History:

- Before and after a short stint at the Toronto and Region Conservation Authority he has remained an environmental consultant.

Botanical Associations:

- Field Botanists of Ontario, Vice-President and Newsletter Editor.

Natural History Interests and Other Biographical Bits:

- Little Chrissy knew he would become a biologist since the age of about 10, at the latest.
- Initially, it was all zoology, invertebrates to be exact, vertebrates having been judged as too, anatomically, constrained by their bones.
- Interest in botany was aroused in the third year of university by a young female professor.
- Chris is particularly interested in phytogeography. Not willing to be confined to local southern Ontario flora, he has travelled and studied in all Canadian provinces, plus the Yukon, and throughout the deciduous forest zone of Eastern North America.

- Every year he goes on pleasure trips to botanical hotspots south of the border. Presently, though, he is developing a keen interest in the flora of East Asia.

SPEAKER:

The speaker for the evening was club member **Erica (Ricky) Dunn**. She was introduced by B. Falls. Ricky completed her formal education at the University of Michigan. She held various positions at Trent University, Ontario Ministry of Natural Resources, Cornell University, and Canadian Wildlife Service. She is a past president of the American Ornithologists' Union (AOU) and author of Birds at Your Feeder. Ricky continues her interest in both cultural and natural history through volunteer work.

Citizen Science and the Study of Natural History

"Citizen Scientist" has several meanings. One describes the eminent physicist Richard Feyman musing in The Meaning of it All; Thoughts of a Citizen Scientist about various views on the unscientific nature of society. Another kind of citizen scientist is amateur scientists, such as Alexander Wilson, a Scottish weaver who immigrated to America and through his study of birds became known as "the father of American ornithology". Howard Mayfield is a contemporary example of this kind of citizen scientist; someone with no formal training but an intense interest which led to a lifetime pursuit of knowledge of birds. Mayfield became president of the AOU.

Citizen science is now coming to mean public participation in scientific research organized by others. Natural history, particularly bird studies, is the area of most participation of citizens.

Citizen participation can take place in several ways:

1. Assistance in analyzing professionally collected data: Ricky cited Galaxy Zoo, an interactive program which posts astrological images on-line and invites individuals to classify them. The incredible level of citizen participation (up to 70,000 classifications/hour) resulted in 30 publications in the project's first five years.
2. Participation as field assistants working alongside professionals. Brodie member Jean Iron is one example of this type of citizen scientist, identifying and counting birds in the Hudson Bay area. Earthwatch is another example; individuals select from many projects and for a monetary donation become part of a research team.
3. Collection of data in specially designed studies: Many inventories, bioblitzes, migrations studies, etc. are based on input from citizen observations, some being Aliens in your Neighbourhood, Viburnum Leaf Beetle, Frogwatch USA, and Evolution Megalab.

Until recently the American Birding Association published a directory of projects involving citizen participation. These ranged in scale from personal, e.g. ebird, to regional e.g. Breeding Bird Surveys, to continental e.g. the Christmas Bird Count (CBC). Projects can be habitat or species specific.

The first project incorporating citizen observations was meteorological. Early settlers to North America (1600s) noted weather in diaries and records. Thomas Jefferson kept weather records and recruited other observers in the 1770s. By 1900 there were over 2000

observers sending records to the Smithsonian. In 1953, the U.S. Meteorological Service organized official stations, which now number 12,000.

The earliest North American natural history study involving citizens was a joint study by the AOU and the US Department of Agriculture. It began in 1883 and looked at bird migration in the Mississippi Valley. Cooke (known as the father of co-operative bird migration studies) made a map with isobars of dates of migration for 1915; this would have taken an incredible amount of work. The study continued into the 1940s and the records (over 1,000,000 cards) are still available, but are not digitized.

In 1900, Frank Chapman initiated a citizen science project which grew and which continues to this day. Rather than the traditional Christmas Day "side" hunts, in which teams vied to shoot and bring back the biggest collection of game, both feathered and furred, teams selected areas and counted birds. Twenty-seven individuals participated in the first CBC. Now there are 50,000.

In the 1960s Chan Robbins initiated the Breeding Bird Survey in the US. In Canada, the government does not operate many citizen science projects although it does run a checklist in northern areas. Individuals and NGOs, such as Bird Studies Canada, have set up many different projects.

The Cornell Lab of Ornithology has citizen records on paper up to the 1980s for the Nest Record Scheme, Colonial Bird Registry and Breeding Bird Census; a wealth of information, but very time intensive to analyze. In Canada, the Long Point Bird Observatory, (1960) gave rise to Bird Studies Canada as better birding tools (bird books and binoculars), the post-war economic boom (personal cars and more leisure time), and computers resulted in a sea change in data collection. In the last ten years, citizen science projects have gained "cachet" and the academic community has bought in and is using the data.

Ricky spoke about Project FeederWatch, a citizen science project she initiated. Participants record highest number of each species seen at one time on two pre-selected consecutive days and enter their data on-line. This extensive digital data base can be manipulated to show patterns and changes within and among species, and seasonal and annual trends. Comparisons can be made with FeederWatch and CBC counts.

"Add-on" projects give information on a wide variety with some examples being seeds selected by different species, mammals seen at feeders (over 100!), colour morphs of gray squirrels, and surveys of feeder use by males and females.

Some answers, and questions, that have arisen from FeederWatch data to date:

- The percentage of males in every species at feeders is higher than 50% of the population. This leads to the questions…Are males more aggressive at feeders? Are observers more likely to notice/ recognize males because of more conspicuous colouration?
- In Ontario, counts of Evening Grosbeak show the proportion of males higher in the north and lower in the south.
- The proportion of male House Sparrows in the population rises during the winter in the north and central areas, but not in the south, of Ontario. Are females dying off more quickly in colder regions?

- The House Finch population declined significantly in 1995. This was attributed to a strain of *Mycoplasma* which causes House Finch Disease.
- No species seems to be more vulnerable than others to being killed at windows in proportion to their abundance at feeders.
- Cats taking birds at feeders kill quite small birds compared to those killed by Red-tailed and Cooper's Hawks.

Projects based on citizen participation fill many goals; education, data collection, framework for hypotheses testing, affordable labour, and a "valid" reason for participants to do something they enjoy doing anyway. However, there are limits to what volunteers are willing or able to do, data may be incomplete or erroneous, and special efforts are needed to recruit and train volunteers.

The potential of citizen science is unlimited. Better survey designs, sustained funding and prioritizing of needs will result in better understanding in many areas of natural history. For example, priorities for population monitoring studies are boreal/Mexico breeding surveys, migration monitoring and improved winter counts.

QUESTIONS:

Q. *B. Falls: has taken part in Breeding Bird Surveys and CWS point counts for many years, starting in his 60s. For ten years he recorded quite consistent results. More recently, he still gets the species but not the numbers. He suspects that this decline may be common in a lot of the "senior" participants.*
A. The Breeding Bird survey asks participants to have regular hearing checks as they age.

T. Rising: Is there any co-operative work with mammalogists on the low percentage of black morph Gray Squirrels in southeastern Ontario?
A. Yes, a U of T. student got similar results and hypothesized that the black morph does better in cold temperatures.

Q. E. Addison: Is the number of participants in FeederWatch still increasing?
A. No, it stabilized between 15,000-16,000. Most projects seem to come to a plateau.

Q. T. Rising: Is there exchange of ideas between bird migration and monarch migration research?
A. Yes, as far as the theory of citizen science and the education strategies but there is not a formal set-up to exchange.

Q. Curry: Does FeederWatch involve students?
A. Yes, there is a school section.

The speaker was thanked by David Tomlinson, who has several projects in Aurora involving citizen science.

NOTES & OBSERVATIONS:
Abraham: Student reported a brood of Ring-necked Duck in Bancroft in early April – very early.

Seymour: After ten years of warbler surveys in Mount Pleasant cemetery, he observed a Cerulean Warbler for the first time; a singing male and easy to find – it had been in the same locale for four days.

E. Addison: A varying number (2-18) of Turkey Vultures has been roosting in tall Norway Spruce along side of our yard in downtown Aurora since their return this spring. Other years we have seen 2-4 and for only a week or so.

Hussell: The early robin nest reported at the last meeting had two fledgling robins on 28 April.

Curry: Robins observed "all over the place" building nests today.

H. Juhola: Helen shared information about the Brown Marmorated Stink Bug (BMSB), a very serious risk to many fruit, nut, vegetable and seed crops. OMAFRA is asking that any sightings be reported. Here is a chance for CITIZEN SCIENCE in action!!!
This information is taken from the OMAFRA website:
Stink bugs are shield-shaped insects with piercing-sucking mouthparts. The BMSB has several features that can help you distinguish it from other common stink bugs:

- two white bands on dark antennae (Figure 1)
- smooth edge along pronotum or "shoulders" (behind the head)
- white triangles alternating with dark areas at the edge of the abdomen

Older nymphs (immatures) have the same banding patterns on the antennae as the adults.
Visit OMAFRA's website at www.ontario.ca/stinkbug for updates on the BMSB. If you find suspect stink bugs, collect a sample and call the Agricultural Information Contact Centre at 1-877-424-1300 for details on where to send it. Place the insect in a leak proof container, and kill it by freezing or adding it to rubbing alcohol or vinegar.

H. Juhola: On train trip through Saskatchewan, Helen and Arne were in midst of Snow Geese migration. Flocks were flying over and feeding in fields.

Abraham: The Snow Geese arrived in Hudson Bay on April 28-29, early by a couple of days (average arrival is 3-5 May).
There were early March records of Canada Geese on James Bay, but they turned around when the weather got cold.
Up until last week, north of Attiswapiskat was snow covered, now there is just 20-30 km along coast.

Tomlinson: Canada Goose with brood of two to three day old goslings on the 28th or 29th April (usually 1 May) in Aurora.

J. Hussell: Three different broods of Canada Geese goslings, the earliest spotted on April 23rd in Simcoe.

B. Falls: Skeins of Canada Geese flying over Apsley on the weekend.

The meeting was adjourned at 9:05 pm.

CORRESPONDENCE

On 24 April 2012 10:35, EDWARD BOUSFIELD <elbousf@rogers.com> wrote:

The natural history commentary submitted by Ken Reading is probably of widespread interest to Club members and of particular interest to me. The commentary below might be of immediate interest to Ken and added to the minutes of the next meeting on May 1

(1) One might wonder whether the "dragon bones" of the cave in China might contain those of an aquatic (sauropterygian?) reptile of the Mesozoid Age, today as Cadborosaurus sp. that is rarely encountered at the surface but very real in coastal marine and deep freshwater lakes of the boreal northern hemisphere (see Carl, 1963; Hagelund, 1987; LeBlond & Bousfield, 1995; Cumbaa, 2007).

(2) Small phyllopod crustaceans such as the cladoceran Ilyocryptus spp., that often occur in emporary pools, do show remarkable stability of body form over immense geographical ranges and geological time frames, extending back to the Paleozoic in some instances. These animals typically spend a very short period of each year (one to a few weeks only) in life stages that are actively metabolic (swimming, feeding, metamorphosing, reproducing), during which they are presumably subject to evolutionary processes. However, by far the greatest part (~95%) of their annual life cycle is usually spent, when the temporary pond dries, as a very hardy egg stage that is resumably inert to evolutionary processes.

Thus, during a 300 million year time frame, as a dried egg stage such animals are presumably dispersed widely by the wind and other physical forces of the earth, but during which they are metabolically active for only about 15 million years (.05 X 300). Hence such small crustaceans may evolve relatively little in body form and behavior over very wide geographical regions, and immense periods of geological time.

Ricky Dunn forwarded the following email which was written by Bernie Solymar of the Norfolk Field Naturalists on May 4, 2012.

Butterflies Galore – and It's Only May! Wow! To an entomologist this has been, and continues to be, one of the craziest Springs ever. Today I spent the majority of my day outside and saw…wait for it….my first Monarch of the year! That's a record for me! So was the Comma in Backus Woods on March 15th. So were the hundreds of Red Admirals flying everywhere on April 20th and 21st, with similar observations by butterfly watchers throughout Ontario including as far away as Ottawa and Cochrane! And, over the last few days again the Red Admirals, on Dandelions, the Eastern Red Bud blossoms in the front yard, at the oriole feeders, and even dead on the road – victims of passing vehicles. Plus Painted Ladies, Black Swallowtails, Cabbage Whites, Clouded Sulfurs and Mourning Cloaks all fluttering around.I've talked to lots of people that have noticed the "pretty little red-and-black butterflies" that are everywhere right now. What many folks don't know is that the Red Admiral does not overwinter in Ontario – the large numbers we are seeing is the entomologists version of an "irruption" from the southeastern United States. These fast flying butterflies, members of the Nymphalidae family (also called brush-footed butterflies), are carried northward into the northeastern U.S., Ontario and Québec by strong southerly winds. Although the migration northward of this species occurs every Spring, why such large numbers this year is anyone's guess. Perhaps it is the result of a warm winter caused by a La Niña effect. Everyone, of course, knows about the annual Monarch migration. Large numbers congregate each September along the north shore of Lake Erie before making their lengthy and perilous flight across the continental U.S. to the mountains of central Mexico, only to return (albeit several generations later) to Ontario the following Spring (normally late May and June). Red Admirals aren't quite that sophisticated as the journey is one way only. Our local population is killed off in the Fall by the first hard frosts. "Re-colonization" in the Spring is wholly dependent on wind patterns and jet streams that push the butterflies northward. And this species is

not limited to eastern North America - the Red Admiral is a cosmopolitan species with the same phenomenon occurring with Red Admirals migrating from North Africa into Europe every year. Are there other butterflies that migrate? Yes – Painted Ladies and the Common Buckeye are two other Ontario species that are "blown in" from more southern climes every year. So are several moth species, like the Common Armyworm (seen some of those already too!) and, later in the summer, the Corn Earworm – both important agricultural pests. On the other hand, the Mourning Cloak overwinters as an adult butterfly under the bark of trees, and in other sheltered areas. With the first few warm days of Spring they become active, fluttering gracefully though woodlots and open areas, much to the delight of anyone that spends time in the woods in the Spring. Still other species, like the Clouded Sulphur and Black Swallowtail overwinter in a chrysalis stage, emerging when daytime temperatures begin to moderate and plant growth has begun. So, will all those Red Admirals that are "pushing through" survive to produce another generation? Well, that will depend on the weather over the next few weeks. A late frost could kill off many, and, of course, some will fall victim to cars and predators. But chances are many will survive – especially since their host plants, Stinging Nettle and Wood Nettle, are already growing robustly – at least in southern Ontario. I have a feeling that for us "buggers" it's going to be a banner year! Bring on the annual Butterfly Count – I'm betting on record numbers and species in 2012!

On May 8, Robert Ritchie the younger responded with the following information:

"Here at our new quarters in Burk's Falls, especially out at the farm in Ryerson Township (next township west of Armour Twp./Burk's Falls), we have had many early Mourning Cloaks and in the past week a steady stream of Red Admirals (feeding on Dandelion flowers which have come into profusion). Blue Azures have been spotted yesterday and one Sulphur yesterday, too. A friend of mine who lives about 25 miles north of us at Powassan reported a Monarch about one week ago; he keeps a farm journal, recording mostly bird sightings, but he reports that the Monarch sighting was the earliest he recalls ever having been seen that far north!

We have had an Osprey glide across our fields on two occasions recently, generally following the small watercourses and making their way to Lake Cecebe/Magnetawan River. Again this year we have been delighted to see/hear Sandhill Cranes in our fields -- they appear to be settling in to the neighbour's beaver ponds next door to the west. Another neighbour reports a bear with two very small cubs. While cutting up firewood yesterday I rolled over a log (White Birch) and discovered a Red-bellied Snake -- first snake of the year for me.

And, from the National Post of 8 May, 2012:

"Local entomologists are all a-flutter, it turns out, over a full-scale invasion that said Admirals, migrants apparently catching a ride from southeast Texas on prevailing winds, have mounted of late.

"There are hundreds of Red Admirals flying north-west every single day," Glenn Richardson, president of the Toronto Entomologists Association, reports from his hometown of Listowel, northwest of Kitchener. "There's millions of them."

'Normally when you go for a walk you might see one Red Admiral — not 500'

Nobody, it seems, recalls ever seeing so many Red Admirals, nor having them show up so early in the season. The warm March weather, which tricked apple trees to bloom (later cold snaps have now apparently cost Ontario's apple growers $100-million in lost crops) has proven a boon for the butterflies.

"Because of the winter that wasn't in eastern North America, we got a huge explosion of butterflies, what we are referring to as an invasion of butterflies," Mr. Richardson says. "Normally when you go for a walk you might see one Red Admiral — not 500."

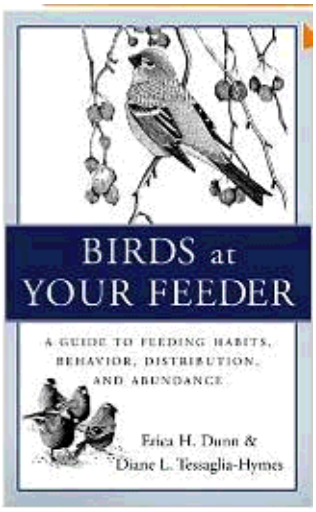
On Friday, Antonia Guidotti, an entomology technician at the Royal Ontario Museum, wrote in a blog post that warm weather, both in the "overwintering grounds" of Texas, and in Ontario, explains the explosion of Admirals.

"The breeding conditions were ideal for them in the southern States," Ms. Guidotti added on Monday.

"In March and April the winds were coming from the North. In mid-April the wind started coming from the south. The butterflies were able to get on the current and come on up here."
She says the early arrival means we will likely see at least two generations of Red Admirals, who feast on nettles and lay their eggs there, over the summer months. (These butterflies live for 10 days to two weeks).
"We don't count them or measure them," she adds. "But people who have been observing butterflies for 30 or 40 years have never seen so many as this year."
'The breeding conditions were ideal for them in the southern States'
Mr. Richardson is in that category. Growing up on the outskirts of Listowel, he says, "I started looking at butterflies when I was in about Grade 1. There weren't any kids around and there were a lot of butterflies."
But nothing like the numbers he has seen this spring: Red Admirals and also Painted Ladies and Question Marks and Variegated Fritillary. In Point Pelee, Ontario's southernmost point, the other day someone even spotted a Sleepy Orange, a butterfly native to Florida that has only been seen four times in Ontario in the past 125 years, Mr. Richardson says.
All of which makes this an exciting time. Some Red Admirals have moved into his back yard, living on nettles he planted, and every chance he can, Mr. Richardson slips away from his business, building Web sites, to go walking on a local bike path and gawk at — and photograph — all the butterflies.
"The early dates this year indicates that by the end of summer we will see butterflies that we have never seen before," he predicts.

BOOK REVIEW

Review of Birds at your Feeder, co-authored by Ricky Dunn, from Library Journal.



This superb book is distinguished from the dozens of others on attracting birds by its analysis of data from thousands of people who feed birds across North America and participate in Project FeederWatch, a survey begun in 1987 by Dunn and managed by Cornell University and other institutions. For the 93 most widespread feeder species, the authors present several pages of excellent commentary plus two range maps and four bar graphs. For each bird, there is textual and graphic information on its abundance (both geographical and through the yearly calendar), food preferences, behavior, habits, a drawing of the bird, and more. There is also some detail on birds and mammals found less frequently at feeders plus discussions of misconceptions about the perceived risks of feeders: concerns about dependency, disease, predation, and window collisions. A wealth of information is easily accessible here thanks to this massive cooperative program. A prime example of "citizen science." Highly recommended.

(The book is out of print, but can be found online -often for less than the price of shipping!)

NEXT MEETING

The next regular meeting will be held Tues., Sept. 18 at 7:30 pm in Room 432 of the Ramsay Wright Zoological Laboratories. This will be the traditional "Members' Night".