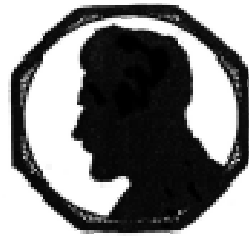


THE
BRODIE
CLUB



ROYAL ONTARIO
MUSEUM OF ZOOLOGY

THE 1,001TH MEETING OF THE BRODIE CLUB

The 1,001th meeting of The Brodie Club was held on Mar. 21, 2006 at the Ramsay Wright Zoological Laboratories at the University of Toronto.

Chairman: John Riley
Secretary: Oliver Bertin

There were 26 members and eight guests:

John Sparling and Brenda Gibson, guests of Bruce Falls
Jeremy Hussell, guest of David Hussell
Peter Addison and Melissa Rose, guests of Ed Addison
Richard Hannah, son-in-law of Fred Bodsworth
Dan Barcza, guest of David Tomlinson
Andrew Jano, guest of Ken Abraham

The minutes of the 1,000th meeting were approved without change.

NEW BUSINESS:

Long-time member Alan Helmsley died on Mar. 3 at the age of 87. Helmsley joined the Ontario Ministry of Lands and Forests after graduating from UofT in 1949. He helped establish the Nature Museum and the interpretative programs in Algonquin Park before moving to Parks Canada in 1965. "He was a very interesting person, a gentleman, a good guy, a great person," said friend Norm Martin.

Martin McNicholl sent greetings and apologies for not making the 1,000th meeting. He now lives in Burnaby, BC, and can be reached at sterna@telus.net or florabird@telus.net.

Trudy Rising noted the upcoming 75th anniversary of Ontario Nature, formerly the Federation of Ontario Naturalists. The FON was, of course, the first satellite of The Brodie Club, founded in 1931 as a lobby group that would promote conservation in Ontario. Originally a federation of seven clubs and 28 members, it has grown to 140 clubs and 25,000 members.

There was a lively discussion about the existence, or not, of the Ivory-billed Woodpecker in an Arkansas swamp. The latest evidence indicates that a videotape that purports to show the long-extinct species may in fact show a common Pileated Woodpecker.

Bruce Falls has lined up good speakers for the fall months but he is looking for good speakers for the new year. Ed Addison will talk about moose at the next meeting, on April 18.

The June field trip is approaching fast. Members were asked for suggestions for a destination.

Norma Martin asked for legal advice on incorporation. The Quinte Field Naturalists decided to incorporate when they were in the process of buying some land. The acquisition has been abandoned, but their club has been left with a huge, and unnecessary, insurance bill.

Paul Aird thanked the organizing committee for their excellent work preparing the 1,000th anniversary meeting. His motion was seconded by all.

SPEAKER:

A graduate of Carleton University, Alex Mills practised as a lawyer for 10 years before returning to zoology where he recently took his doctorate under member James Rising. A keen naturalist, he wrote *A Birder's Guide to Muskoka* at the age of 21. "He's one of the finest naturalists I have seen," Rising said.

The Biology of Migration Timing:

Using banding data to investigate more than simply where birds go

Birds aren't always the easiest animal to study, but they have served Alex Mills well. He recently took his doctorate using the wealth of historical bird-banding data that has been collected by the Long Point Bird Observatory.

This data goes back to at least 1961 and includes data at three stations on the peninsula, at the base, the middle and the end, 30 km. out. The data includes species, weight, sex, age, band number and sometimes, specific research data that somebody wanted collected.

There are huge banks of good data on the initial capture of the birds, but the quality of the recapture data tends to vary by species. There is a good recovery for waterfowl because these birds are big, easy to find and are hunted. Recapture data for songbirds are harder to find. In some species, only a few per cent of bands are ever recovered.

The data is used most often to map migration routes, to correlate weather and bird movement and to measure the population of a species. Studies on the Brown Thresher, for instance, show a steady decline in numbers since 1961.

Mills was most interested in biological timing, or phenology. His research focused on three different questions:

- Are migration patterns consistent with theories of global warming?
- Is there selective pressure on the two sexes?
- Do different coloured morphs migrate at different times? This became the subject of his doctorate.

There is evidence in Europe that global warming has affected bird behaviour. One early work showed that Tree Swallows have moved their reproduction timing ahead about nine days in recent decades, perhaps due to warmer weather.

Britain's Ibis journal has looked at migration timing. It checked first appearance dates for 100-plus species for the first half of the 20th century compared with the second half. It concluded that birds migrate earlier in the spring than they did 50 years ago.

Mills wanted to probe deeper into this subject because the British data was based on the first appearances of a species in the spring, and these tend to be healthy, male birds rather than

the average bird. He also wanted to compare fall data to see if there were changes that hadn't showed up in the spring.

Mills tested his hypotheses using 40 years of Long Point Observatory banding data for 13 species, using spring and fall data, for short- and long-distance travellers. He also looked at median arrivals, rather than the first arrivals.

The changes in migration timing were much less obvious than many had expected, but the data did show some trends. A few species showed earlier arrival dates in the spring, but only one of the 13 species had statistically reliable data. In this species, the birds migrated a few days earlier than they did 25 years ago. There was no significant differences between the sexes.

"There was some evidence (that global warming had affected migration patterns) but it was not overwhelming," Mills said.

The evidence was stronger in the fall. Ten of 13 species arrived later than in the past, five were significantly later and two were earlier. These findings were statistically significant, but not overwhelming.

The Brown Creeper was most affected. It has arrived 5.8 days later each decade, while the Yellow-rumped Warbler has moved 3.5 days per decade.

Mills concluded that there was some evidence that some species migrated earlier in the spring and later in the fall, but the patterns were not clear cut. Further studies on the bird sexes revealed that, in the fall, some females leave first, while in the spring some males leave first. This pattern is stronger for male short-term fliers.

In his recent paper in *The Auk* (vol. 122(1):71-81), Mills said he was able to demonstrate that protogyny, (the earlier migration of females), frequently occurs in the autumn. It was less common and less dramatic than spring protandry, (the earlier migration of males).

In three of the five species studied, Ruby-crowned Kinglet, Magnolia Warbler, and Yellow-rumped Warbler, the fall migration of females preceded that of males by two to five days. No sexual difference in the timing of migration was found for the two other species, Least Flycatcher and American Redstart.

Explaining the trend was more difficult, but two theories stood out. The territorial argument says the bird that arrives first in the spring gets the best nesting spot. The mating opportunity hypothesis argues that males get there first in the spring and hold on longer in the fall.

Mills then looked at the impact of colour dimorphism on migration timing. He compared two variations of the White-throated Sparrow, those with tan stripes and those with white.

These two morphs have behavioural and ecological differences in both sexes. White birds tend to be more aggressive, while tan birds tend to be more attentive parents. There are mating differences as well. About 90 per cent of pairings combine the two morphs, and female birds of both morphs tend to prefer tan males.

When Mills looked at migration behaviour, he found that white-morph females tend to migrate 2.1 days sooner than white males, but the data was not always clear cut.

QUESTIONS:

- Hunsell said he was concerned that migration dates differ at each of the three sites. Mills said he took this into consideration.
- Hunsell also commented that it would be hard to find evidence of changes in migration timing because there has been little change in climate in the Great Lakes region.

Mills answered there is lots of evidence of climatic change around the world but the regional patterns vary widely. There has been considerably more temperature change in Western Canada than in the east. There is evidence that climate change has affected migration patterns, but it is not as overwhelming as some had expected.

- Falls noted that the female white morph of the White-throated Sparrow arrive a little earlier, but the differences between the colour morphs is not always clear-cut.
- Hussell also noted that the white and tan morphs were not always easy to tell apart, leading to data that is confused and confusing.

The speaker was thanked by Hussell.

NOTES & OBSERVATIONS:

- Ron Scovell reported the worst year ever for deer and birds at his home overlooking the Humber Valley. He saw several deer yesterday but still no birds.
- Enid Machin and Oliver Bertin reported a similar paucity of birds at their feeders.
- Rising had Goldfinches at his feeder all winter for the first time. He saw his first Crow of the spring in the preceding week. It is a usual harbinger of spring.
- Jock McAndrews reported six DNA results for Canada Geese in his Crawford Lake bottom samples dating to the 14th century. He also found human DNA, presumably from Iroquois farmers and, strangely, pig DNA. The latter was unexpected because pigs were not known in North America until historic colonists brought them from Europe. Modern contamination is suspected.
- McAndrews has also been investigating the near absence of resin ducts in 12,000 year old spruce twigs. He suspects there is a correlation between few resin ducts and the low CO₂ levels of this time. To test this hypothesis, spruce is being grown at low CO₂ in a growth chamber.
- Norm Martin saw a flock of 30 Hooded Mergansers exhibiting mating behaviour near Belleville, far more than the usual two or three.

NEXT MEETING:

The next meeting will be held at 7:30 p.m. on April 18 in Rm. 432 of the Ramsay Wright Zoological Laboratories at the University of Toronto. Member Ed Addison will relate *A Stressful Year in the Life of a Moose*.



Moose Heaven

By Yorke Edwards

Our Western Correspondent

Adult moose are large deer bigger than a horse and can weigh up to 1,700 pounds. By April, the males have large flat antlers that point sideways, and in the fall their antlers are used to win females from other males. Their antlers then drop off before winter. Through summers, in B.C.'s Wells Gray Park, they live in forests by quiet rivers, ponds, and shallow lakes, but at times are in open forests. In early winter, all wander down from their summer places going miles on a large and open gentle slope, not moving in groups, each one usually alone but also not far from others that are visible. As snow deepens they just keep wandering downward to less snow on lower parts of slope.

That open slope is moose heaven. Years ago, its now huge area had a forest, but fire killed all trees, leaving only a few scattered poles, both all tall and very black. The fire was a sad destruction, but it made moose heaven because willows grew thickly all over the long wide slope of its many miles. Willows are first-class moose food, and it feeds thousands of moose through many winters.

Each year, when the snow deepens they go lower and most go on out of the park. In spring, they return going upward following the melting snow and eating again the willows that are everywhere. Through summers, they have different ways of living. No climbing up mountains or living in dark

forests, they want open forests by shallow parts of lakes or quiet rivers to wade in for food plants that grow under the shallow water, or often where nearby trees have leaves or lichens to eat.

A moose doesn't like dense forests. It likes open ones by the shallow edges of lakes or slow rivers. Their favourite places are at forest edges where water plants grow under the water in shallow parts of lakes and slow rivers. Sometimes they swim for better food or to get away from danger.

At about the B.C. year 1900, all moose lived only in the northern half of the province, but later many wandered south when people were opening the northern forests. Moose then spread into the southern forests, some even going into the United States.

With Ralph Ritcey, always with him when in that park, we often walked miles through the park's southern half, but seldom went into the northern part with its large lakes, dense forests, high mountains, and few moose. We wondered where most moose were living in the lower half of the park. Soon we began thinking about the number of them. Was it 1000?

A few years ago Ralph, still after moose, told me that there are about twenty moose in each square mile on that huge lowland, an area of about 350 square miles in the park. Recently, he told me there must be 4,000 moose in the park. Y

