THE BRODIE CLUB

ROYAL ONTARIO MUSEUM OF ZOOLOGY

THE 1,033th MEETING OF THE BRODIE CLUB

The 1,033rd meeting of the Brodie Club was held at 7:30 pm on November 17, 2009 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chairman: David Hussell
Secretary: Erica Dunn

Attendees: 27 members, and 5 guests. Regrets from Ken Abraham, at a meeting in Montreal, George Bryant (in Florida), Kevin Seymour and Glena Slessor.

Guests: Dan Barcz and Natalie Atkinson (guests of Dave Tomlinson), Emily Addison (Ed and Rose Addison), Paul Hartley (Bill Rapley), and Ron Thorpe (Bruce Falls).

Rose Addison was thanked for agreeing to coordinate the rotating secretarial duties for this year. Minutes were approved with apologies to Paul Aird, who was not present at the previous meeting to make the comment on Little Gulls ascribed to him.

There was no business arising from the minutes, no new business and there were no committee reports.

The next meeting will be held on Dec 15th, 2009 at 7:30 pm in Room 432 as usual. Dan Strickland will talk about wolf-deer interactions in Algonquin Park. Kevin Seymour will take the minutes. Members are invited to bring a few Christmas goodies to augment our post-meeting refreshments.

Speaker:

The speaker was introduced by Bruce Falls. Justina Ray is the Executive Director of Wildlife Conservation Society Canada, but is also an Adjunct Professor at University of Toronto and Trent University. She completed her Ph.D. at the University of Florida, working on small carnivores in Africa. With Monte Hummel, she co-authored the 2008 book "Caribou and the North: a shared future."

Caribou in the Changing North

The theme of Justina's book, and of her talk, was that as goes the North, so goes the caribou – and vice versa, as decisions on caribou management will reflect decisions made about northern development.

Caribou is a species of interest because it is vulnerable to changes in habitat and climate, it is important in aboriginal culture and for ecotourism, and the migratory populations afford a spectacle becoming rare in the world. Animals in certain parts of the North American range have been designated as Endangered (Peary caribou), Threatened (boreal caribou at the southern edge of range) and Special Concern (much of Yukon and British Columbia). Caribou in much of Alaska and north-central Canada are currently classed as Not at Risk although there are recent concerns about population declines.

While caribou is a single species world-wide, including Europe's reindeer, the species is often split into named groups such as "woodland" and "barren-ground," or by population units or subspecies. These are often artificial and confusing designations, and are not consistently applied. Ray prefers grouping by behavioural-ecotype groups, of which there are three primary groups. The **migratory-tundra** ecotype includes animals that calve on the open tundra in large aggregations, then undertake mass migrations into forest and spread out into groups of 10-20 for the winter. **Boreal forest** caribou also winter in small groups, but females stay within forest/bog regions to calve, moving far apart to bear calves alone, often on islands. Animals from these two ecotypes may mingle in the winter. The third, **mountain** ecotype includes caribou that move up- and down-slope to find the habitats they need for calving and wintering; concentrations may occur on high altitude open areas.

Ontario has tundra ecotype caribou on the Hudson-James Bay Lowlands and boreal caribou in forested areas. An arbitrary E-W line across northern Ontario is used to differentiate Threatened caribou to the south from Not at Risk animals to the north. However, radio-telemetry studies have recently shown that a biologically more meaningful line would be a more N-S line, separating the forest from the lowlands. Although considered Not at Risk, northern Ontario caribou that used to be most common in Penn Islands area have now shifted east of Winisk into Polar Bear Provincial Park, and appear to have declined in number.

Caribou are vulnerable for many reasons. They have low reproductive potential (delayed age of first breeding, may not calve every year, never have twins), high mortality of young calves, will not use forest less than 60 years old (older forest provides sufficient lichen for food and better protection from wolves), and need large areas of intact habitat to meet needs at all times of year. Fire, forestry and other development that cause disturbance and openings in habitat allow predator incursion, increase in deer and moose (which also help to increase wolf population), and growth of deciduous trees. Caribou cannot tolerate brain worm, carried by white-tailed deer. Climate change affects snow conditions and lichen, and hunting has effects as well. The species' range used to extend southward into the northern U.S. Rocky Mountains, around the south shore of Lake Superior, throughout southern Quebec and across northern New England. All the above vulnerabilities probably contributed to retraction of range northward.

A recent meta-analysis conducted through a scientific review of Critical Habitat of boreal caribou (Environment Canada) showed a highly significant linear relationship between

population condition (measured as recruitment, or number of calves/100 cows that survive to contribute to the next generation) and range condition (measured as amount of disturbance through fire or human activity. An approximate threshold for self-sustaining populations is on the order of <35% disturbance before recruitment begins to decline beyond about that required to maintain a stable population (about 29 calves/100 cows). However, the relationship is most significant when disturbance both from direct human activities and from fire are included, indicating that human disturbance should be kept even lower than 35% to allow for the additive risk of fire.

Part of this study included an assessment of future risks, and the probability of caribou persisting across the range. Results indicated very poor prospects for populations in northeastern BC and northern AB, with southern NWT and northern SK not looking too good either. For some populations, e.g. in Alberta, only sustained wolf control efforts are keeping the populations from disappearing altogether. MB, ON and QC appear to have decent prospects, but ON and QC in particular have a dearth of good data and poor knowledge of population ranges. Only two populations with good data are thought to have very good prospects: those in far northwestern NWT, and SE Labrador.

In Ontario, forestry is currently focused on the southern portion of boreal forest. The northern portion is one of the world's last remaining true wilderness areas (total human population only about 10,000), one of the world's largest areas of intact forest, and *the* largest of undisturbed boreal forest in the world. It is also a world-class wetland, and has large areas of peat land that could release serious amounts of CO_2 and methane if destroyed. Mining and hydro development (including wind turbines) will likely be larger threats to this region than forestry. The "Ring of Fire" area close to a major diamond mine is a concentration point for mining claims and development plans, but there are claims all across the province. Once a road is built for one kind of development, others will follow.

This depressing picture calls for a new approach to conserving caribou that must depart from traditional management approaches that have involved mitigation rather than prevention of disturbance, minimal population monitoring, and piecemeal decision-making. What is needed?

- Range-scale management (making management decisions at larger scales than currently, covering 1000s of km^2)
- A limit to the intensity of development of all types, not just forestry (mining is a particularly large issue, as there are almost no limits on exploratory activities)
- Planning on a longer time scale, since many changes won't have effect on caribou for 20 or more years
- Proper "adaptive management," which requires monitoring of effects of management efforts so changes can be made as time goes on if results warrant. This requires scientists and managers to work in tandem.

Caribou is a good focal species, because it is somewhat more easily studied than populations of many other northern species (such as wolverine or grizzlies), yet is highly sensitive. Management for caribou should be beneficial to other species, because the caribou require undisturbed habitat across such large areas.

Questions:

Bertin: Asked about proposed hydro lines in the Winisk area.
Ray: The coastal road was beefed up instead, but there are plenty more plans, including one for a railroad to the Ring of Fire area.

Ed Addison: Asked whether fire more common along roads and development areas.
Ray: Both are important, and the effects of both have to be considered whichever habitat is being examined.

McAndrews: Are there wolves in Newfoundland that affect the caribou there?
Ray: No, but coyotes there hunt caribou, as well as lynx. Moose were introduced in 1904, and have altered the ecosystem. Caribou there are a bit migratory, but are in the forest – rather an anomalous population.

Crins: Can you update us on genetic studies of caribou?
Ray: Studies at Trent are ongoing, but complicated by mixing of different groups in winter. There may be some genetic differentiation in Quebec, and possibly between Ontario caribou in the Hudson Bay Lowlands and those of the forest, but not as much as might have been expected.

Falls: Don't wolves come to calving areas anyway, even without development?
Ray: wolves are not shifting range with development, but are becoming more locally abundant. Some evidence in NWT that there's a semi-distinct Arctic group of wolves that evolved with migratory caribou, moving annually with the herds.

Thorpe: Why, is it thought, that the Beverly herd has declined?
Ray: People are not yet sure and it could be natural fluctuations, it could be climate change. Mining exploration in calving areas could be quite important. Migratory tundra calving areas are the one part of range where protecting a relatively small area could do some good – but of about 30 such areas in the migratory range, only one is now protected (Queen Maud).

Emily Addison: Sounds as if there will be habitat disturbance regardless of science. Do you think caribou management can hold back development?
Ray: Aim is to try to do both – develop carefully and preserve caribou. But, it won't be easy.

Notes and Observations

Bertin displayed the remains of a fur coat that was made for his grandmother in the 1920s, made of several pelts of Italian wolf (*Canis lupus italicus*) shot in the northwestern Italian Alps. The pelt was redder than that of Canadian wolves, with shorter hair. His grandmother was also proud of a domesticated Italian wolf that she kept as a pet on her large estate east of Torino. The native Alpine wolves were exterminated in the region in the 1930s. The Italian Alps are slowly being repopulated by wolves from further east, from the former Yugoslavia through Friuli. Native wolves are still occasionally found in the Apennines, further south where an estimated 600 to 700 wild individuals live on wild roe deer, rabbits and the occasional domestic sheep.

Bertin also showed members copies of photographs (see a few below) taken in Eureka, in central Ellesmere Island, in 1974 by Eric Grace, one of the late Doug Pimlott's (a noted wolf conservationist and zoology professor at Uof T) post-doctoral students. The photographs show musk ox, and Arctic fox, so tame they would approach within 30 feet of his tents. The fox was photographed eating out of his hand. The fox was in the midst of its annual molt and was coloured a dramatic white and brown.

McAndrews spoke about a book: Eckenwalder, J.E. 2009. Conifers of the world: the complete reference. Timber Press, Portland OR. 720 pages. 2 kg. List price $75.00, £45.00; Online price $49.50 with free shipping at Chapters Indigo.

Conifer (cone bearing) trees and shrubs number 545 species and 3,000 cultivars of. Most are evergreen, which accounts for there usefulness as landscape species in our climate, but some, such as tamarack and bald cypress, are deciduous. *Pinus* with the most species (and the best fossil pollen record) ranges from the arctic tree line to tree lines on mountain tops and in desert basins; it ranges south of the equator in Sumatra. Although conifers appeared 300 million years ago long before flowering plants, some genera continue evolving new species.

This definitive book provides up-to-date descriptions of all true conifers plus range maps, drawings and photographs. It is the first comprehensive update of conifer taxonomy in nearly a century. Eckenwalder discusses the systemic relationships, biology, fossil occurrences, practical usages, and of course, champion trees. New identification guides for the families and genera are based on foliage. New taxonomic decisions reflect a comprehensive re-evaluation of conifer classification. He also outlines the features sought in cultivars of each

genus, particular cultivation concerns, and conifers recommended for cultivation under various conditions and to achieve different effects. With its attention to detail and extensive bibliography, this major work is an essential reference for botanists, horticulturists and we naturalists.

Barcz noted that an eastern fox snake fitted with a transmitter came out of its winter quarters to enjoy some of the recent warm days – a late record for activity.

Rapley was at Grasslands National Park for first release in Canada of captive reared Black-footed Ferrets (34 of them). They were last seen in Canada in 1937. Since 1992, about 30 kits have been raised and sent to the U.S. and Mexico for re-introduction. In Canada, swift fox has already been reintroduced, bison were returned about 4 years ago, and prairie dog colonies are increasing. The ferret releases will continue.

Rapley will soon be off to China to check on giant pandas. There are about 1600 in the wild and about 300 in captivity in a breeding program. There is a big new reserve intended for reintroductions.

Hartley saw 26 Tundra Swans near Keswick last week. They seem to come through there each year, moving on to Scugog and then to eastern Lake Ontario. Also seen were Lesser Scaup and American Widgeon. Hartley also noted that the Toronto Zoo has now opened its award-winning tundra project.

Ed Addison: At north end of L. Nipigon in mid-October, a Common Snipe was observed feeding undisturbed by Ed, in shallow water only a few feet away. He was surprised to also see large numbers of American Robins, and has heard of large numbers in Edmonton, as well. Pittaway said this is likely related to a bumper crop of mountain ash.

Lumsden reported good breeding of Trumpeter Swans, with new reports of broods in NW areas (Kirkland Lake, Rouyn-Noranda in Quebec).

Crins saw two Trumpeters north of Pickle Lake in September (no young). Lumsden said these would have been from the Wisconsin and Minnesota populations, which are spreading into Kenora and Rainy River, and have almost reached the Hudson Bay Coast.

Crins reported seeing at least four Barred Owls in Presqui'ile Park last week, and he heard of four others. They did not seem in great shape, but he did see signs of small mammal activity there. Coady added that he had one in his yard two weeks ago, which put on a show by grabbing a garter snake off a stump.

Tomlinson reported that Red-winged Blackbirds in shoreline cattails normally suffer extensive predation, but this year they did well – possibly related to Aurora moving to a green bin system that provided alternative food supplies for the raccoons. Also saw 35 Sandhill Cranes flying south. Bodsworth topped that with his observation of 150-170 near Long Point about a week ago.

Falls requested that whoever has the Brodie biography *Pocket Full of Galls* please bring it back for circulation among other members.

Ed Addison has a friend who wants to visit Amherst Island to see Long-eared Owls, and who might she contact to make arrangements? John Casselman was suggested, as he lives near the island.

Coady received a week ago (after great technical difficulties) a photo of a mystery bird in a Brampton back yard, which turned out to be a Phainopepla (native to southwestern U.S. desert areas). After taking a day to clear it with neighbours, an announcement was made and over 300 people visited before noon last Saturday. This is the second Canadian record for the species.

The meeting was adjourned at 9:15.

Contribution from Yorke Edwards:

Birds Seen Over Our House

Glaucous-winged Gulls Every day some fly over our house while others are standing at the small rocky islands not far beyond our house.

Harlequin Ducks Except in spring almost every day we see some passing by near our shore except when nesting up onto the USA mountain rivers.

Great Blue Heron Often one is seen beside the sea, standing there all day on one of small islands. It seems to eat very early every morning.

Great Cormorants Most mornings a few are seen standing alone on the small our rocky islands that are near our shore.

Bald Eagles On an island near us there is a post beside the sea, and stands on it through most days. It goes away only in early mornings to hunt for breakfast

House Finches They live in groups around houses, and sing their songs early every morning, except in rain or in the cold days of winter.

Northwestern Crows Those live near the sea or are flying about over our city as well as in the farmer's fields. These crows are smaller than those in the east.

Red-winged Blackbirds Here some live near the sea, and several times have been nesting in our garden, and eating in our bird feeders.

House Sparrows A crowd here is living where a feeder's box is near the road, and most days are going into many shrubs for chattering about.

American Robins Around our house they live through winters. Every morning I see them on the wires up beside our small and short road.

Oystercatchers They are often seen on rocky places walking beside the sea, standing big and black with long red and narrow bills for catching little fish

Cooper's Hawk Sometimes one flies past our windows, and going over the street and into trees beside a golf course near our house.