THE 946th MEETING OF THE BRODIE CLUB

MINUTES

The 946th meeting of the Brodie Club was held on Feb. 15, 2000 in the Ramsay Wright building of the University of Toronto.

Chairman: Bernard Muller
Recording Secretary: Oliver Bertin
Attendance: 22 members and four guests
Vicky Draper, guest of Michael Boyer
Jean Iron, guest of Bruce Falls
George Fairfield, guest of David Hussell
Henri Se lies, guest of Bernard and Claire Muller

ANNOUNCEMENTS:

- Ken Abraham handed out copies of a 1977 paper by Harry Lurnsden that were found by Ministry of Natural Resources officials while cleaning out an old store room. The paper, "Nesting Ecology of Canada Geese in the Hudson Bay Lowlands of Ontario: Evolution and Population Regulation," proved highly popular among the members especially when autographed by the author.

- Bertin said Globe & Mail senior editor John King was searching for a bird columnist to replace Peter Whelan who died last summer. The Globe is looking for "a very good writer" who is familiar with birds and birders across Canada. Members were invited to apply for the job or to suggest possible candidates.

- There was considerable discussion about the best way to stop development of the Oak Ridges Moraine. The Ontario Municipal Board and the municipality of Richmond Hill will be heavily involved with the issue over the next six months.

-Jock McAndrews recommended two books on the ecology of places from the Cambridge University Press:

"Cliff Ecology: Pattern and process in cliff ecosystems" by Larson et al at Guelph University, 2000, 340 pp, $68.25 at Chapters. The book deals with the unique habitat of rock cliffs, which harbour old forests, specialized ferns, endolithic algae and rock-dwelling fauna such as the Turkey Vulture, pika and cave-dwelling early man. The authors base about half the book on the Niagara Escarpment and especially its 1,000-year-old white cedars;

"Savannas, Barrens and Rock Outcrop Communities of North America" by Anderson et ai, 1999,470 pp, $52.46 at Chapters. It deals with areas which do not have a tree canopy. Sections of particular interest to Brodie Club members include those on the dry oak savanna of the Great Lakes region, Jack Pine barrens, cliffs along the Niagara Escarpment, alvars, southern Ontario granite barrens and the subarctic lichen woodlands.

Minutes of the previous meeting were approved with minor amendments on a motion by Jennifer Young.

SPEAKER:

Falls introduced the speaker, Ed Addison, a 26-year veteran of the Ministry of Natural Resources who retired in 1997. Dr. Addison did his undergraduate studies at the University of Toronto before moving to the University of Guelph for his Masters degree and PhD. He was a wildlife biologist who specialized in parasites and diseases of wildlife at MNR's Maple and Peterborough stations.

Wildlife Corridors: Beneficial or Detrimental?

A self-described contrarian, Addison argued persuasively that resource managers should take a second look at wildlife corridors because they are not necessarily as beneficial to the local flora and fauna as some might believe.

Much of his case was based on his expertise in parasitology from an ecological perspective, a field that he is familiar with from his graduate training and career with MNR.

He started with three axioms:

- A parasite is "something that is adapted to live on or within other animals, nothing more, nothing less." They do not necessarily harm their host, he added;
- He believes that, at the lowest resolution, there are only three different ecosystems in the world: aquatic, terrestrial and parasitic; and
- He defined a wildlife corridor as "a strip of habitat that permits the movement of organisms between ecological isolates." In other words, a wildlife corridor is an avenue that species use to move between two isolated populations.

Addison has studied the literature and has found a range of opinions on the pros and cons of wildlife corridors but little empirical evidence to support either position. Some authorities accept the traditional view that isolated species benefit if they are allowed to mix, while other experts argue that isolated populations are best left to themselves. Addison's conclusion is that there is no easy solution to the debate.

He quoted Susan Harrison of the University ofCalifomia, Davis, who said: "Many habitat managers now believe that a successful biodiversity strategy requires conserving numerous habitat patches and the potential for dispersal between them. Corridors are not bad per se but you should consider alternatives before rushing into easy solutions."

Wildlife corridors do have advantages, Addison said. They allow for foraging, cover from predators and refuge from fires. They can promote urban greenbelts and increase biodiversity. But these wildlife corridors can also foster the spread of diseases, a reduction in the genetic pool and leave species vulnerable to hunters. They may do little to enhance dispersal of the species, may be costly and may conflict with other conservation strategies.

The argument becomes more complicated if immigration of new species is considered. Is immigration good or bad for conservation, Addison asked. How about the free flow of exotic species? Willcox and Murphy argue that "breaking up a habitat is a threat to diversity and leads to extinction." But Addison disagrees, saying that exotics are a greater threat to the endemic population than fragmentation of the resource. One can argue that imported exotics enrich the population, but Addison doesn't necessarily agree with that either. He pointed to loosestrife and sparrows as exotic species that can be potentially damaging. Imported birds can transmit disease. For instance, Lyme disease ticks use birds as a corridor for wider distribution. Zebra mussels were carried into the Great Lakes in the ballast of ocean-going ships, a convenient corridor for these molluscs. Airplanes are another potential corridor for the spread of an unwanted species, including disease-carrying mosquitoes which can travel in the wheel-well of a jetliner.

Addison used the spread of Rinderpest across Africa as an example of a highly deleterious corridor. The cattle parasite was carried from Italy to Ethiopia in the 1880s and spread throughout Africa during serious outbreaks in 1913-21 and 1937-41. The wave wasn't halted until the Second World War when British authorities erected a cattle fence across the neck of land between Lakes Tanganyika and Nyasa. That fence did not eradicate the disease but it limited its spread to the areas north of those lakes.

Another example of a harmful wildlife corridor concerned the agricultural parasite VESV - Vesicular Exanthema of Swine Virus -which caused considerable damage in California in the 1930s. It first appeared among domestic pigs in southern California in 1932 after a farmer fed them Opal-eye fish. By 1939, the parasite had spread throughout the state, infecting about 25 per cent of all the pigs in California. To limit the spread of the parasite, agricultural authorities sealed off the entire state, preventing movement of hogs to the rest of the country. That strategy worked until 1952 when a pig farmer in Cheyenne, Wyo. fed his livestock some garbage from a train that was passing through from San Francisco. The disease spread to 42 states within one year.

Addison also referred to the spread of raccoon rabies, a subject of considerable interest in eastern Ontario. Raccoon rabies was originally limited to Florida and the adjacent parts of Georgia, South Carolina and Alabama. However, hunters apparently spread the disease while carrying raccoons from those states to West Virginia in 1977. In the ensuing years, the disease has spread northwards, leading to 10 to 20 cases in the Kingston and Thousand Islands region of Ontario.

Wildlife corridors were subject to considerable debate following the spread of tuberculosis and brucellosis among Plains Bison in Wood Buffalo National Park. That story started in Wainwright, Alta. where conservationists decided to rebuild the bison herd. The population grew from 700 in 1907 to 10,000 by 1925, but that was too many for the area to bear, so 6,673 Wainwright bison were moved to Wood Buffalo. Unfortunately, those bison had picked up TB and brucellosis from domestic cattle in the Wainwright region and they infected the 1,500 endemic bison in Wood Buffalo. By the 1960s, resource managers realized they had a problem. They moved a small group of disease-free bison to the Mackenzie Valley Sanctuary on the north shore of Great Slave Lake, hoping to start a new, clean population. They appear to have been successful, but the story does illustrate the danger of spreading diseases through human wildlife corridors.

Some advocates of wildlife corridors argue that they are necessary to propagate small, isolated populations of rare species. But Addison said that wasn't necessarily true. On the theory that "vice is nice but incest is best," Addison advocated in-breeding as a way to rapidly rebuild a small population without introducing exotics or diseases. He noted that four Mauritius Kestrels were built into a population of 400 in 25 years. The moose population of Newfoundland went from two in 1878 and another four introduced in 1904 to the current herd of 120,000, with 20,000 being harvested annually.

In conclusion, Addison said the benefits of wildlife corridors are clearly ambiguous. He hopes further debate will achieve some form of consensus.

QUESTIONS:

- Falls noted that the creation of the Panama bridge between North and South America in the Tertiary enabled the spread of many species for the first time and led to the extinction of many South American species. He suggested that it may be better to preserve large areas, rather than small isolated islands, because of the edge effects. Addison answered that exotics such as purple loosestrife can sometimes move very fast. Isolated populations are not always immune to imported diseases, as with a dog virus that was spread by birds. He noted that corridors have lots of edges.

- Alexandra Eadie noted that some species require a large range. She referred to jaguars and attempts by Costa Rica to encourage easy movement of this species. Addison agreed, saying that large animals sometimes need huge corridors that can be very costly to build and maintain. Florida has tried to create a corridor for an isolated population of panthers, with limited success so far.

- McAndrews asked whether much work had been done on floral corridors. Addison referred to purple loosestrife, which has spread widely since its introduction. He noted that plants have been shown to spread along trails in Colorado's Rocky Mountain National Park.

- Boyer asked about the spread of Dutch elm disease and chestnut blight across North America. Boyer said Dutch elm disease is now found in Manitoba. Addison asked whether anyone knew whether Dutch elm disease had spread to the stands of American elm at its extreme northern distribution in Ontario on the Albany River. Nobody knew the answer.

- Boyer compared the spread of Californian swine virus to Mad Cow disease which spread among British cattle that were fed uncooked sheep offal. Addison agreed that livestock feed should be sterilized to halt the spread of disease.

- Falls discussed the retention of natural wildlife corridors as opposed to the creation of artificial ones. Addison said he was not in favour of artificial corridors.

- Several members said that roads and pipelines can create a significant barrier to the free flow of animals. Hussell questioned the construction of tunnels under highways, saying he preferred to spend the money on "real" habitat corridors. He added that the cost of building wildlife corridors should be included in the construction budget when building all roads.

The speaker was thanked by Ken Abraham.

NOTES & OBSERVATIONS:

- Eadie spied about 3,000 ducks in Toronto Harbour's Western Gap in late January. The birds were close to shore, providing excellent views oftheir fresh plumage. The flock included about one thousand Greater Scaup; a few hundred Oldsquaw; hundreds of Redheads; three Canvasbacks; one dozen Hooded Mergansers; 10 Mute Swans; one Trumpeter Swan with a silver band on its right leg but no yellow tag; 20 Buffieheads; 20 Mallards; 10 Black Ducks; 50 Gadwalls; three Red-breasted Mergansers; 10 beautiful Common Mergansers; and three Goldeneyes. The sound of the Oldsquaw calling as several thousand ducks took off was beautiful.

- Lumsden has heard reports of a WhooperSwan in LaSalle Park in Mississauga. He has conducted an inventory of Trumpeter Swans along the north shore of Lake Ontario from Bronte to Dundas, and seen 48 of these birds. A flock appears to have moved from Wye Marsh to Lake Ontario.

- Claire Muller saw a Trumpeter Swan in Hamilton Bay in early February. Five were reported there the week before. She also saw a Sharp-shinned Hawk swoop down her driveway and catch a sparrow.

- Falls saw a fisher and the trails of two others in the bush north of Aspley. He said there seems to be a fair number of these rare mammals around this year.

- Eadie and Bertin spied a skunk running through the snow at Harbord and Major Sts. while on their way to the meeting.

The meeting adjourned at 9:59 pm.

THE NEXT MEETING:

The next meeting will be held on Mar. 21 at 8:00 pm in Room 432 of the Rarnsay Wright Zoological Laboratories when atmospheric physicist Tom Low will speak on: "What does global warming have to do with severe weather events?"

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