

THE 931ST MEETING OF THE BRODIE CLUB MINUTES

Brodie Club Meeting - May 18, 1998 in Room 107 of the Ramsay Wright Building, U. Of Toronto

Chair: Dave Fowle

Recording Secretary: Ron Scovell

Attendance: 18 members and 4 guests: Kirsten Burling, (Scovell), Vicky Draper (Fowle), Sandra Eadie (Bertin), Darryl Gwynne (guest of the club).

Minutes: The minutes of the 930th meeting were accepted as circulated.

Announcements: none

Introduction Of Speaker:

Darryl Gwynne was introduced by Bruce Falls. He had been an undergraduate at Erindale College, U. Of T. He carried out research for his Master's degree at Erindale with Glen Morris; his doctorate was obtained in Colorado and he conducted post-doctoral research in Arizona and Australia. Ten years ago he joined the faculty at the Erindale campus, U. Of T. His field is behavioural ecology of insects.

Topic: New Zealand Wetas & Darwinian Sexual Selection

Why are sexes so different? Darryl suggested that they have different roles so they are modified to perform accordingly. The males spend their time performing courtship rituals and competitive forays, while the females have parental duties.

Most New Zealanders know what Wetas are, even though they are not well known around the world. Tree Wetas are very aggressive and give Wetas their bad reputation. To date, there is very little research, and Darryl thinks there still may be several undescribed species in N.Z. They are members of the family Tettigoniidae, or Cave Crickets, and are related to our Long-horned Grasshoppers. The Cave Weta is *Weta punga*, which means 'all things ugly' in Polynesian. There are three main groups: Giant, Tree & Ground.

Giant Wetas

Members of this group weigh up to 30 gms. They are wingless, and because of this they have been subject to wide-spread predation by introduced rodents. Today, most Giant Wetas are found only on islands which have not been subjected to rodents. Some species have managed to survive by hiding in thorn bushes. This group is large enough to be attached with radio transmitters for extended studies.

Mana Island has been designated as a study sanctuary. There are no jetties and no boats are allowed to land on the island. Several devices have been utilized to completely rid the island of rodents. This has allowed introduced native birds such as Takahē to survive on the island as well. Studies have shown that these Wetas are nocturnal and very docile. They communicate by pheromones. There is some indication that they are promiscuous. During a mating session, they are attached in a female superior position for as long as twelve hours, during which copulation can occur fifteen or more times.

Tree Wetas

This group usually lives in holes that they have burrowed in trees. However, the group that Darryl studied, known as Alpine Wetas, (known for their biting habits), lived in an area which was void of trees, and subsequently have adapted to living under rocks on top of the treeless slopes. Geckos have exterminated all Wetas from the lower slopes. Weta 'communities' are found under almost every large rock. They are sexually dimorphic, so it is easy to determine the sex ratio of these communities. There would be up to seven females to one male in a community. The males fight for good rock cavities. They are adapted with large heads and mandibles. They live for up to four years. Males are known to produce a very strong offensive odour. Darryl was interested in possible DNA testing to determine if the females were promiscuous.

Tree Wetas found at lower altitudes make holes in trees. The females remain in the hole until the eggs hatch. During courtship, the males make a loud rasping noise by rubbing their legs on their bodies. Their ears are on the inside of their forelegs. Males have formidable head weaponry for mating battles.

Ground Wetas

These are the smallest and most obscure of the family. Females have a very short ovipositor, and practice parental care. The males during courtship, vibrate their limbs on leaves to create a sound that attracts females. Males feed their mates after copulation. The male leaves a spermatophore sac on the end of the female's abdomen, and then secretes a sperm-free mass of food which he hangs on a 'hook' on the female's body. The female feeds on this mass

after copulation. Studies have shown that females that receive and feed on this food glob, tend to live longer and produce more young. Females which do not receive this 'meal' produce young which have smaller legs and their hatch success rate is lower. The 'meal' also seems to help the eggs overwinter. It has been dubbed the 'Methusela glob.' The composition of the 'food' is not known. After copulation, the female digs a hole in the ground and enters. She seals herself in, lays her eggs and remains with the eggs, and later with the nymphs for an extended period of time. The female does not possess a long ovipositor. This lack is a sign of parental care.

A lively discussion followed. Darryl was then thanked by Hugh Currie.

Members Notes and Observations:

Jock McAndrews - The savannah near Warkworth was subjected to a burn again this year. Prairie Buttercups flowered. The yellow flowers against the black burn was striking. High Park burn was also done again this year. It is hoped that after two years of minor burns, that the press will lose interest in coverage, and next year there would be a major burn.

Fred Bodsworth - Fred reported that there was a Pelee Island burn as well, and that burns have been relatively successful in restoring prairie vegetation. Manitoulin Island vegetation was three weeks ahead of time for plant blooming, and Sharp-tailed Grouse were still displaying in May.

Hugh Currie - Point Pelee butterfly watching was more spectacular than birding.

Harry Lumsden - Several of the Trumpeter Swans have disappeared. He hopes that they are nesting elsewhere. There are about twelve pairs known to be currently nesting in southern Ontario. A pair of 'wild' (untagged) Trumpeters attacked a tagged pair inhibiting their nesting, then left the area.

Dave Hussell - Gave some data on Tree Swallows. Reported that birding at Long Point was better than Pelee this year.

BRODIE CLUB ANNUAL FIELD DAY

Crawford Lake Conservation Area

10 a.m. Sunday June 21, 1998

Join us for an interesting day at the Crawford Lake Conservation Area on the Escarpment west of Milton. The deep meromictic lake is the site of archaeological research by Jock McAndrews and colleagues. Pollen analysis of bottom sediments has revealed much about the history of the area, including dating of Indian occupation of the area in the 15th century. Excavations have exposed a number of longhouses near the lake. There is a museum, a reconstructed Iroquois village, pleasant walking trails, picnic facilities and free parking. There is an entrance fee of \$4.00 (\$2.75 for seniors) and it covers Mountsberg as well. For more information call the Authority at (888) 376-2212.

The Mountsberg Conservation Area is nearby and easily accessible. Here there are a number of captive raptors and other exhibits. A bird-banding station is in operation at certain times.

Jock McAndrews will lead a walk at Crawford Lake at 10 a.m. We will have lunch about noon. Ron Scovell has offered to lead a walk at Mountsberg after lunch.

Bring your family or a friend and a picnic lunch. A blanket might be useful if the picnic tables are all occupied. Fly dope might come in handy.

Directions to Crawford Lake: Follow 401 to Guelph Line west of Milton, turn south to Steeles Ave. Turn east on Steeles to the park entrance. From the Queen Elizabeth Way turn north on Guelph Line to Steeles and turn east to the gate.