THE BRODIE CLUB

Established 1921

Website: http://thebrodieclub.eeb.utoronto.ca

THE 1,122nd MEETING OF THE BRODIE CLUB

The 1,122nd meeting of the Brodie Club was held on Tuesday, 15 October, 2019 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chair: Katie Thomas
Secretary: George Bryant

The meeting was called to order at 7:31 pm and was attended by 39; 29 members and 10 guests.

Roll Call:

Present: E. Addison, R. Addison, Bacher, Beadle, Bryant, Currie, Curry, Daniels, DeMarco, Dengler, Dunn, Hussell, Hutchinson, Iron, Kortright, Kotanen, Lindsay, Lumsden, Martyn, Moldowan, Pittaway, Reading, Riley, Rising, Seymour, Slessor, Stones, Thomas, Tomlinson.

Guests: Emma Bloomfield, Tom Dickerson, Jim Eckenwalder and Ron Dengler (guests of Dengler), David Agro (Beadle), Bill Lamond (Curry), Rachel Gottesman (Kortright), Autumn Watkison (Moldowan), Mary-Lou Bacher (Bacher), Peter Carson (guest of the speaker).

Regrets: Abraham, Bell, Crins, Dunlop, Eadie, Harris, Larsen, Obbard, Peter

Minutes: There were no errors or omissions to the minutes. Minutes approved.

Committee Reports:

Website: Dunn sought and obtained support for changes to be made for reasons of privacy. Member bios will be sent to members separately from minutes (which are public on our website), and the password protected pages of the website that currently consist solely of member info will be removed. Entire website now visible to all with no password required.

Several committees reporting as part of the Annual General Meeting raised important issues. **Please take note of the bolded portions of those reports.**

Announcements:

Rising asked those with surplus binoculars to consider donating them to a Honduran group which would put them to good use. The contact person is Eli Gonzalez / GE, 6810 NW 82nd Ave., Miami Fl, 33166-2764 -- but bins can be given directly to Trudy and she will see that they are delivered.

Bacher mentioned a Sierra Club article about Ontario's Ring of Fire discussing the risk of peat fires and resultant spread of toxins.

ANNUAL GENERAL MEETING:

Minutes of the 2018 AGM were approved.

Kortright briefly summarized financial statement that had been distributed by email, and noted a few updates remained to be made. (Final version appended to these minutes.) Motion to accept by Kortright, seconded by E. Addison. Passed.

Membership fees now due for 2019-2020 year: $20 for regular members, $10 for those who can rarely, if ever, attend meetings. Payable by cash, cheque, or interac (see email of 14 October from Katie Thomas for payment details).

A slate of committees was presented, along with brief outline of duties and the following notes.

Program: Committee needs one or more people to a) extend invites, provide info on club, set up dates, handle honoraria, etc. and b) meet and host speakers for dinner at Faculty Club prior to meeting (preferably someone in Toronto who doesn't have a long commute). E. Addison can provide details and guidance.

Archives: Looking into whether a student might help with Archives as part of a UofT course.

Field trips: Seeking ideas for next year's field trip. Another member would be helpful

Refreshments: **Reminder that we should all contribute $1 for a coffee or cookie, and $2 for both**, as currently there are shortfalls. Show of hands for tea, herbal tea or decaf coffee indicated low levels of interest. Providing kettle and make-your-own fixings probably best way to provide these options.

By-Laws: 1924 original updated in 1960 and badly needs updating again – thus the formation of this ad hoc committee

Thomas moved acceptance of the following slate. Seconded by Dunn and passed unanimously.

Slate of Committees for 2019-20

Editing Secretary: Ricky Dunn
Corresponding Secretary: Katie Thomas
Recording Secretaries: Ken Abraham, George Bryant, Kevin Seymour (Dunn available as sub)
Treasurer: Bob Kortright
Membership: Trudy Rising, Bill Crins, Bob Curry
Program: Marc Johnson, Don Sutherland, Bruce Falls (E. Addison in support role)
Ontario Nature Representative: Carolyn King
Archives: Ricky Dunn, Kevin Seymour
Refreshments: Trudy Rising, Jerry DeMarco, Anne Bell, Nancy Dengler, Sharon Hick, Oliver Bertin
Website: Ricky Dunn, Jeremy Hussell
Field trip: Justin Peter, Katie Thomas
AV: Jeremy Hussell, Dominic Stones
By-Laws revision: Ricky Dunn, Katie Thomas, John Riley

SPEAKER:

John Riley introduced our speaker. Mary Gartshore. She obtained a biology degree from Guelph University and became a certified restoration ecologist in Africa. Then in 1980 she purchased an 80-hectare abandoned tobacco farm in Norfolk county with a view to restoring tall-grass prairie. She has since become the Canadian expert on prairie restoration.

Prairie habitat restoration in southern Ontario

Ecological restoration has become a subject of global concern. The UN has designated 2021-2030 as the decade of ecosystem restoration. Global biodiversity issues include large mammals, long-distance migrants, amphibians, pollinators (e.g. fruit bats in Australia are dying of heat stroke), insect biomass (we are all noting fewer masses of insects than 50 years ago), grasslands, freshwater mussels, temperate zone reptiles, decomposer predators (such as salamanders), forest conversion and isolation. Studies using Google Earth indicate that since 1988, 26% of forests have been converted to industrial agriculture another 22% to urbanization. This does not bode well for biodiversity. Ideally what we want to do now is to cease destruction and support existing biodiversity.

Ecological restoration is the process of returning the environment to a pre-European settlement state using science-based design. Along with returning appropriate flora and fauna, restoration should also enhance ecosystem function and reconnect fragmented landscapes.

The first steps to success are to set biodiversity targets (how many and which species), understand life history traits (to ensure that targets are not biologically unlikely to survive), and choose sites that provide the habitat required by desired rare species (such as Hog-nose Snake or Grasshopper Sparrow). Not only do site conditions have to be appropriate (e.g. soil type and moisture), but they should also be amenable to control or elimination of predators and aliens. Experts in restoration have to work with client land-owners and managers to ensure that desired outcomes are realistic.

Extensive site preparation is an important step in restoration. Tilling is done to ensure good tilth (conditions for sowing seeds) and exotics around the edges should be eliminated, often done with a glycophosphate herbicide. Densely planting 3 rows of conifers around field edges prevents undesirable seeds from spreading into the field.

Preparation of seed is a long process, and Gartshore runs 2-day workshops to teach people how to do it. Briefly, seeds are collected (some of which can be done by brush combines) and cleaned, then sorted by size (grains, fruit seeds, acorns) and type (hard shelled versus fluffy seeds with awns). Fluffy seeds are not super-cleaned, as they require their awns and hairs to penetrate soil.
For restoring prairie, one should aim to seed with 50-100 species. Ideally you sow all the prairie seeds together and let them sort out which will flourish where. Sowing more seeds does not necessarily lead to greater success and of course increases costs. Experience has led to recommendations for sowing rates, such as spreading large seeds at the rate of 22 kg. /ha if the desired outcome is forest and at a lower rate for savanna. Sometimes only a gram of seeds is needed for particular species such as Long-leaved Bluet. Small seeds are mixed together with large amounts of Millet, which ensures that all species' seeds are well dispersed in the mix and diluted for ease of even sowing. Millet grows quickly, providing shade and protection in the first year – but it dies the first winter without producing seed so target species take over in the second year.

Actual seeding can be done by hand – usually with volunteers. (Bulk Barn scoops have proven excellent devices for flinging seed in broad arcs.) Mechanical planters are used to sow acorns and other nuts, often in diagonal patterns that create a mosaic of vegetation. Resulting patterns can be seen on Google Earth, but on the ground appear to be random.

Continued attention is needed during the years after sowing. Older recommendations were to mow after plants begin to grow, but that allows non-natives to encroach. It's important to regularly look for and remove exotics, especially Eastern Cottonwoods that can quickly overrun a restored prairie. Another key requirement is patience. Restored prairie in Norfolk county goes through fairly predictable stages. In the first year Horseweed is abundant. It is native, dense and weedy -- but replaced in one year by more desirable prairie species such as Black-eyed Susan and Wild Bergamot. After about 10 years, sites are transformed to lupine and other classic prairie species. Where prairie is the desired end as opposed to forest, prescribed burns every 2-4 years may be used as a management tool to prevent woody vegetation from taking over.


Example of restored field in about year 2 and year 10

Success of restoration is hard to define, but there is a lot of literature on suitable indicators. These include before and after comparisons of breeding songbirds, presence of species at risk such as Hognose Snake, occurrence of pollinators (bees) and of moth species, tree and shrub establishment, absence of invasive species, and use by wintering birds. (The last is certain for at least one year if millet is planted in the first year.)

Mary cited changes in the fields on her farm where restoration began 28 years ago. With help from Dave Beadle and others they have identified over 1100 moth species, including Sycamore, Black Gum and Tulip Tree Moths -- all recent arrivals resulting from the restorations. Their caterpillars are food sources for neo-tropical migrants. Both Hognose Snakes and Meadow Jumping Mice are doing extremely well on the prairie restoration sites. Fox Snakes and Whip-poor-wills appreciate the savanna sites, and Orchard Orioles and Eastern Kingbirds now nest on the property. Mary has observed a Grasshopper Sparrow and a Veery singing in close proximity, in a transition zone between prairie and savanna.

Questions following the presentation:

Q: Dunn noted that most restoration sites in Norfolk County are growing up to woodland, and wondered whether there are plans to retain any as prairies.
A: The original idea from NCC was to set the stage for native forest to return, but now they are thinking of keeping some in early successional stage.

Q: Lamond wondered whether Dwarf Chinquapin Oak was being planted in areas beyond the original range.
A: Goal is to protect these plants and encourage their spread within their range

Q: Bryant wondered how control sites with benign neglect compare to sites with managed seeding.
A: NCC experimented with several 10-acre control plots, which filled up with non-native invasives such as Autumn Olive and Buckthorn.

The speaker was thanked by Lindsay who commented on the fantastic job the speaker had done in discussing ecological restoration both from a global consideration and local in Norfolk County.

OBSERVATIONS

Carson said a few words about the Norfolk Land Trust, formed in the 1990's before the NCC had any presence in the county. They now have 10 properties, but are volunteer-based and find it hard to build a substantial funding base in such a rural county.

Addison observed a dead Otter on the Oak Ridges moraine near King City

Daniels reported a live mink in his yard in Willowdale

Rising saw a Coyote in Mount Pleasant cemetery

Redding noted an abundance of Monarchs on Manitoulin, and Riley reported the same for Mono.

Curry and Slessor were delighted to observe two flocks totaling 79 Whooping Cranes in central Saskatchewan, 10% of the world population.

Dunn said that Sandhill Cranes were starting to gather in Norfolk County, where 1000 or more are often present for Christmas Bird Counts.

Gottesman reported remnant old Bitternut Hickory and American Elm trees growing at Keele and Sheppard on a site that may be lost to development.

Meeting adjourned at 9:07

NEXT MEETING

The next meeting will be on 19 November, when Patrick Moldowan will talk about his work on Salamanders in Algonquin Park

The meeting was adjourned at 9:20 pm.

Appendix: Revised Treasurer's Report

	2017-2018	2018-2019	2018-2019	2019-2020
	Actuals	**Budget**	**Actuals**	**Budget**
Balance Beginning	$1,634.21	$1,516.84	1,517	1,826
Revenue				
Membership	$1,110.00	$1,025.00	955	1,025
Contributions	$42.00		0	0
Total Revenues	$1,152.00	$1,025.00	955	1,025
Expenses				
Meeting Expenses	$0.00	$0.00	208	200
Honoraria/Speaker Expenses	$373.26	$500.00	150	300
ON scholarship	$350.00	$350.00		350
Social	$215.10	$250.00	138	250
Bank Charges	$120.13	$23.00	26	30
ON Membership	$83.00	$83.00	83	83
Newsletter	$127.88	$150.00	41	150
Total Expenses	$1,269.37	$1,356.00	646	1,363
Revenue - Expense	-$117.37	-$331.00	309	-338
Balance ending	$1,516.84	$1,185.84	1,826	1,488

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