

# THE BRODIE CLUB



*Established 1921*

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

## **THE 1,134th MEETING OF THE BRODIE CLUB**

The 1,134th meeting of the Brodie Club was held on Tuesday, 18 April 2023 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chair: George Bryant  
Secretary: Ricky Dunn

The meeting was called to order at 7:30 pm and was attended by 29; 15 members and 14 guests.

### **Roll Call:**

Present: Bacher, Bertin, Bryant, Daniels, N. Dengler, R. Dengler, Dunn, Eckenwalder, Hussell, Iron, Kortright, Miller, Riley, Rising, Stones.

Guests: Bill Cole, Mary Cole, Tim Dickinson, Adam Dickinson, Sarah Hodges, Deb Metsgar, Steve Rose and Jeff Warren, (co-authors and guests of Eckenwalder), Peggy Haist and Joanna Veleo (Bertin), Alan Hirsch, Marion Lord and Rosalind Holeton (Rising) and Rachel Gottesmann (Kortright).

Regrets: Abraham, E. Addison, R. Addison, Beadle, Bell, Crins, Currie, DeMarco, Dunlop, Eadie, Harris, Lindsay, Martyn, Moldowan, Obbard, Peter, Pittaway, Seymour, Sutherland, Thomas.

**Minutes:** Minutes of the March meeting were approved.

### **Committee Reports:**

The next meeting will feature Kevin Seymour, with a recently updated talk on 'Why Birds are Dinosaurs.' Please note that this meeting will be on 9 May, a week earlier than our usual schedule.

Bob Kortright noted that the Toronto Field Naturalists celebrates its 100th anniversary this year, and the Brodie Club has been asked if we would offer a testimonial. Bob proposed that we submit the following text. *"The Brodie Club congratulates the Toronto Field Naturalists of a century of connecting the people of Toronto to nature, most especially through its program of guided nature walks, lectures and the youth program."* Acceptance of this text moved by Kortright, seconded by Miller, and heartily approved.

Nancy Dengler presented information from Celina Baines, Asst. Professor in Dept. of Ecology and Evolutionary Biology at U of T who is faculty advisor for the FREED program (Field Research in Ecology and Evolution Diversified). FREED is dedicated to increasing access to field work and research experience for Indigenous, Black and/or Racialized undergraduate students, in part by running a field excursion for UofT undergrads in Algonquin Park in August. They are seeking funding for this excursion and are open also to in-kind donations, including a wide variety of field

equipment such as binoculars, field scopes, insect nets, etc. (see list sent in email along with distribution of these minutes). **Items to be donated can be brought to 9 May meeting**

Nancy noted two reasons why this request might be of special interest to Brodie Club

- 1) The Club has many historic ties both to academia and to the Algonquin Research Station, indicative of the scientific bent to our interests in the study of natural history and sharing it with others;
- 2) Supporting FREED could help strengthen our ties to the EEB Department at UofT, and thank them for hosting our website and allowing us free use of our meeting room.

Discussion followed, with general agreement that this would actually be a better fit for the Brodie Club than our past support of Ontario Nature's Youth Summit for Biodiversity (aimed at high school students). Brodie Club can only afford to make one donation annually, and a motion (proposed by N. Dengler, seconded by Dunn) to move our support to FREED was strongly supported. To allow wider input, however, it was decided to consider this vote as 'sense of the meeting,' with a formal vote to be taken at the May meeting. **Please submit any comments or objections by 8 May so that they may be brought up for consideration on 9 May.** (Submit to kmthomas.email@gmail.com).

### **SPEAKER:**

As a Brodie member, Jim was only briefly introduced. (Take a look at the Brodie mini-bios and you'll be reminded of his life-long botanical interests, experience and accomplishment!)

#### **Writing 'Trees of Ontario' – 510 pages of exquisite compromise**

A few weeks ago, about 12 years of effort by Jim and 3 co-authors resulted in publication of "A Field Guide to Trees of Ontario," part of the ROM field guide series. The main focus of Jim's talk was an explanation of why the project took so long.



Before writing even began, several major decision had to be made:

- 1) How big will it (can it) be?
- 2) Who is the intended audience?

Co-authors of the book (Deb Metsgar, Tim Dickinson and Sarah Hodges), all present for this talk, were involved in these decisions and myriad others that crop up at every stage of writing a book. Each had their own tasks, expertise and opinions, requiring regular consultation and compromise.

The maximum possible size for a book in the series was 512 pages; a limit imposed by the inability of the binding to hold more pages together. This limit immediately required major decisions on what to include. The ROM field guide series is for Ontario, so the geographic scope was pre-determined. But what about species coverage? Should woody shrubs be included? Non-native, cultivated and/or hybrid species? The latter are often omitted from field guides, but Jim wanted the book to help users identify most any tree seen outdoors in Ontario, many of which are non-native.

Natives of Ontario include 136 tree and 183 shrub species, while addition of named hybrids and naturalized trees, along with cultivated trees and shrubs, would bring the total above 594. With only 512 pages available for the guide, something had to go. One of the first decisions, then, was to drop shrubs—but try to include the many cultivated trees that are seen by urban dwellers. The final list came to 411 tree species.

## EASTERN WHITE PINE *Pinus strobus* L.

To 35 (-60) m tall, 1.5 (-1.8) m dbh / Native

The provincial tree of Ontario, eastern white pine was also one of the original foundations of our economy. With its windswept crown emerging above the general canopy, it is also one of the most recognizable trees of central and southern Ontario, both in the field and in landscape painting.

**EVERGREEN TREE** with a deep, asymmetrically cylindrical crown of outstretched thin branches, gently upwardly angled to nearly horizontal in well-separated annual tiers. Shoots of two kinds: short-lived, dwarfed **spur shoots** with bundled tufts of green needle leaves which are inserted in the axils of papery, brown scale leaves on the long shoots; and **long shoots** becoming the woody framework of branches.

**Needles** mostly 5–10 cm long, in bundles of 5, straight, soft and flexible; **bundles** radiating all around the twigs; **colour** yellowish-green to bluish-green; **stomates** in lines only on the 2 inner (flat) faces; **needle bundles** initially surrounded at their bases by a **sheath** of papery scale leaves that curl back and are shed as needles mature; **bundle longevity** short, needles turning yellow and falling in the autumn of their 2nd or 3rd year.

**Pollen and seed cones** emerging separately with the new growth. **Pollen cones** 5–15 mm long, straw-coloured in a dense band at the base of the long shoot. **Seed cones** mostly 8–20 cm long, near the tips of the long shoots; **colour** green before maturity; **cone maturation** in 2 years; **mature cones** falling the following spring; **seed scales** with a thin tip (unlike red, jack, and other hard pines); **seed body** 5–9 mm long; **seed wing** about 2 cm long; **seed cone stalk** 2–4.5 cm long.

**Bark** greyish-brown to blackish-brown, sometimes reddish-brown in the furrows between the elongate blocks that make up interrupted ridges. **Twigs** pale reddish-brown, hairless; **surface** smooth between the needle bundles; **buds** mostly 4–8 mm long, slender, sharp, not very resinous.

**HABITAT:** Very adaptable, surviving to thriving on sites ranging from dry, sandy soils to rocks to elevated spots on the pure organic peat of bogs, but growing best and becoming a supercanopy emergent on loamy soils in between these two extremes. It is also commonly cultivated for ornament and for forestry (zones 3–7).

**NOTES:** Eastern white pine reaches its best development in, and is one of the characteristic species of, the mixed forest region. It is an important timber species, the tallest tree in Ontario, and one of our longest-lived forest trees, at over 400 years.



mature tree form



emerging short & long shoots



5-needle bundles



pollen cones



immature seed cones



bark



mature seed cones

That is still too many species for full coverage, so the next series of decisions led to a hierarchy of treatment. Primary species (and occasionally a family) would get 2-page spreads, as in the example above, with text and map at left, and with 8 slots for a variety of photos on the right.

Text for related but less prominent species might follow a primary accounts, with two species sharing a spread (4 photos each). The text for these species would be limited to differences from the primary species. These pages might also refer to an appendix that simply lists additional related species, each with mini-text comparing to the primary species, but with no photos.

Finally, three additional appendices were added, that simply list species found in Ontario, with no description. One appendix covers very rare introduced species, a second lists named hybrids, and a third names (mostly) native shrubs that may occasionally grow tall enough to be taken for trees.

Another big decision was how to organize the species presentation. Some beginner guides group species by shape or other prominent feature, or list alphabetically by common names. More commonly things are organized taxonomically, as in this book. However, the taxonomic order here follows DNA-based phylogenetic groupings of families, which offers a few surprises compared to traditional arrangements of angiosperms.

The page spread shown above illustrates some of the hundreds of additional decisions that had to be made in preparing the book. How much introduction or additional interesting facts (at top and bottom of account) should/could be included? Sequence of paragraphs? Which words should appear in bold? How exact should measurements be? One decision, for example, was on how to describe leaf shape, which can vary widely on the same plant and for which there are myriad technical terms. The solution chosen was to give the ratio of length to width, and to indicate the position along the length of the leaf that is widest, while a photo would illustrate typical edge shapes.

Jim closed his talk describing features of “a few trees that astonish me.”



- Ginkoes have seeds that are not fertilized until their fruits drop – by motile sperm produced by separate male trees. This is the system used by cycads.

- Seed cones and pollen cones of conifers are not homologous (i.e., they develop from different structures). Seed cones are essentially condensed terminal shoots, with each scale representing a former axil. Needle bundles develop from axils, and have scale leaves at the base – indicating that they are dwarf ‘shoots,’ and pollen cones are morphological equivalents of needle fascicles.

- The red cup-like ‘berries’ of yew trees are the equivalent of seed scales in ordinary conifers.



- A few leguminous trees feature ‘cauliflory,’ in which flowers grow right from old wood. Redbud is an example. And black locust spines are made up of fused stipules at the base of leaves, differing from ‘thorns,’ which botanically speaking are derived from shoots.

- Most trees have rough bark, derived from splitting of the outer tissue layers by swelling of inner tissue. Some species have smooth bark, however, and there the bark of aspens even does some photosynthesis.

- Cypress ‘knees’ serve as breathing apparatus for these trees, allowing them to grow in stagnant swamps.



Jim closed with data from Amazon showing three days after the book came out, it was ranked #76 in sales, #1 in the category for ‘trees,’ #1 in ‘tree ecology’ – and, #29 in ‘literature and fiction for children (books)! The latter is evidence of the inner workings of Amazon, which tends to bundle items sold to the same customer. The rankings have of course dropped off since, and Jim does not expect his book to do as well as White and Hosie’s “The Forest Trees of Ontario” (first published in 1925 and which has sold over 140,000 copies). He is nonetheless pleased with the reception.

### Questions following the presentation:

Q: Was the text tested out on naïve users?

A: Yes, though mainly by friends and relatives. Nothing like market research on a target audience

Q: How was the book financed?

A: By ROM, as this was part of their series. Most photos were donated—and otherwise would have cost c \$60 each for permission to use. Authors networked to seek photos, or to travel to places where they learned they could take a coveted view themselves.

Q: Does the introduction clearly differentiate native vs. non-native species? And as a follow-up, have you seen trends in the abundance of any tree species?

A: Yes, as to native vs. non-native. He has no information on abundance trends.

Q: White (first author of ‘The Trees of Ontario’) planted White Pines in Muskoka, but very little is known about him. Does Jim have any info?

A: No.

Q. Question about records of Cherry Birch in Ontario

A. Noted by Riley that this is a hardy tree that does fine in ON, but is non-native.

The northern limits of trees in Ontario have less to do with climate and more to do with soil types and condition, along with glacial history.

The speaker was thanked by Nancy Dengler.

### OBSERVATIONS

Riley noted that Trumpeter Swans have are now to be found in Mono.

Miller noted that one species not covered in Jim’s tree book is the Gray Alder (*incana* form of Speckled Alder (*Alnus rugosa*), which is native to Canada.

Meeting adjourned at 9:15 p.m.