



**Fredericton Botanic Garden
Association Newsletter**

**Bulletin du Jardin botanique
de Fredericton**

Vol 28 No 3 & 4

Fall 2016

My column this time is personal.

Some 28 years ago I attended my first meeting with a small group of 'plant people', led by Hal Hinds, which was exploring the establishment of a botanic garden in Fredericton. That was followed in the fall of 1989 by the establishment of the Fredericton Botanic Garden Association. Shortly afterwards the Botanic Garden site was identified on the west side of Odell Park, the formal agreement was reached with the City of Fredericton and a partnership with the City was established to oversee and manage the Botanic Garden.

My involvement has continued in various capacities - including as a board member, as president and as chair of the site development committee - to this day.

Together we have come a long way from a site that in 1989 was so over grown with alders that it was impossible to walk through. Not too long ago I talked with a frequent visitor to the Garden who enjoyed his walks and the surroundings and was impressed with the progress made. Others are frustrated that more has not been accomplished.

I have enjoyed the privilege of working with the many volunteers who share the dream of the Botanic Garden, with Graham Allen our office administrator, with colleagues at City Hall including those in Parks and Trees, and with our supporters in the horticultural industry. Thank you to all of you who have worked with me and supported me.

Now, however, I am stepping back from the Garden as my wife and I are moving to St. Andrews in December - a move we have been looking forward to for several years. I resigned from the position of president at the November meeting of the board but shall continue as a member of the board until the February 2017 annual meeting. I shall continue to support and encourage the growth of the Botanic Garden.

Talks in the Garden

*Swimming In Produce:
How Aquaponics
Can Benefit You Year-Around*

Speaker Shane Noel

Thursday, November 17, 2016, 7:00 pm
Fredericton Botanic Garden Resource Centre,
10 Cameron Court

Workshop

Festive Art: Decorating Christmas Wreaths
Monday, November 28, 2016, 6:30 p.m.

Location: Scott's Nursery,
2192 Route 102, Lincoln, NB

Cost: \$40

Please register in advance by email:

fbga@nb.aibn.com

Vice-president Jim Goltz will continue until the annual meeting so the organization is in excellent hands. It is, however, a time for renewal as there are several board vacancies. As I leave my wish is that all of our members will look at how they can best help the Botanic Garden - volunteering on the board or a committee, making a donation, promoting the Botanic Garden with your friends and neighbours. Please consider stepping up now. The Fredericton Botanic Garden needs you to help us keep moving the dream forward.

Richard Tarn



Science in the Garden

There's Fungus Among Us

By Steve Heard (Professor, Biology, UNB).

September has arrived, and that brings fresh pleasures to a walk in our Garden: fall-blooming asters and goldenrods, the first tinges of fall colour in the trees, and (less obviously) fungi. While you can see mushrooms and their fungal relatives almost any time of year, the fall is their peak season. If you train your eye just a little, you can see an amazing diversity of forms, and beauty to rival anything the plant kingdom has to offer.



Yellow fly agaric, Amanita muscaria,
Bernie Kohl via [wikimedia.org](https://www.wikimedia.org)

Fungi were once considered kin to plants, and are still often taught in “botany” courses, but we now understand that they’re really more closely related to us (and the other animals). That longstanding mistake was understandable, as in many ways fungi are *ecologically* rather plant-like. For example, they’re immobile except for spores dispersed by wind, rain, or insects, and they depend on a vaguely root-like network of resource-gathering filaments in the soil (or other substrate). You can see, at least, how we were led astray.

Those resource-gathering filaments, or “hyphae”, are the part of the fungus you don’t see, but they completely change your view of what a fungus *is*. The mushroom that catches your eye is just the very tip of the iceberg – a reproductive structure thrust up above-

ground (or projecting from some other substrate) to disperse the spores. The bulk of the fungus, and the longer-lived part, is its hyphal network, which harvests resources to support the whole fungal body. That “whole fungal body”, by the way, can be immense: a single genetic individual of the honey-mushroom fungus, in Oregon, is 2400 years old, nearly 4 km across, and likely weighs hundreds of tons. Its many thousands of spore-bearing mushrooms are interconnected by a system of hyphae that, if disentangled, could easily circle the globe.



Chicken-of-the-woods, Laetiporus sulphureus,
Gargoyle888 via [wikimedia.org](https://www.wikimedia.org), CC BY 3.0;

Most of our familiar fungi make a living in one of two ways, and our world would be unrecognizable without either group. First are the decomposers, like the chicken-of-the-woods above. These colonize dead (or dying) wood, and decomposer fungi are almost the only organisms on Earth capable of digesting the main components of woody tissue: cellulose and lignin. Without these fungi, we could never take a walk in the woods – because the accumulated woody debris would choke the forest floor. Those woods wouldn’t exist at all, though, without the other group: the plant-symbiotic “mycorrhizal” fungi. The mycorrhizal fungi, like the yellow fly agaric at the top of this article, wrap their hyphae around and into the roots of nearly all plants. (There are two major groups: one makes visible mushrooms, associates primarily with trees and shrubs, and is by far the most diverse; the other is cryptic, associates primarily with herbaceous plants, and is much less diverse but equally important.) The fungus, through its hyphal network, gathers soil nutri-



ents and passes them to the plant, while the plant ships as much as a third of its photosynthetic sugar to the fungus in exchange. Without this partnership, it's doubtful if plants could have colonized dry land at all, let alone have covered our planet in its beautiful cloak of green.

I did say *most* of our fungi are either decomposers or mycorrhizal. Two more groups bear mention (although they don't exhaust the list of fungal lifestyles). You know one: the lichens – or rather, *half* of each lichen. Lichens are symbiotic associations of fungi with algae or with photosynthetic bacteria. The fungal partner provides its algal partner with nutrients and shelter, and receives sugars in return. Although it turns out, it's more complicated than that. Just this year we've discovered that many if not most lichens involve *two* fungi, not one – and we don't yet know what role the second fungus plays. But I've saved the best for last, with a fungal lifestyle you may *not* know. The fungus below is one of thousands of species of *Cordyceps*, which grow as parasites on insects (here, an unfortunate fly). The fungus begins growth as a few hyphae inside the living insect. It eventually fruits and kills its host (the yellow bristle-like structures around the fly are the fruiting structures, tipped with spores). First, though, many *Cordyceps* species alter their host's behaviour, steering the doomed insect to high ground – all the better for dispersal of its wind-carried spores.



Parasitic Cordyceps on fly,
Moisés Silva Lima via [flickr.com](https://www.flickr.com/photos/moisessilvalima/), CC BY 2.0

You can see all of these fungal groups – and many species of each – in a walk through our Garden. So

yes, we have lovely plants in our woods and in our planting beds; but don't miss the fungal action without which neither could exist. And be impressed (if you aren't just a tiny bit creeped out) by evolution's ingenuity: from mammoth, thousand-year-old decomposers to horse-trading symbiotic partners to tiny brain-controlling parasites. Fungi do all that, and more.

Talks in the Garden

**Swimming In Produce:
How Aquaponics Can Benefit You Year-Around
Thursday, November 17, 2016, 7:00 pm**

Speaker: **Shane Noel**

**Fredericton Botanic Garden Resource Centre,
10 Cameron Court**

When is gardening season over? That's for the aquaponic farmer to decide! Come on down for an introduction to small-scale compact aquaponic gardening by Shane Noel. Shane has been doing hydroponics for 4 years, and likes it because of its simplicity and lack of maintenance, and the ability to grow a variety of crops all year round without the confines of the cold outdoor climate or lack of space. Adopt and adapt aquaponics to enrich your life and home.

***Festive Art: Decorating Christmas Wreaths*
Monday November 28, 2016, 6:30 pm**

Location: **Scott's Nursery, 2192 Route 102, Lincoln**

Cost: **\$40**

Please register in advance by email:
fbga@nb.aibn.com

Holidays are filled with traditions that are passed on from generation to generation. This two hour workshop will enable you to express your own artistic flare through decorating a wreath for Christmas and will help you develop skills so you can continue this tradition in future years. The finished product will make a beautiful decoration for your home or be a perfect homemade gift for someone you care for.



News from the Membership Committee

A Botanic Garden is a place of enjoyment, providing education, research opportunities, public displays, plant conservation, sustainable use, tourism and recreational activities.

Members of the Fredericton Botanic Garden contribute to the ongoing development of this protected natural urban area for the benefit of residents and visitors in all seasons.

The Membership Committee has committed to encouraging present members to renew and to grow our membership base. Increased membership means more funds to develop the various garden areas.

The privileges of membership include: Quarterly Newsletters, "Talks in the Garden" and workshops, 10% discount at participating garden centres, access to the Garden Resource Centre, and an opportunity to work with other avid gardeners to create a place of lasting natural beauty.

With Christmas approaching, you can purchase a gift membership for individuals and families on your shopping list. Your gift will be doubly appreciated when savings are realized on garden supplies.

The application form is included in this newsletter. You can also register online at:

frederictonbotanicgarden.com.



Join the Fredericton Botanic Garden group page on Facebook to see announcements of events, pictures of the Garden and watch for our upcoming contest.

Volunteer Appreciation Evening

The Fredericton Botanic Garden Association Board would like to invite you to an appreciation evening for our many volunteers.

Come kick off the Christmas season on November 30 at the Odell Park Lodge. The celebration begins at 7:00 pm with treats and cider for everyone.

Please come and help us to say thank you to the many individuals who helped us throughout the year.

Hope to see you there!

The Fredericton Botanic Garden Association Newsletter is published four times a year by the Fredericton Botanic Garden Association, Inc. The FBGA is a registered charitable organization for tax purposes.

The objectives of the FBGA are to guide the establishment of the Fredericton Botanic Garden and to foster an awareness and appreciation of plants.

To obtain information on membership and to become involved in FBGA activities please contact us: **506-452-9269 PO Box 57, Stn. A, Fredericton, NB E3B 4Y2 or fbga@nb.aibn.com Web: www.frederictonbotanicgarden.com**

***Fredericton Botanic Garden Association
Board of Directors***

***Vice-President - Jim Goltz Treasurer - Stephen Heard
Past President - Wendy Bourque Joel Richardson
Marg Routledge Richard Tarn John Welling***



Jardin botanique de Fredericton Botanic Garden

- Yes. I would like to become a member/ renew my membership with the Fredericton Botanic Garden Association

| <u>Membership type</u> | <u>1 Year</u> | <u>2 Years</u> | Amount |
|------------------------|---------------|----------------|---------|
| Individual/Regular | \$20 | \$40 | |
| Family | \$35 | \$70 | |
| Student/Senior | \$15 | \$30 | |
| | | | \$_____ |

Your information *Required

*First name: _____ *Last name: _____

*Address: _____ * Suite/Apt: _____

*City: _____ *Province: _____ *Postal code: _____

* Home phone: _____

Email: _____ Yes! I would like to receive the Newsletter by email.

- Yes. I would like to give a gift membership. Please complete the information above so we can tell the recipient who has gifted the membership.

| <u>Membership type</u> | <u>1 Year</u> | <u>2 Years</u> | |
|------------------------|---------------|----------------|---------|
| Individual/Regular | \$20 | \$40 | |
| Family | \$35 | \$70 | |
| Student/Senior | \$15 | \$30 | |
| | | | \$_____ |

Please send my gift membership to:

*First name: _____ *Last name: _____

*Address: _____ * Suite/Apt: _____

*City: _____ *Province: _____ *Postal code: _____

* Home phone: _____

Email: _____

- Yes. I would like to make a donation to the Fredericton Botanic Garden Association.

\$50 \$100 \$200 Other \$ _____ \$ _____

Charitable receipt required? Yes No

Date: _____ Cheque enclosed for \$ _____ total amount

Mail to: Fredericton Botanic Garden Association, PO Box 57, Stn. A, Fredericton, NB E3B 4Y2

