



**Fredericton Botanic Garden  
Association Newsletter**

**Bulletin du Jardin Botanique  
de Fredericton**

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Fall 2015

The Botanic Garden has looked great through the wide variety of weather we experienced this season. The late season plants are in bloom and in the perennial beds below the Entrance Garden the grasses are at their best. I hope you are able to take the time to enjoy the Garden during the fall. Thanks go to the City staff, particularly to Nicole Armstrong, and to our summer student Charli LeBlanc, for keeping everything neat and tidy during the summer.

In our May Newsletter we told you about the public sculpture coming to the Garden. The sculpture is of a large rhododendron bud and is being created by Hampton artist James Boyd. It is expected to be installed in early October. Watch our Facebook page and website for an announcement. This project is possible through a grant from the Sheila Hugh McKay Foundation which was topped up by the City.

Since the last Newsletter we have held our Spring Fair, Plant Sale and Raffle and our Treasured Garden Tour. Reports of both are included elsewhere in this Newsletter. An event to recognize the contribution of our volunteers is being planned for early October: watch for your invitation.

The TGT was a particular success and I would like to acknowledge the efforts of board member James Whitehead for bringing this about. James re-launched the TGT two years ago after a gap of several years. He added artists to the five gardens and an art auction and made it a profitable venture. James resigned from the board this summer since he has moved to St. Andrews and we thank him for all of his contributions while he was on the board. Joining the board is Marg Routledge. Marg has a very long association with the Garden and her late husband was a founding member. We welcome her to an active role in our Association.

An interesting program of Talks and other events for the remainder of this year has been developed by Jim

**Talks and Workshops in the Garden**

Talks are at 7:00 p.m. except where noted and are at the Resource Centre, 10 Cameron Ct.

Thursday September 17

*Acadian Forest: Our Green Heritage*

**Note: This event will start at 6:30 p.m. to allow for an interpretive walk prior to the talk**

Speaker Geoffrey Ritchie

Thursday October 15

*Garlic for New Brunswick Gardeners*

Speaker George Peabody

Thursday November 19

*Hostas "Rock"*

Speaker Liz and Ken Whamond

Sunday November 22

*Festive Decorations: Workshop on how to decorate your own Christmas wreath*

(1:30 to 3:30 p.m) Cost of materials \$30

Preregistration required by Friday November 13

Workshop leader: Mary Pugh

Goltz and Peter Gorham; the program is listed in the above panel.

Your board has a busy agenda over the next few months and welcomes the involvement of members in various areas, including membership development and fundraising. The skills and experience within our membership can help us move forward in building the Botanic Garden. If you are interested in contributing please contact me directly at [rtarn@nbnet.nb.ca](mailto:rtarn@nbnet.nb.ca) or call me at 450-8885.

Richard Tarn  
Chair, Board of Directors.





Soil is one of the most diverse habitats on earth and contains thousands of different organisms, which interact and contribute to the global cycles that make all life possible

To increase awareness and understanding of the importance of soil for food security and essential ecosystem functions the United Nations has declared 2015 the International Year of Soils.

There are six key messages:

Healthy soils are the basis for healthy food production.

Soils are the foundation for vegetation which is cultivated or managed for feed, fibre, fuel and medicinal products.

Soils support our planet's biodiversity and they host a quarter of the total.

Soils help to combat and adapt to climate change by playing a key role in the carbon cycle.

Soils store and filter water, improving our resilience to floods and droughts.

Soil is a non-renewable resource; its preservation is essential for food security and our sustainable future.

As our contribution to the International Year of Soils we are pleased to present the following article from Zachary Sylvain, postdoctoral fellow and soil ecologist, Canadian Forest Service.

## Letting Soils do the Work

Autumn is approaching, and that means the slow wind-down of gardens and the start of planning next year's plantings. During this process, it's worth keeping in mind the things we can let the garden environment do for us that minimize how much we have to do later on; by using different approaches to finish our garden beds this autumn and prepare them next spring we can make the most of the efforts of the microscopic animals and microbial life in our soil.

Throughout the growing season, bacteria and fungi in our soil tirelessly work to break down organic material and convert it into available forms of nutrients that plants can take up and use for their own growth and development. Not all organic material is created equally, though, and different types of organic matter will favor different types of bacteria or fungi, which in turn will influence how readily available nutrients are to plants. These factors are also affected by the degree to which we disturb the soil.

Organic matter generally falls into two camps for gardens: rich, easily broken-down material (like manure or compost) and woodier, more complex material (like mulch). Both types help to make the soil more favorable for plants by increasing the amount of water held near the surface and decreasing the density of the soil, which helps root growth. Richer material tends to break down more rapidly by bacteria, providing more rapid releases of nitrogen, phosphorus and other nutrients, while mulch is largely dependent upon slower fungal decomposition and releases nutrients more slowly and over time.

Both types of decomposition and organic matter addition have their benefits and drawbacks. Bacteria are most useful when rapid nutrient addition is desired (to avoid having to frequently add fertilizer) and when the soil will be frequently mixed to inhibit weed growth, however research has suggested that soils heavily dependent on bacterial decomposition also tend to leak nutrients out of the soil as water moves from the surface down into the deeper layers. In contrast, fungi are most useful to gradually incorporate organic material into the soil more broadly—they're able to break down woody material but require time left alone without mixing the soil (this damages their delicate cellular hyphal networks). Because nutrients are locked up in these hyphae, they take much longer to become available to roots growing in the soil but are also less easily lost from leaching into soil water and out of the garden.

So in the fall when the last of the plants have bloomed and vegetable production is winding down, think about the next gardening season. Add mulch to the soil and keep it moist and warm so that fungi can start turning it into next year's plant food. In the spring, feed the bacteria with lawn clippings and compost. Let the soil organisms do more of the work so that you can take more time to enjoy the fruits of the garden.

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**

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## Science in the Garden

### The Garden of Insects

By Steve Heard, Professor, Biology, UNB

I went for a walk in the Garden last week, and it was lovely to see the colours on display – nature in all shapes and sizes, with another species offering a different look everywhere I turned. I'm not talking about the flowers – although those were nice too. I'm talking about our Garden of Insects.

The Garden of Insects isn't a signed attraction. It's not something we built, or even intended. It's just the way nature is: insects are everywhere. That's not a bad thing: insects are beautiful, and important, and fascinating. (OK, perhaps most of us could agree that mosquitoes aren't our favourite neighbours on the planet, but close up even they are surprisingly beautiful). In the Garden on any given day you might see a brilliantly-coloured butterfly flitting across a bed, a striped and industrious bumblebee pushing deep into a flower in search of pollen, or a busy team of ants tending the planthoppers they farm.



Ants tending planthoppers on a goldenrod stem (Julia Mlynarek)

You might see ladybeetles hunting aphids on the leaves of your favourite plant – while aphid mothers, incredibly, give birth to aphid babies already swollen with their aphid grandbabies. You might see the tunnels left by leafmining fly larvae chewing their way through just the middle layers of a leaf – tunnels that grow wider as the larvae grow, as if you spent your childhood burrowing through the white filling of a giant Oreo cookie, eating as you went.

You might think I was making this stuff up, but I'm not. Any way you can possibly imagine of making a living – and many ways you probably can't – has been taken up by some insect, somewhere. This is partly because of evolution's power to solve problems in unexpected ways. It's also partly because insects are so astonishingly diverse.

I'm not sure how many plant species there are in the Garden – perhaps a few hundred, counting both planted and wild species. (New Brunswick has about 2000 plant species; worldwide, the figure is about 250,000). The Garden has a handful of amphibians and reptiles, perhaps a dozen mammals, and several dozen bird species. But insects? It's hard even to guess. If my back was to the wall, I might say 1,200 insect species in the Garden, perhaps 20,000 for New Brunswick; but I wouldn't be at all surprised if the real numbers were double that.

Actually, that might be the most surprising thing about insects: that we don't know, even to a rough approximation, how many species we share our planet with. About a million different species of insects have been identified by scientists worldwide, but estimates of how many remain to be discovered run the gamut from another 2 million to, believe it or not, 300 million! And while many of the undiscovered marvels are waiting for us in the depths of unexplored rainforests, there are sure to be species new to science here at home – even in the Garden. Work in my own laboratory, for example, recently showed that flies emerging from the mines pictured below belong not to one species (*Ophiomyia quinta*) but two (*O. quinta* and a species not yet named). That's a small advance, granted; but DNA sequencing we're doing now may reveal a few more new species or dozens, and that's just among leafminers attacking a few species of goldenrods and asters.

So on your next trip to the Garden, by all means enjoy the flowers. But don't stop there. With a little bit closer look there's a lot more to see, with an insect story on every flower, behind (or inside) every leaf, and under every log. Take advantage of our Garden of Insects!



Evidence of the leafmining fly *Ophiomyia* on goldenrod (Julia Mlynarek)



## Treasured Garden Tour

By James Whitehead, TGT Committee Chair.

From many different standpoints, the 2015 Treasured Garden Tour was a huge success. This was partly due to the five garden hosts who let their gardens carry forward from last year, following the cancellation due to post-tropical storm Arthur. These included Wayne Burley and Suzanne Bonnell-Burley, Craig and Linda Glassford, Judi Day, Peter Gorham and Raymond Daigle, and Patrick Clarke. Also to be thanked are all who attended. The attendance was far more than we anticipated, and reached a record 301 (compared to 197 in 2013). At one point we had to stop online ticket purchases since we were worried there would be insufficient food at the Garden Party.

The wonderful weather created a perfect scene for artists to paint in the gardens, including Sharon Dugas, Linda Rae Burke, Roberte Melanson and Peggy Holt, while guitarists John Dancey and Steven Peacock provided musical backdrops to augment the summer scenes. Other artists also donated art to an auction that started at the Garden party, including Kris Leblanc, William Forrestal, Peter Gorham, Helen Jones, Norman Richard, Christine Craig, James Whitehead, Dawn Dencourcey and Katy Fitzrandolph. Ultimately 31 pieces of work were available for purchase.

The Treasured Garden Tour event raised \$4286 after expenses. There were donations and memberships that added another \$150, and the art auction added another \$980 in pledges. The grand sum from these events is \$5416. Thanks to all the volunteers who made this possible, especially Wendy Bourque, Peter Gorham and Valerie Hillier who really went above and beyond.

I will not be Chairing this committee next year as I have moved to St Andrews. The committee will thus be looking for some new energy. Please consider volunteering to this worthwhile event while it has such great momentum.

## Spring Fair and Plant Sale

By Richard Tarn

The second annual Spring Fair and Plant Sale was held at the Entrance Garden on Sunday, May 31, under cloudy skies, an occasional shower and mosquitoes. This did not deter the nearly 600 visitors from enjoying the occasion. There was our usual great variety of plants, including our exclusive feature perennials and heirloom tomatoes, and a mix of additional displays and vendors.

Information was provided by displays from the Nature Trust of NB and NB Community Harvest Gardens, while

Fredericton City Chickens demonstrated an urban hen house. Fredericton's craft meadery, Sunset Heights Meadery, had mead for sale and offered samples. Children were enthralled by the giant bubbles created by the Big Bubble Guy, John Williamson, and collected their free plants from the childrens' display. Well known craftspeople Helen Stanley, Jim Brown and Sadie Gagner offered their pottery, metalwork and canvas products, respectively. Entertainment was provided by Michelle Daigle and Don Rigley. Mitch Bourque again managed the BBQ.

The Raffle was well run by Peter Gorham and Roberte Melanson. The prizes, a copper fountain hand made by Mitch Bourque, a BBQ and a hypertufa planter made and planted by Brian Parker.

The Plant Sale and Raffle are our signature events and succeed only through the participation of a large number of our members. Again the support of all volunteers, including the planning committee of Brian Parker, Graham Allen, James Whitehead, John Welling, Mitch Bourque, Peter Gorham, Richard Tarn, Roberte Melanson and Wendy Bourque, is greatly appreciated. Revenue from the Sale and Raffle has been declining for almost ten years and that continued this year with the Plant Sale netting only about \$2330 and the Raffle \$1530 for a total of about \$3860. The board will conduct a careful review of the Fair, Sale and Raffle before initiating plans for 2016.

The FBGA thanks the following donors for their support:

Gerard Sirois	Lee Valley Tools Ltd
John Williamson	The Home Depot
(The Big Bubble Guy)	Botanicals Gift Shop, Studio
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Garden Centre	Canadian Forest Service
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Scott's Nursery	Topsail Canvas
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