



# OMPHALINA

ISSN 1925-858

## FORAY 2013 REPORT



*Newsletter of*



Vol. IV, No 10  
Nov. 30, 2013



# FORAY NEWFOUNDLAND AND LABRADOR

*is an amateur, volunteer-run, community, not-for-profit organization with a mission to organize enjoyable and informative amateur mushroom forays in Newfoundland and Labrador and disseminate the knowledge gained.*

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*Please address comments, complaints and contributions to the largely self-appointed Editor, Andrus Voitk:*

*seened AT gmail DOT com,*

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**COVER:** *Neither a mushroom nor a lichen.*

*Photo by TA Loeffler.*

*Another shot featuring the red roofed church.*

*Crisp lines of houses, sheds, wharves and slipways.  
Barren ground, coastal heaths, and water, always  
water.*

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# Message from the Editor

Greetings!

We are happy to bring to you the long awaited Foray Report issue. We had our Foray in September, and with our recent dustings of snow edging us towards winter, it already seems so very long ago.

We had a wonderful time on Fogo Island. The Shorefast Foundation's help in securing accommodations and locales for hosting the Foray was invaluable. The reception at the Fogo Inn was enjoyed by all. The food was simply delicious.

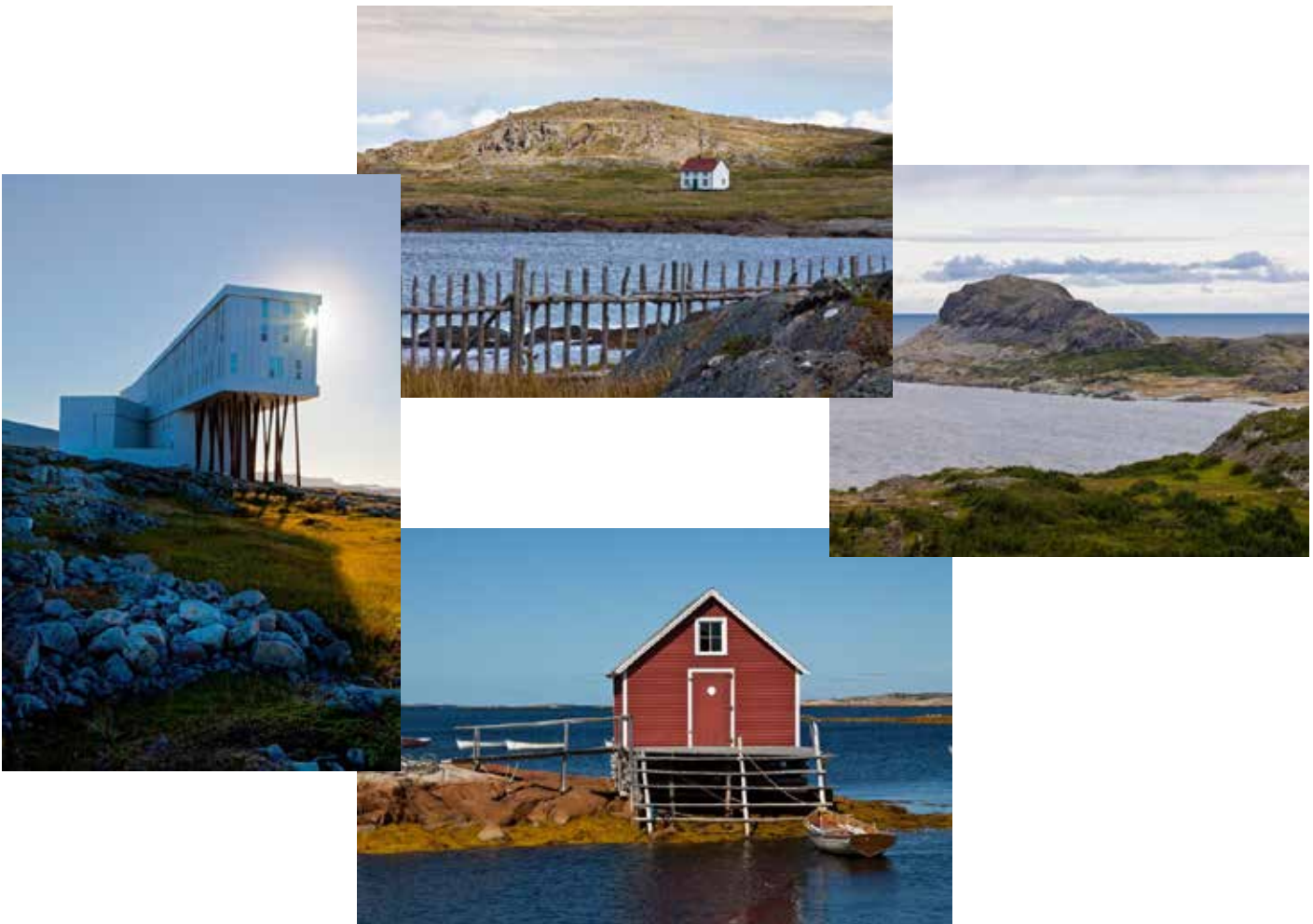
The people is what makes a Foray successful, and so we would like to thank you all; faculty, participants, board members, cooks, dishwashers, data base team members, photographers, workshop leaders, and trail

leaders, all of you who contributed. Thank you!

We would usually include some words from the president in our Foray report issue, but since he is enjoying a wonderful vacation in Peru, and this issue needs to get out the door, we thought we would let him of the hook.

Here is to Fogo!  
Cheers!

Marian Wissink



Photos: Jim Cornish

# *Words from the President*



*Photos: Maria Voitk*

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Esteri Ohenoja  
André Paul  
Michele Piercey-Normore  
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Photos: Maria Voitk



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Harry Sheppard



# XYLARIA HYPOXYLON



This is a cool mushroom for many reasons. You no doubt remember fondly the *Omphalina* article describing 12 pyrenomycetes you can identify in the field (vol 4, nr 1). Well, this is also a pyrenomycete, and you can add it to your list. There is nothing else quite like it - so confusing it is unlikely. Although a few somewhat similar species exist, they differ macroscopically as well as microscopically.

*X. hypoxylon* is a belt-and-suspenders type of fungus that uses two separate strategies to perpetuate its genetic material, increasing the likelihood of survival of the species, should one system fail. Both systems are visible on our voucher photo. The first thing to strike the eye is the powdery whiteness of its limbs. This is caused by a layer of asexually produced white

spores (conidiospores). They are clones of the parent's genetic material, split off as single "cells". They germinate, grow hyphae, pinch off more spores, and keep the process going, until these hyphae can interact with other hyphae to form an organism capable of sexual reproduction.

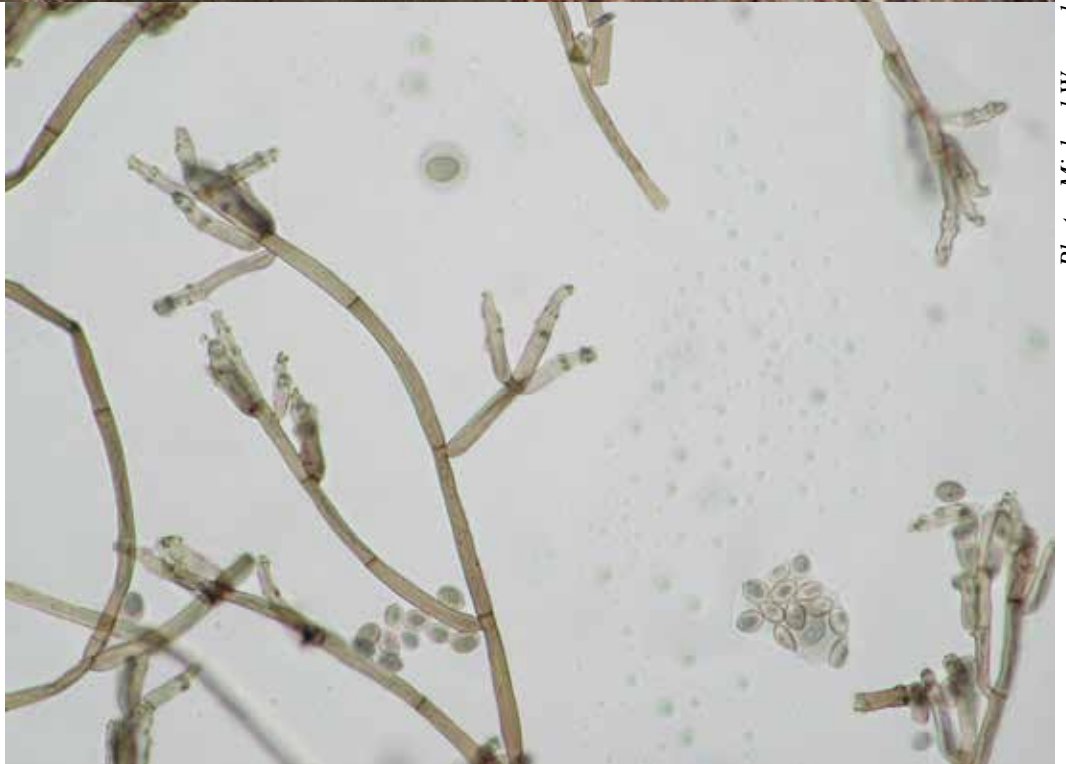
How do these asexual spores keep going, once they have left the parent? For an example, I have pictures of an undetermined *Nodulisporium* species very common in our area. Between March and May you can find it on decorticated fallen alder in the woods around our place. If you blow on the green fuzz, an olive cloud of spores wafts off, seeking other dead alder to continue its sexless existence. Apparently all *Nodulisporium* species are the asexual form (ana-





morph—the sexual form is called a telomorph) of *Xylaria* species. The microscopic picture by Michael Warnock shows the hyphae and their spores. This specimen was kindly identified by Michael Warnock and Tony Wright.

If you look carefully at the picture, you will see some raised black pimple-like structures breaking through the white, particularly on the first and third mushroom. These are the perithecia that send out spores to perpetuate the genetic material in the sexual manner, ie going through exchange of genetic material between two suitable mates. Under higher magnification of this picture it is just possible, with the aid of a bit of imagina-



tion, to make out the small openings (ostia) through which spores are released. Sex or no sex, the species is determined to be preserved, so that in another 11 years we'll find another specimen.

# TWO DELIGHTFUL SURPRISES FROM THE TO-DO PILE

By Andrus Voitk



*Arrhenia peltigerina* on *Peltigera degenii*

Every mycologist has a to-do pile, a pile to the side, where she places things of special interests or things requiring a bit more time to figure out. The intention is to return to these after the major onslaught of specimens from foragers has been processed. As so often happens, specimens just keep on coming, other activities claim their share of available time, and the right time never arrives. Some may take them home to study, sending the dried specimens back with a report later. Others know that once home, the activities of everyday life at home and work will not permit the time required to study collections not studied at the foray, or their take-home pile may already be

overflowing. Hence, it pays to gently waft by the workbenches when the foray winds up, to see what goodies might be there for the picking. This year I was lucky to find two such treasures, things set aside for better times that never arrived.

The first was a small omphalina-like mushroom growing on a lichen, a *Peltigera*, later confirmed to be *P. degenii*. To my knowledge there are only two agarics (cap-and-stem mushrooms) that grow on *Peltigera*. One is *Gamundia leucophylla*, a brown mushroom with a dome-shaped cap, featured on the cover of *Omphalina*, vol 1, no 5. The second

mushroom is the much smaller funnel-shaped *Arrhenia peltigerina*. Macro and microscopic examination fit with that species, allowing us to add this very uncommon member of the omphaloid group to our list as a new species for the province. It grows on dead parts of the lichen, but we do not know whether it is a saprobe, decaying the dead leaves, or a parasite killing them first and eating them later. It is small—Roger’s picture shows caps between 4-6 mm diameter. Keep your eye on FUNGI next spring, because between the covers of that august journal there will be some further learned discussion of our mushrooms associated with alga or lichens.

The other find looked like a tiny *Rickenella*, and was reported to be growing on or with an unidentified liverwort. Again, I am aware of only two agarics growing on liverworts: *Loreleia marchantiae* on *Marchantia* species, and *Blasiphalia pseudogrisella*, exclusively on *Blasia pusilla*. The former is an or-

ange funnel-shaped mushroom, and the latter a small mushroom with a dull olive dome-shaped cap. Our find had a dome-shaped cap with no suggestion of orange. Microscopic features were compatible with *Blasiphalia pseudogrisella*, although the spores were a bit wider than reported by others. Initially I thought that the fatter spores reflected Fogo’s improved fortune since the arrival of the Shorefast Foundation. Well, probably not. Henry Mann examined the liverwort and found it to be a species of *Calypogeia*. This is a leafy liverwort; both *Marchantia* and *Blasia* are thallose liverworts, so we are dealing with a different liverwort, and, hence, a different mushroom, which, unfortunately, will likely go unidentified. What a pity—I was that close!

As you see, it pays to suss out the identification tables for scraps at closing time. You may find some of the best morsels set aside, a pleasure to figure out, even if you cannot succeed with them all.



*Blasiphalia pseudogrisella*, one of the small omphalinoids that grows on liverworts. In this case the host is *Blasia pusilla*, a thallose liverwort. *Blasia pusilla* is widespread, but the mushroom is found on the host in wet sandy locations in northern latitudes. Because of where they live, very few readers are likely to see one. This picture was taken in Labrador, north of the 56th parallel, lying flat on a sandbar, while a companion stood on bear guard with a loaded rifle.

# GYMNOSPORANGIUM CLAVIPES ON FOGO

By Henry Mann



Figure 1

*Omphalina* 2012, Vol. III, No. 10 featured several articles on the four known species of *Gymnosporangium* rusts occurring in Newfoundland, with numerous photographs. One of the species, *G. clavipes*, was only seen on the fruits of Chuckley Pears (*Amelanchier* spp.) in the province. Recently (September 8, 2013) fusiform aecial galls were also observed on the branches of *Amelanchier bartramiana* on Fogo Island (Fig. 1).

*G. clavipes* is one of the most common species in eastern Canada wherever its alternate hosts, *Juniperus horizontalis* and *J. communis*, occur, although few records exist for Newfoundland. It forms fusiform swellings (galls) on the twigs and needles of the junipers producing orange gelatinous telia. On the Chuckley Pear host it forms swellings on fruits and less often twigs producing aecia and aeciopores. In its aecial stage it is usually easily recognized by bright orange globular spores about 35 – 40 µm in diameter. At 400x with a compound microscope, spores have a thick clear pale yellow wall that is coarsely warty (verrucose-rugose) (Fig. 2). The aecia

consist of an outer ring of white spreading thread-like strands (peridia) (Fig. 3). At the microscopic 400x level, the individual peridial cells also have a characteristic warty (verrucose-rugose) cell wall sculpturing (Fig. 4).

Included photographs are all from the Fogo stem gall on *Amelanchier*. For other stage photos consult the above cited issue of *Omphalina*.



Figure 2



*Figure 3*



*Figure 4*

# Foray Fotos



Photos: TA Loeffler

Photo: Maria Voitk

Photo: Marian Wissink



Photos: Maria Voitk

Photo: Maria Voitk



Photos: TA Loeffler



Photos: Maria Voitk

Photo: David McConkey

Photo: TA Loeffler





Photos: TA Loeffler



Photos: TA Loeffler



Photos: TA Loeffler

Photos: TA Loeffler



Photo: Michael Burzynski

# Public Display

By Greg Thorn

The Display Tables were opened to the public Sunday 2-4PM, with invitations announced over the local public network on radio and TV. Chris Deduke and Greg Thorn stayed in the lab to welcome the public, interpret the display, and answer questions. Seven adults and children from the community attended. All were amazed by the diversity of mush-

rooms found on their islands. Several were very interested to see the pine mushrooms, with a view to finding some to sell to the Inn, and others wanted to see the magic mushrooms, curious to see what some young people were picking on their lawns.



Photo: Michael Burzynski

# Program

FRI Sep 6

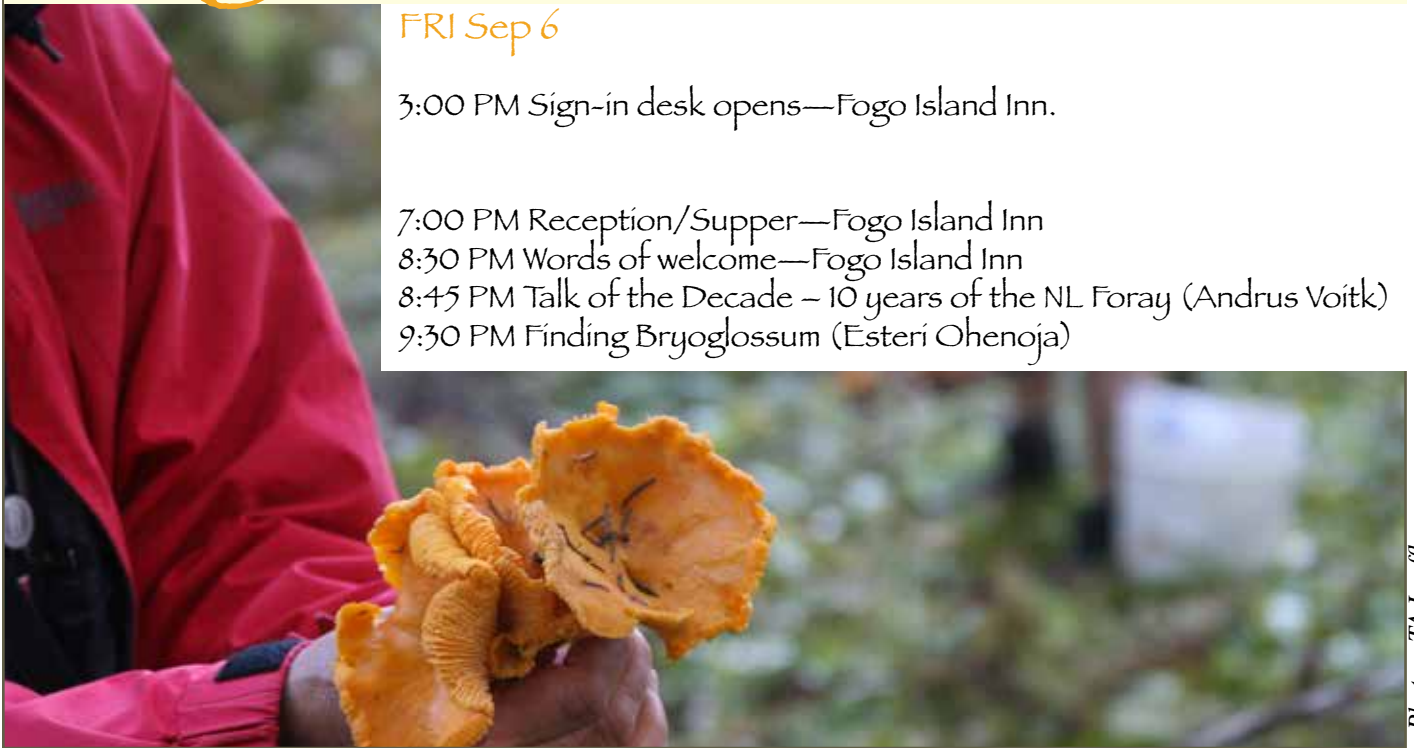
3:00 PM Sign-in desk opens—Fogo Island Inn.

7:00 PM Reception/Supper—Fogo Island Inn

8:30 PM Words of welcome—Fogo Island Inn

8:45 PM Talk of the Decade – 10 years of the NL Foray (Andrus Voitk)

9:30 PM Finding Bryoglossum (Esteri Ohenoja)



Photos: TA Loeffler

SAT Sep 7

8:00 AM Breakfast

9:00 AM Forays—various trails

12:00 NOON Identifiers & DBT members return to start identification

1:00 PM Lunch—on the trail

4:00 Return, sort mushrooms

6:00 PM Quidi Vidi QuuQup

7:30 PM Short talk/updates

1- Golden chanterelles one last time: more genes make the story more complicated (Greg Thorn)

2- Gomphidii of NL (Cathie Aime)

3- White-nose syndrome: the impact of a fungal invader on hibernating bats (Bruce Rodrigues)

4 - Three foliose lichens (Chris Deduke)

and simultaneously at St. John The Evangelist Church:

7:30 pm Mushrooms 101 (Faye Murrin)



## SUN Sep 8

8:00 AM Breakfast

8:45 AM Group photo

9:00 AM Workshops—various venues

9:00-10:00 AM	Pick for the pot with Jeri Graham	Water colour sketching with Glynn Bishop	Rust Walk with Cathie Aime & Esteri Ohenoja	Tables with Greg Thorn
10:00-11:00 AM				Tables with Faye Murrin
11:00-12:00 AM	Cooking wild mushrooms with Yvonne Thurlow	Lichen walk with Michele Piercey-Normore	Using a microscope with Greg Thorn	Tables with Renée Lebeuf
12:00-1:00 AM				Tables with Andrus Voitk

1:00 PM Lunch

2:00 President's thanks

2:15 PM Annual General Meeting

3:00 PM Foray over for another year— drive to the ferry for departure or go to your rooms and relax overnight (on your own for meals!).



# Workshops and Walks

Sunday morning was devoted to workshops, both indoors and out: Rust walk, Pick for the pot, Lichen walk, Watercolour sketching, Cooking, Microscopy, and, of course, Tables sessions. To get a flavour of what they were about, here are five “Reports” by some of the leaders. Most have been edited slightly for length.

## Lichen walk

Michele Piercy-Normore

The Lichen Walk took place along the Great Auk Trail where lichens dominated the landscape. The sunny but windy weather provided for a pleasant walk over the windswept rocky bedrock, which dipped into low lying spongy beds of moss and arctic-alpine vascular plants between outcrops. Discussions included the diversity of rock-inhabiting Shield

some of the more common rock-dwelling lichens. Then the discussion turned to the lichens growing on moss and between the rocky substratum. One lichen begins its life as a parasite on moss and later captures an algal partner to form the more typical lichen we see as *Ochrolechia frigida*. Yellow and grey Reindeer lichens form part of the winter diet for Caribou and discussion included the yellow natural product (usnic acid) which is thought to help the digestion of the lichens in the Caribou gut; and the high sugar

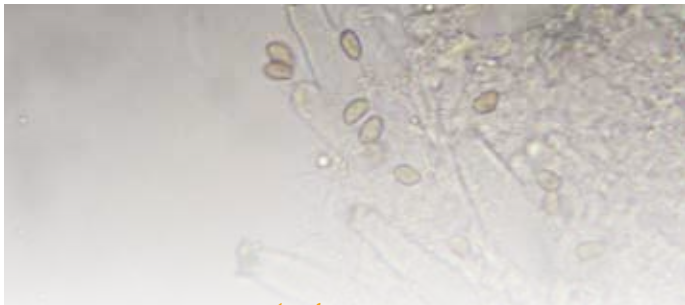


Photo: TA Loeffler

lichens and the Map lichens; their roles in weathering of the bedrock to begin establishment of pioneer plant communities over thousands of years; the natural products that help to protect the long-lived lichens from the harsh climate and how they are also beneficial to humans; and how to differentiate between

and low nitrogen content of lichens provide energy during the winter months compared with the protein-rich herbs in spring and summer. Other lichens were also mentioned and their significance described.





## Microscopy Workshop

Greg Thorn

The microscopy workshop is limited to four participants to keep the down time for the others acceptable while one person looks in the microscope—only one looks at a time. It has always been fully subscribed. Perhaps we should set a goal to buy a microscope with projection capabilities to allow more participants. A side benefit is the ability to take good microphotographs. In any case, the aim is not to turn participants into professional microscopists in one hour, but to give them an idea of what mycologists look at to help identify mushrooms.

Basic parts and operation of compound microscopes were introduced, including lighting adjustment to obtain the best image of the specimen. Uses of different mountants were demonstrated with spores from a *Lactarius* spore print (amyloid, with the spores walls and especially the spiny ornamentation turning blue in iodine) and mature gleba of a *Lycoperdon* (ethanol used as a wetting agent, then any clear mountant for observation). Immersion oil (a drop ON the cover-slip, not under it) and the 100X objective provide much more detail (for instance, we could see that the spines on the *Lactarius* spores were separate and not connected by a reticulum of ridges) and allow for accurate measurements. Microscopy can be fun

## Tables sessions

Andrus Voitk

For someone interested in learning our mushrooms, the Tables sessions are the best vehicle, second only to being in the field with a knowledgeable mycologist. However, the foray in the field may be a hit and miss, because the need to collect competes for teaching time, and not all mycologists are equally gifted as instructors at our amateur level. Tables leaders discuss and explain the very mushrooms

we, ourselves, have collected from our own woods.

This year's Tables sessions were given, in order, by Greg Thorn, Faye Murrin, Renée Lebeuf and Andrus Voitk. The lady instructors shone, as always, with their brilliance and enthusiasm, enhanced all the more by the contrast provided by the ploddingly ponderous gentlemen. I have always wanted to catch four Tables in a row, and this year came close: two and a half.

It is very interesting, as well as instructive, to hear how different mycologists interpret the same material. Each session was a mixture of identification tips (how to identify some mushrooms and groups, and what features set them apart from seemingly similar species), practical knowledge (which are good to eat, which cause serious damage, etc), mycological concepts (parallel evolution, why lichens are fungi, how some mushrooms make a living, and the like), and personal anecdotes (how my car stank after driving home with a certain mushroom, how our fortunes improved after serving amanitas to the in-laws, and such). There is no prescribed course, so the instructors are free to choose what to discuss, leaving them to explain things they like and know. Because each instructor's experience and interest differs, the sessions were complementary, even if some chose to discuss the same mushrooms.



Photo: Michael Burzynski

## Cooking Workshop

Yvonne Thurlow

A two-hour cooking workshop was held on Sunday September 8th as part of the Foray NL 2013 experience. The venue was the Fire Hall/Community Centre in Barr'd Harbour, Fogo Island, made available by the Shorefast Foundation, generous hosts of the 2013 Foray. It was certainly an adequate facility for the workshop. Everyone could sit comfortably and there was plenty of space to move around. Ten participants worked beautifully around the large central island, which made an excellent preparation station.

A creamy wild mushroom soup was prepared based upon a combination of several recipes I have encountered over the years. The soup is aromatic and rich – a mushroom-lovers delight! It can be served as a luncheon main course or as an entrée to an elegant dinner. We had it for lunch along with a warm crusty baguette and a glass of tawny port. With dinner, it pairs wonderfully with a glass of fine, earthy Burgundy.

The group was enthusiastic and very kind with lots of positive comments and plenty of help with the preparation and cleanup – thanks to all.



Photo: Maria Voitk

## Creamy Mushroom Soup

### Ingredients

1 oz. dried mushrooms (morels, cèpes, shitakes, whatever)

½ cup tawny port or Madeira

1 cup chicken broth\* (homemade is best!)

3 tbsp butter

1½ cups chopped onion

1½ pounds white mushrooms

1 cup chanterelles, fresh or frozen

7 cups chicken broth\* (in addition to the one above)

1½ tsp allspice

1 tsp salt (to taste)

1 tsp pepper, coarsely ground

1 cup cream, heavy or whipping

Garnish: Green onions, chopped

Mushroom caps or other decorative mushrooms

Bacon, crumbled

### Instructions

1. Rinse mushrooms **well** in a strainer under cold water. Place mushrooms in a bowl. Bring 1 cup broth and port to a boil, pour over mushrooms. Soak one hour or more.
2. Melt butter over low heat in soup pot. Add the onions and cook stirring occasionally for 10 minutes or until wilted. Increase heat to medium and add all mushrooms. Sauté for 15 minutes or until most of the liquid has evaporated.
3. Add 7 cups chicken broth and spices, bring to a boil, reduce heat and simmer partially covered for 15 minutes
4. Purée the soup to your desired consistency; some texture is good. An immersion blender works very well. Add cream and simmer until soup is warmed through.
5. Best when chilled overnight and served the next day! Garnish to taste.

Makes eight to ten servings.

This soup can be morphed into an elegant mushroom cappuccino by making the broth thinner, adding a dollop of whipped cream to the top and serving in espresso cups.

## Watercolour sketching

Glynn Bishop

Outdoor watercolor sketching is pleasantly free of everyday distractions. It's a peaceful time for contemplation and communing with nature, although at times, it may require coping (accidentally sitting on ant hills; being rained upon, watercolours dissipating). We began pleasantly in the clearing just behind the Parish Hall, but soon moved indoors due to the onset of rain. We had 9 participants, sold 6 sketchbooks, and 5 paint sets. We had selected mushrooms and lichens from the tables, chosen for diversity of shape, colour and texture, enough choice for many sketches. Watercolour techniques are difficult enough to master in a lifetime, let alone a two-hour workshop, but the folks were interested and very eager to learn. What the eye saw, the hand sketched, and hopefully, the mind retained, retention perhaps longer than by photography alone.



Photo: TA Loeffler

## Pick-for-the-Pot Workshop

Jeri Graham

The pick-for-the-pot workshop had something new this year: outside competition! And a first-time leader. Pre-scouting revealed telltale flagging tape and suspicious disturbances in the moss; likely indications that interesting fungi were gracing the dining tables of the Fogo Island Inn. Would there be any edibles left for us?

Despite overall slim pickings during the Foray, a very good selection of edibles were on the display tables. We started there, noting key points of identification for each, with participants sharing their own tips with the group. Then we explored Turpin's Trail along a nice mixture of habitats and lots of relatively

open, mossy forest. After about 20-25 minutes, we gathered at the picnic table to look over the collections, such as they were. A few handfuls of winter chanterelles or yellowlegs (*Craterellus tubaeformis*), *Hydnum repandum* and *H. umbilicatum* were the main edibles found and the only ones kept, discarding a few puffballs and a decrepit orange *Lactarius*.

Of note, a couple of Fogo participants missed the workshop but brought in a number of mushrooms for identification at the end. Most were not edible, but there were a large number of *Russula paludosa* that the pick-for-the-pot group might watch for next year. Although the group did not find a lot during this workshop, participants got to know some edibles, and Turpin's trail seemed to be as good as any this year.



Photo: Michael Burzynski

## Rust Walk Report

Esteri Ohenoja

Although advertised as a Rust walk, we met all kinds of parasitic microfungi.

- Rust fungi (Uredinales). Parasites on different host plants, many on two hosts, and many specialized to different plant species. Mildew (Erysiphales). Harmful on wild, decorative and economic plants (hops, grapes, other berries etc.).
- Smuts (Ustilaginales). We saw no typical smuts, but *Exobasidium* was very common on blueberry and partridgeberry leaves. This genus was moved to the smuts recently from a very different group.
- Imperfect fungi. Known as anamorphs, they do not develop fertile structures, and many lack a proper name or place in the system. Those named will have two names for the same organism if the perfect or sexual stage (teliomorph) is known.
- Some ascomycetes. E.g. *Taphrina* forming peculiar deformations on the fruits of *Alnus rugosa* but not *A. crispa*, which grew side by side (see Omphalina 2(4):8-12. 2011). Another ascomycetous fungus we found is *Claviceps* damaging seeds of different grasses, as grain plants (see Omphalina 4(4):15-17. 2013). Here we found a species growing on two *Juncus* species. *Claviceps* species contain poisonous LSD-like substances. For instance, in France *C. purpurea*, parasitizing wheat, brought about a bad poisoning epidemic, before the cause was detected.

Progress was very slow and we did not get very far in two hours, because there were many interesting microfungi found along the trail by the keen participants. In all, we observed about 20 taxa, and talked about most. Claudia Hanel helped us identify many host plants, essential to identifying their parasites.



Photos: Esteri Ohenoja

Photos: TA Loeffler

# TRAILS

	Fogo Head, Battery & Brimstone Head	Lion's Den Valley (± Loop)	Waterman's Brook	Payne's Trail	Turpin's Trail West (± East)	Oliver's Cove (± Cape Cove)	Stag Harbour
<b>Terrain</b>	rocky, bog, coastal barrens, meadow,	inland barrens, woods, meadows	coniferous forest, barrens at end	barrens, heath, bog, woods	grassy then bog/ woods/ barrens	meadow, barrens, woods	woods, small marsh
<b>Difficulty (1-5; 1 = easy)</b>	5	4	4	3	3	3	2
<b>Productivity (1-5; 1 = low)</b>	2	4	5	5	3	3	5
<b>Points of interest</b>	excellent view	Marconi Wireless Interpretation Centre	waterfall at the end		1st ground radar station in North America	traditional gardens	view of Indian Island
<b>Length (Kilom)</b>	5 + 1	5	6 + return	2 - 8	7	2 + 7 + return	2
<b>Community</b>	Fogo	Fogo	Fogo	Payne's Cove	just before Tilting	Tilting	Stag Harbour
<b>Start</b>	Battery parking lot & Lions Club parking lot	Parson's Hill Rd to Marconi Site	logging road to boardwalk	road	Sandy Cove toilet building then NE	ball park	west side road to South Point
<b>GPS N49°</b>	43'29.6"; 42'55.6"	43'10.1"	42'34.2"	38'19.2"; 38'59.5"	42'27.5"; 42'28.6"	42'05.3"	34'31.6"; 34'38.8"
<b>W54°</b>	16'53.1"; 17'42.2"	15'42.6"	16'30.6"	18'38. "; 18'41.6"	04'58.2"; 04'53.3"	03'36.2"	16'48.8"; 17'38.7"
<b>End</b>	road, town	return or loop by the shore	waterfall, or return earlier	Harlick's Pond (or Deep Bay)	return or east to Lane House Museum	loop or Cape Cove trail and return	ferry wharf road
<b>Special interest</b>	<b>General</b>	<b>Photography</b>	<b>Cortinarius</b>	<b>Lichens</b>	<b>Lichens</b>	<b>General</b>	<b>Rusts</b>
<b>Leader</b>	Michael Burzynski	Judy May	Jeri Graham	Tina Newbury	Marian Wissink	Jamie Graham	Geoff Thurlow
<b>FOGO leader</b>	PJ Decker	Tim Charles	Murray Mac-Donald or Adam Grevatt	Allan Dwyer	Fraser Carpenter	Richard Penton	Jason Penton
<b>Mycologist</b>	<b>Irja Saar*</b>	<b>Faye Murrin</b>	<b>Renée Lebeuf*</b>	<b>Andrus Voitk*</b>	<b>Esteri Ohenoja*</b>	<b>Greg Thorn*</b>	<b>Cathie Aime*</b>
<b>DBT</b>	April Muirhead*	Christian Wright*	Claudia Hanel*	Chris Deduke	Rosie Myers*	Aare Voitk*	Kenny Tuach*
<b>Special interest leader</b>	<b>Irja Saar</b>	<b>Roger Smith*</b>	<b>André Paul*</b>	<b>Chris Deduke*</b>	<b>Michele Piercey-Normore</b>	<b>Greg Thorn</b>	<b>Cathie Aime</b>

# SPECIES LIST AND DISTRIBUTION BY FORAY TRAIL

by Andrus Voitk

Red background = common mushroom species																							
Blue background = new species in our cumulative list																							
Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Agaricus campestris</i>	2											2											2
<i>Alpova cinnamomea</i>	2						1			1													2
<i>Amanita bisporigera</i>	1				1																		1
<i>Amanita ceciliae</i>	1												1										1
<i>Amanita flavoconia</i>	8													2	1	2			1	1	1		8
<i>Amanita fulva</i>	2				1											1							2
<i>Amanita muscaria var. gues-sowii</i>	14	1	1				2				1				5	1		1		1	1		14
<i>Amanita porphyria</i>	3				1			1											1				3
<i>Amanita vaginata</i>	2							1							1								2
<i>Amanita wellsii</i>	2													1							1		2
<i>Antrodia sitchensis</i>	1		1																				1
<i>Apiosporina morbosa</i>	2				1																	1	2
<i>Arrhenia griseopallida</i>	1														1								1
<i>Arrhenia obatra</i>	2												1	1									2
<i>Arrhenia peltigerina</i>	1							1															1
<i>Arrhenia sphagnicola</i>	1																	1					1
<i>Atheniella adonis</i>	2				1														1				2
<i>Auricularia americana</i>	1							1															1
<i>Bankera violascens</i>	3													1		2							3
<i>Basidioradulum radula</i>	1						1																1
<i>Bisporella citrina</i>	1				1																		1
<i>Boletus edulis</i>	1														1								1

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL	
<b><i>Bovista nigrescens</i></b>	<b>1</b>													<b>1</b>									<b>1</b>	
<b><i>Bovista pila</i></b>	<b>1</b>								1															1
<b><i>Bovista plumbea</i></b>	<b>2</b>											2												2
<b><i>Cantharellus roseocanus</i></b>	<b>7</b>		1		1	1	1								3									7
<b><i>Cerrena unicolor</i></b>	<b>1</b>				1																			1
<b><i>Chalciporus piperatus</i></b>	<b>6</b>		1					1					1		2							1		6
<b><i>Chlorociboria aeruginascens</i></b>	<b>3</b>					2														1				3
<b><i>Chromosera lilacina</i></b>	<b>1</b>												1											1
<b><i>Chrysomyxa arctostaphyli</i></b>	<b>1</b>						<b>1</b>																	<b>1</b>
<b><i>Chrysomyxa ledi</i></b>	<b>4</b>						1			1				1	1									4
<b><i>Cladosporium herbarum</i></b>	<b>1</b>																					1		1
<b><i>Clavariadelphus ligula</i></b>	<b>1</b>							1																1
<b><i>Claviceps nigricans</i></b>	<b>2</b>											<b>1</b>		<b>1</b>										<b>2</b>
<b><i>Claviceps purpurea</i></b>	<b>3</b>									1				2										3
<b><i>Clavulina coralloides</i></b>	<b>16</b>	<b>3</b>		<b>1</b>			<b>1</b>	<b>1</b>						<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>16</b>
<b><i>Clitocybe martiorum</i></b>	<b>1</b>							1																1
<b><i>Clitopilus prunulus</i></b>	<b>1</b>															1								1
<b><i>Coleosporium asterum</i></b>	<b>1</b>	<b>1</b>																						<b>1</b>
<b><i>Coleosporium vernoniae</i></b>	<b>1</b>						<b>1</b>																	<b>1</b>
<b><i>Collybia cirrhata</i></b>	<b>1</b>														1									1
<b><i>Collybia tuberosa</i></b>	<b>10</b>				<b>1</b>	<b>1</b>		<b>1</b>		<b>2</b>			<b>1</b>		<b>1</b>	<b>1</b>				<b>1</b>	<b>1</b>			<b>10</b>
<b><i>Conocybe lactea</i></b>	<b>1</b>																						1	1
<b><i>Conocybe macrospora</i></b>	<b>2</b>											<b>2</b>												<b>2</b>
<b><i>Conocybe semiglobata var. campanulata</i></b>	<b>1</b>																					<b>1</b>		<b>1</b>
<b><i>Conocybe tenera</i></b>	<b>2</b>										1											1		2
<b><i>Cortinarius acutus</i></b>	<b>8</b>		<b>1</b>							<b>1</b>			<b>2</b>							<b>3</b>	<b>1</b>			<b>8</b>
<b><i>Cortinarius agathosmus</i></b>	<b>1</b>																		1					1



Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Cortinarius alborufescens</i>	2				1															1			2
<i>Cortinarius alboviolaceus</i>	1				1																		1
<i>Cortinarius americanus</i>	1												1										1
<i>Cortinarius anisochrous</i>	1	1																					1
<i>Cortinarius anomalus</i>	3																			1	2		3
<i>Cortinarius armillatus</i>	1				1																		1
<i>Cortinarius balaustinus</i>	1															1							1
<i>Cortinarius biformis</i>	2															1			1				2
<i>Cortinarius bulbosus</i>	2						1													1			2
<i>Cortinarius camphoratus</i>	4							2							1					1			4
<i>Cortinarius caperatus</i>	4		2																2				4
<i>Cortinarius chrysolitus</i>	3				1								1									1	3
<i>Cortinarius collinitus</i>	4							1											1		2		4
<i>Cortinarius crassus</i>	1															1							1
<i>Cortinarius delibutus</i>	2																			2			2
<i>Cortinarius diasemospermus</i>	1							1															1
<i>Cortinarius diasemospermus var. leptospermus</i>	1																			1			1
<i>Cortinarius evernius</i>	9							1						1	1	1			3			2	9
<i>Cortinarius fasciatus</i>	1																		1				1
<i>Cortinarius fennoscandicus</i>	1						1																1
<i>Cortinarius flexipes</i>	3							2											1				3
<i>Cortinarius flexipes var. flabellus</i>	1																		1				1
<i>Cortinarius flexipes var. inolens</i>	1									1													1
<i>Cortinarius furvolaesus</i>	1																			1			1
<i>Cortinarius gentilis</i>	1				1																		1
<i>Cortinarius glaucopus</i>	3							2								1							3
<i>Cortinarius infractus</i>	1																			1			1

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL	
<i>Cortinarius jubarinus</i>	2						1									1							2	
<i>Cortinarius laniger</i>	1																					1	1	
<i>Cortinarius limonius</i>	11							2					1		1		2	2		2	1		11	
<i>Cortinarius lucorum</i>	1				1																		1	
<i>Cortinarius malachus</i>	1							1															1	
<i>Cortinarius malicorius</i>	2									1									1				2	
<i>Cortinarius mucifluus</i>	8		1		1		2	1					1			1		1					8	
<i>Cortinarius mucosus</i>	2															1		1					2	
<i>Cortinarius muscigenus</i>	1									1													1	
<i>Cortinarius obtusus</i>	2							1														1	2	
<i>Cortinarius paragaudis</i> var. <i>paragaudis</i>	1		1																				1	
<i>Cortinarius phaeopygmaeus</i>	1							1															1	
<i>Cortinarius pluvius</i>	1							1															1	
<i>Cortinarius psammocephalus</i>	1												1										1	
<i>Cortinarius saturninus</i>	1							1															1	
<i>Cortinarius scaurus</i>	3		1					1													1		3	
<i>Cortinarius scutulatus</i>	2														1				1				2	
<i>Cortinarius stillatitius</i>	12		2										4		1	2			1	2			12	
<i>Cortinarius subcroceofolius</i>	1																		1				1	
<i>Cortinarius traganus</i>	3							1						1						1			3	
<i>Cortinarius trivialis</i>	1									1													1	
<i>Cortinarius venustus</i>	1															1							1	
<i>Cortinarius vibratilis</i>	1							1															1	
<i>Craterellus tubaeformis</i>	12							1		2	1					2		3	2	1			12	
<i>Crinipellis setipes</i>	3						3																3	
<i>Crucibulum laeve</i>	6		1			1	1							1								1	1	6
<i>Cudonia circinans</i>	1				1																		1	

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Cuphophyllus borealis</i>	3											1					1				1		3
<i>Cuphophyllus cinerellus</i>	1						1																1
<i>Cuphophyllus pratensis</i>	8							1				3										4	8
<i>Cyathus olla</i>	1								1														1
<i>Dacrymyces chrysospermus</i>	4				1			1											1	1			4
<i>Datronia mollis</i>	1					1																	1
<i>Didymium melanospermum</i>	1							1															1
<i>Ductifera pululahuana</i>	1				1																		1
<i>Elaphomyces asperulus</i>	1		1																				1
<i>Elaphomyces muricatus</i>	1																				1		1
<i>Entoloma subsinuatum</i>	1							1															1
<i>Erysiphe sordida</i>	1											1											1
<i>Erysiphe trifolii</i>	1														1								1
<i>Erysiphe vaccinii</i>	1																					1	1
<i>Exidia glandulosa</i>	1				1																		1
<i>Exidia nucleata</i>	1											1											1
<i>Exidia pithya</i>	1							1															1
<i>Exobasidium canadense</i>	2	2																					2
<i>Exobasidium cassandrae</i>	5	1	1							2												1	5
<i>Exobasidium juelianum</i>	1											1											1
<i>Exobasidium karstenii</i>	2	1								1													2
<i>Exobasidium vaccinii</i>	2				1										1								2
<i>Femsjonia peziziformis</i>	1				1																		1
<i>Fomitopsis ochracea</i>	1							1															1
<i>Fomitopsis pinicola</i>	1												1										1
<i>Fuligo septica</i>	2		1																		1		2
<i>Galerina atkinsoniana</i>	2							1					1										2

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Galerina triscopa</i>	1												1										1
<i>Galerina vittiformis</i> var. <i>vittiformis</i> f. <i>tetraspors</i>	1																					1	1
<i>Gliophorus laetus</i>	9					1		1				3			1					1		2	9
<i>Gloeophyllum protractum</i>	1													1									1
<i>Gloeophyllum sepiarium</i>	10		1		1	1				3			1	1						1		1	10
<i>Gloioxanthomyces nitida</i>	1																					1	1
<i>Gomphidius borealis</i>	5		1			3									1								5
<i>Gymnopilus penetrans</i>	1																					1	1
<i>Gymnopus dryophilus</i>	4							3								1							4
<i>Gymnosporangium claviceps</i>	1													1									1
<i>Gymnosporangium cornutum</i>	7	1	1		1					2												2	7
<i>Hapalopilus nidulans</i>	1					1																	1
<i>Helminthosphaeria clavariarum</i>	1																	1					1
<i>Hemimycena pseudolactea</i>	1																					1	1
<i>Hemitrichia clavata</i>	1		1																				1
<i>Henningsomyces candidus</i>	1		1																				1
<i>Hohenbuehelia fluxilis</i>	1										1												1
<i>Humaria hemisphaerica</i>	1						1																1
<i>Humidicutis marginata</i>	1																					1	1
<i>Hydnellum aurantiacum</i>	1													1									1
<i>Hydnellum caeruleum</i>	1																				1		1
<i>Hydnellum peckii</i>	1							1															1
<i>Hydnellum pineticola</i>	6													1	2	1					2		6
<i>Hydnum repandum</i>	4													1	2	1							4
<i>Hydnum umbilicatum</i>	7		1				2						1		1	1				1			7
<i>Hygrocybe acutoconica</i>	8									1		2	1									4	8
<i>Hygrocybe cantharellus</i>	5	2	1			1														1			5

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL	
<i>Hygrocybe chlorophana</i>	2									1			1											2
<i>Hygrocybe conica</i>	6		1				1					1	1	1				1						6
<i>Hygrocybe miniata</i>	4	1					1	1					1											4
<i>Hygrocybe phaeococcinea</i>	1																					1		1
<i>Hygrocybe squamulosa</i>	13						1					2	1			2	2	3			2			13
<i>Hygrocybe turunda</i>	2									1						1								2
<i>Hymenochaete tabacina</i>	2					1				1														2
<i>Hyphodontia alutacea</i>	1																				1			1
<i>Hypholoma myosotis</i>	5	1										1					1					2		5
<i>Hypomyces chrysospermus</i>	1															1								1
<i>Hypoxylon fuscum</i>	1										1													1
<i>Inocybe geophylla</i>	3				1									2										3
<i>Inocybe lacera</i>	1	1																						1
<i>Inocybe lanuginosa</i>	2									1			1											2
<i>Inocybe soluta</i>	1									1														1
<i>Inonotus radiatus</i>	1				1																			1
<i>Laccaria bicolor</i>	13					1	1			3			3	1	1	1					2			13
<i>Laccaria laccata</i>	1	1																						1
<i>Laccaria longipes</i>	1																		1					1
<i>Laccaria nobilis</i>	6							1		2			1			1			1					6
<i>Laccaria striatula</i>	4		1		1		1									1								4
<i>Lachnellula agassizii</i>	3									1									1	1				3
<i>Lactarius affinis</i>	12					1	3									3	1			2	2			12
<i>Lactarius badiosanguineus</i>	1									1														1
<i>Lactarius caespitosus</i>	1												1											1
<i>Lactarius camphoratus</i>	5						1	1					1						1	1				5
<i>Lactarius deceptivus</i>	12		1							1			2	1	1	1		1	2	1	1			12

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL	
<i>Lactarius deterrimus</i>	4				1				2					1										4
<i>Lactarius glyciosmus</i>	3							1											1		1			3
<i>Lactarius helvus</i>	16											1	1					4	3	1	6			16
<i>Lactarius hibbardae</i>	3																	1	2					3
<i>Lactarius lignyotellus</i>	1									1														1
<i>Lactarius lignyotus</i>	8							1							2	2			1	2				8
<i>Lactarius lignyotus var canadensis</i>	1							1																1
<i>Lactarius mucidus</i>	2														2									2
<i>Lactarius necator</i>	2												1									1		2
<i>Lactarius nitidus</i>	1															1								1
<i>Lactarius repraesentaneus</i>	1												1											1
<i>Lactarius rufus</i>	1									1														1
<i>Lactarius scrobiculatus var. canadensis</i>	1							1																1
<i>Lactarius sordidus</i>	5							1					1			2					1			5
<i>Lactarius tabidus</i>	1																			1				1
<i>Lactarius thynos</i>	8		1		1			2					1	1	1	1								8
<i>Lactarius trivialis</i>	3															2				1				3
<i>Lactarius vinaceorufescens</i>	11					1		1		2			1	2	2	1				1				11
<i>Leccinum holopus</i>	6		1					1					2		1					1				6
<i>Leccinum insolens</i>	2																			2				2
<i>Leccinum scabrum</i>	4	1														1	1					1		4
<i>Leccinum subleucophaeum</i>	1							1																1
<i>Leccinum vulpinum</i>	2														1							1		2
<i>Lentaria byssiseda</i>	1							1																1
<i>Leotia lubrica</i>	6				1		1			1					1	1					1			6
<i>Leotia viscosa</i>	1							1																1
<i>Lichenomphalia umbellifera</i>	5							1				1				1		1	1					5

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Lopharia cinerascens</i>	1						1																1
<i>Lycoperdon perlatum</i>	4											1	1							1	1		4
<i>Lycoperdon umbrinum</i>	1																		1				1
<i>Marasmiellus perforans</i>	1						1																1
<i>Marasmius androsaceus</i>	1							1															1
<i>Marasmius limosus</i>	1									1													1
<i>Marasmius oreades</i>	4		1				1					1										1	4
<i>Marasmius pallidocephalus</i>	1																					1	1
<i>Marasmius wettsteinii</i>	3						3																3
<i>Melanoleuca cognata</i>	1								1														1
<i>Mutinus ravenelii</i>	1			1																			1
<i>Mycena abramsii</i>	1																					1	1
<i>Mycena leptcephala</i>	1																					1	1
<i>Mycena metata</i>	1																					1	1
<i>Mycena pura</i>	1								1														1
<i>Mycena rorida</i>	1									1													1
<i>Mycena rubromarginata</i>	5							1	1	2						1							5
<i>Mycena vulgaris</i>	1									1													1
<i>Mycetinis scorodonius</i>	7					1	3			2								1					7
<i>Neolecta vitellina</i>	1		1																				1
<i>Panaeolus acuminatus</i>	1								1														1
<i>Panaeolus foeniseccii</i>	2			1																		1	2
<i>Panaeolus papilionaceus</i>	1								1														1
<i>Panellus stipticus</i>	4				1	1				1									1				4
<i>Paxillus involutus</i>	1																					1	1
<i>Paxillus rubicundulus</i>	1												1										1
<i>Peniophora aurantiaca</i>	2					1		1															2

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Peniophora cinerea</i>	1				1																		1
<i>Peniophora rufa</i>	1				1																		1
<i>Phaeocollybia jennyae</i>	1														1								1
<i>Phaeolus schweinitzii</i>	1		1																				1
<i>Phellinus chrysoloma</i>	1									1													1
<i>Phellinus contiguus</i>	1									1													1
<i>Phellinus viticola</i>	1													1									1
<i>Phellodon tomentosus</i>	2															2							2
<i>Phlebiella vaga</i>	1																			1			1
<i>Pholiota astragalina</i>	1																		1				1
<i>Piloderma bicolor</i>	1		1																				1
<i>Plicatura nivea</i>	1													1									1
<i>Pluteus cervinus</i>	1	1																					1
<i>Polyporus badius</i>	1				1																		1
<i>Polyporus varius</i>	3				1		1							1									3
<i>Postia caesia</i>	1																			1			1
<i>Postia ptychogaster</i>	1													1									1
<i>Psathyrella conopilus</i>	1							1															1
<i>Psilocybe semilanceata</i>	1													1									1
<i>Puccinia cnici-oleracei</i>	1													1									1
<i>Puccinia coronata</i>	1																					1	1
<i>Puccinia hieracii</i>	2					1	1																2
<i>Puccinia poarum</i>	2									1	1												2
<i>Pucciniastrum epilobii</i>	1				1																		1
<i>Pucciniastrum goeppertianum</i>	12		1	1						2		1	1		5							1	12
<i>Pucciniastrum rubi-idaei</i>	1	1																					1
<i>Ramaria acrisiccescens</i>	3		1	2																			3



Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Ramaria brunneomaculata</i>	1						1																1
<i>Rhodocollybia maculata</i>	3							2												1			3
<i>Rhytisma andromedae</i>	3	1		1									1										3
<i>Rhytisma pruni</i>	1									1													1
<i>Rhytisma salicinum</i>	1																					1	1
<i>Russula aquosa</i>	8		2		1	3	1		1														8
<i>Russula brevipes</i>	5		1				1							1	1						1		5
<i>Russula brevipes var. acrior</i>	1							1															1
<i>Russula compacta</i>	1									1													1
<i>Russula crassotunicata</i>	1									1													1
<i>Russula decolorans</i>	1													1									1
<i>Russula delica</i>	2													1							1		2
<i>Russula densifolia</i>	1		1																				1
<i>Russula dissimulans</i>	6													1	1						4		6
<i>Russula emetica</i>	3						1		1				1										3
<i>Russula fragilis</i>	3				1								1									1	3
<i>Russula griseascens</i>	1									1													1
<i>Russula nigricans</i>	1														1								1
<i>Russula paludosa</i>	17		2			1	2								4	2		1	2		3		17
<i>Russula peckii</i>	5												1		3	1							5
<i>Russula puellaris</i>	1											1											1
<i>Russula xerampelina</i>	1				1																		1
<i>Sabuloglossum arenarium</i>	1			1																			1
<i>Sarcodon imbricatus</i>	1																			1			1
<i>Scutellinia scutellata</i>	1		1																				1
<i>Skeletocutis amorpha</i>	1		1																				1
<i>Sphaerobolus stellatus</i>	1									1													1
<i>Stereum hirsutum</i>	2							1						1									2

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
<i>Stropharia semiglobata</i>	2								2														2
<i>Suillus glandulosus</i>	8					1	1								2	2			1		1		8
<i>Taphrina robinsoniana</i>	4		1	2										1									4
<i>Tatraea macrospora</i>	1					1																	1
<i>Thelephora terrestris</i>	6					1	1	1	2		1												6
<i>Tilachlidium brachiatum</i>	1							1															1
<i>Tomentella sublilacina</i>	1						1																1
<i>Trametes versicolor</i>	1							1															1
<i>Tremella foliacea</i>	1	1																					1
<i>Trichaptum abietinum</i>	4		2		2																		4
<i>Tricholoma fulvum</i>	1																				1		1
<i>Tricholoma magnivelare</i>	1																				1		1
<i>Tricholoma pessundatum</i>	1													1									1
<i>Tricholoma saponaceum</i>	1														1								1
<i>Tricholoma subsejunctum</i>	1																			1			1
<i>Tricholoma transmutans</i>	4					1		1		1						1							4
<i>Tylopilus felleus</i>	1																1						1
<i>Uredinopsis osmundae</i>	1																			1			1
<i>Venturia inaequalis</i>	1													1									1
<i>Xylaria hypoxylon</i>	1			1																			1
<b>Nr SPECIES</b>	<b>313</b>	<b>17</b>	<b>41</b>	<b>7</b>	<b>35</b>	<b>24</b>	<b>32</b>	<b>72</b>	<b>13</b>	<b>48</b>	<b>7</b>	<b>21</b>	<b>43</b>	<b>43</b>	<b>18</b>	<b>45</b>	<b>4</b>	<b>18</b>	<b>45</b>	<b>47</b>	<b>37</b>	<b>18</b>	<b>313</b>
<b>Nr COLLECTIONS</b>	<b>818</b>	<b>21</b>	<b>46</b>	<b>8</b>	<b>37</b>	<b>27</b>	<b>42</b>	<b>84</b>	<b>14</b>	<b>63</b>	<b>7</b>	<b>30</b>	<b>50</b>	<b>47</b>	<b>60</b>	<b>59</b>	<b>5</b>	<b>26</b>	<b>59</b>	<b>57</b>	<b>56</b>	<b>20</b>	<b>818</b>

Species Name	TOTAL	Windmill Bight	Dildo Run	Deadman's Bay	Boyd's Cove	Change Ferry	Squid Jigger	Indian Lookout	Pony Refuge	Saltwater Pond	Fogo Ferry	Groswater	Payne	Turpin	Lion's Den	Waterman's	Fogo Head	Brimstone H.	Stag Harbour	Mid Island	Oliver's Cove	Unspecified	TOTAL
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# WHAT DO THE DATA TELL US?

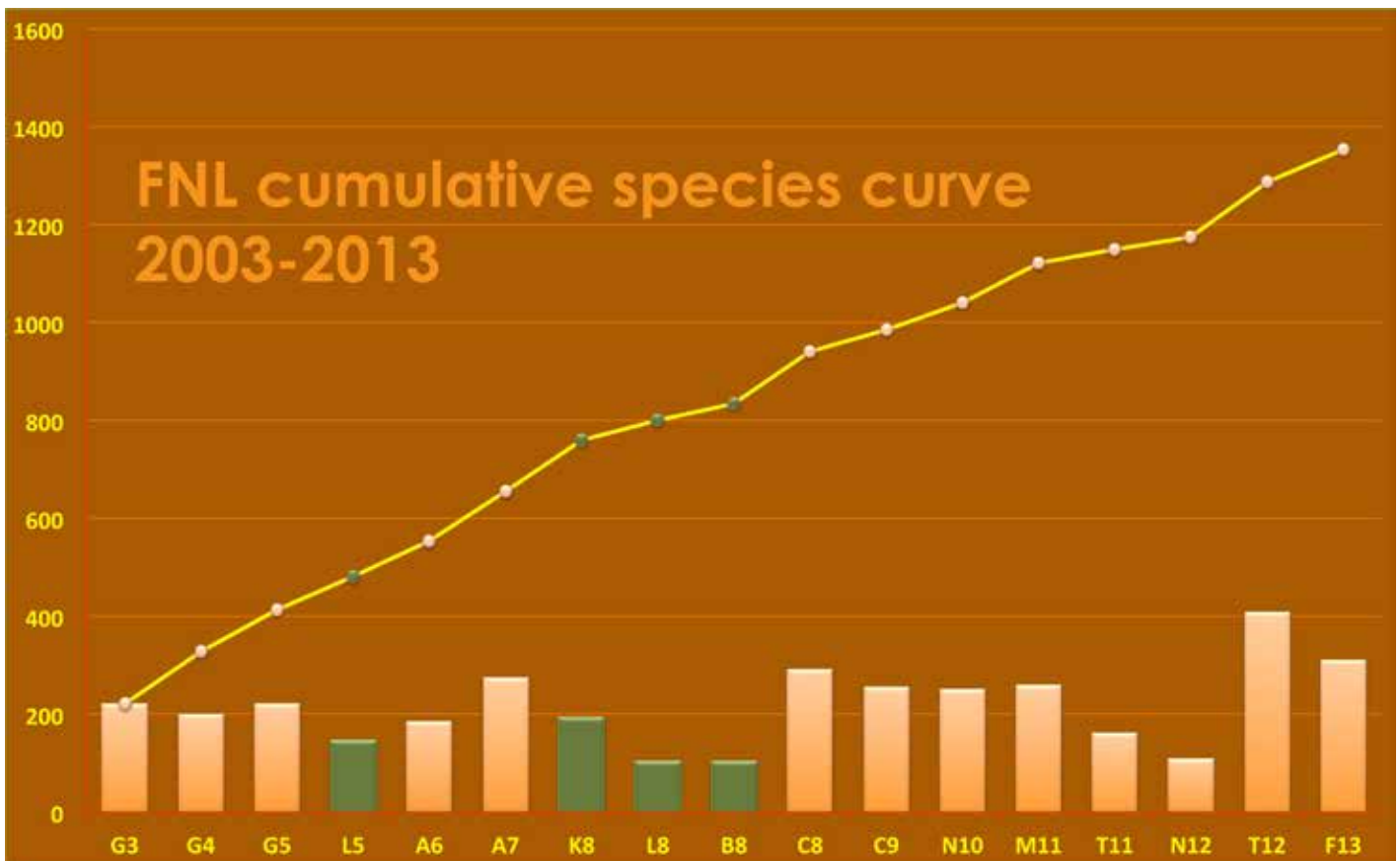
By Andrus Voitk

Well, as every year, you have in front of you a long list of foreign names. If you are a newcomer to mushrooms after your first foray, chances are this list is totally unintelligible to you. Better turn your attention to other things. But please, walk along with me through it for a bit. Let us see, if we can make some sense of it, find some meaning. After all, if it is meaningless, why publish it every year?

First, let us look at the bottom line: the Database Team processed over 1,100 specimens, identified to species by our faculty—over 300 species of fungi. This means that over half the identified species were collected more than once. Actually, the Database Team processed far more specimens. They processed many that were not identified to species. They also

If you compare this total to past years, you'll see that 300 species is quite a lot, especially, since this was a poor mushroom year. So, the next thing you understand from the list, is that even in bad years, many species can be found. There are probably two explanations for this: 1) most species are still there, just in lesser numbers, and 2) when there are less “normal” mushrooms, people have more time to find the unusual and weird. Amazing! Without looking at a single foreign name, you already know a lot of how mushrooms grow and how a foray works.

OK, but you remember that this year we paid a lot of attention to rusts, with two faculty and several participants having special expertise or interest in this group of fungi. Perhaps they are padding the



processed hundreds of lichen species. Remember, this is only the list of non-lichenized fungi; the lichens are dealt with elsewhere. So, from this list you see that the Database Team did a lot of work, which explains why they were always so grumpy.

list? On a quick scan, about 10% of the present list is made up of rusts and other “microscopic” fungi. Sure, this may be higher than normal, but even after discounting 10%, the list would be big. However, although “microfungi” do not make a

huge contribution to the overall list they do comprise a significant part of our new species—about 33% of the new species are microfungi. Also, please remember that microfungi are exactly as the term suggests, small. That makes them difficult to identify in the field, and many will require more work at home. Thus, the present list does not fairly reflect their contribution to this year’s foray. They are being identified as we speak, and will be added to the list later. So, yes, microfungi will make a huge contribution to this year’s list (eventually), but regardless of that, our “normal” mushrooms add up to a very respectable number.

Next, look at the rising cumulative total of new species, an attempt to present these data in a graph form.

The line keeps rising. As we discussed, a significant portion of the rise is due to small fungi we do not normally collect or identify. Even with this addition, the number of new species collected was the fourth lowest on record. Why is this? Well, no doubt the poor mushroom year contributes. However, if we look at the list of new species, we see that it contains relatively few of the large fleshy mushrooms that

we think of as “normal” mushrooms, i.e. those with a stem and cap and either gills (the agarics), or with pores (the boletes). What does this mean? Is it possible that after 10 years and 1,300 species we



Alpova cinnamomea

have collected most of the large fleshy mushrooms that grow in the province? No doubt that is so. **At least, those that we know how to recognize.**

For example, consider last year, when with two *Tricholoma* experts we identified more new species of *Tricholoma* than we had identified in all the past nine years. This suggests that there are still many species of large fleshy mushrooms left. It is only a matter of identifying the groups and inviting the right faculty. A few large groups are obvious. For example, we collect many species of *Entoloma*, but very few make it to the list. Russulas make up another large group, where many similar species can go unrecognized. *Leccinum*, although not nearly as large, is very confusing in North America. Mycenae are another large group of similar looking species.

All these groups are large, making them difficult to handle. Unless guidebooks are very organized, logical, simple and user-friendly, such a large groups will remain ignored in favour of other mushrooms. Most identifiers turn

Photo: Henry Mann



Taphrina robinsoniana

Photo: Roger Smith



*Hygrocybe cinerella*

to areas where they can be more productive with less time spent per identification. Useful books for these groups, and several others, will help change the readiness to identify them. Alternately, subspecialists in these areas will help with more exact identification. However, interest alone is not enough. Although Renée, for example, has an especial interest in *Mycena* and makes significant contributions to our list, she is also identifying all other mushrooms, and unable to dedicate herself to this group alone. Without better books or other sources as aids, we are unlikely to make much headway, once we have learned to identify some of the main species in each group. Yes, we may, indeed, come to a point where we have identified most of the large fleshy mushrooms that we are going to identify.

But, because fungi are so incredibly diverse, and we have unearthed only a fraction of them, our list will continue rising for many years.

Fine, what other secrets does our list reveal? Well, as you saw, Fogo Island is fairly exposed and barren. Alders are common, because they are pioneer trees enriching the soil with nitrogen to make it suitable for other species to move in later. We all know that mountain alder is the common species to be expected

in these more harsh climates. Therefore, it was not surprising to find *Alpova cinnamomeus* on the list, for this little false truffle is a partner exclusively to mountain alder. But, we also find on our list *Taphrina robinsoniana*, the alder tongue gall. This species is exclusive to speckled alder. Although I did not expect (and, therefore probably did not see) speckled alder on Fogo Island, our list proves that it must grow there also, in more sheltered areas. Many of the rusts that made their way to the list already, are parasites of heath plants. To see such a number



*H lilacina*

of them, we know just from scanning the list, that the foray took place in an area of barrens, heath, bog and moor. *Chromosera lilacina* (from Payne's Trail) was a bit of a surprise, and *Cuphophyllus cinerella* (Squidjigger's Trail on Change Islands) even more so. (Yes, the names have changed from the familiar *Hygrocybe*—a matter for the first issue of *Omphalina* of the new year) Both are mushrooms of arctic and subarctic regions, a statement of the rugged conditions of the islands, despite their



location considerably to the south of the arctic. *Sabuloglossum arenarium* is a denizen of northern seaside sand dunes, telling you that collecting took place in an exposed sand dune by the sea. (Ouch!

our *Thuemenidium arenarium* has clothed itself in a new name—but remains as lovely as ever.) From these few examples you see that if you get to know these mushrooms, you'll learn where they like to grow, so that even if you only read the name, you know immediately the type of place this list came from. Hitherto we have recorded *Cuphophyllus cinerella* and *Sabuloglossum arenarium* only from Labrador.

It may surprise you to learn that the list also reveals some things about people, both those that collected mushrooms and those that live there. You will notice



collecting sites marked Fogo ferry terminal and Change ferry terminal. These were not on your trail list. Where did they come from? Well, during the Faculty Foray that preceded our event, the faculty forayed Change Islands. This meant a ferry ride across and back every day. To ensure a place on the ferry, it meant arriving at the terminal in advance. Which meant a long wait in the car, doing nothing. Not so for our faculty. Hardly had the cars stopped, before faculty members were out the door and into the surrounding woods, rummaging around for mushrooms.

Enthusiastic, like little children! Then meet at the cars and share the finds, everybody proud to show their filled collecting box. Over 30 species, including four new to our list, were recovered from these sites. Waiting for a ferry is not down time with this group.

No doubt you also noticed a trail called Pony Refuge, another one you did not find on your trail list. Well, on Change Island there is a wonderful home for Newfoundland ponies. One of the men operating the ferry told us to visit it, and our Change Island guides, led by the cheerful and helpful David McConkey, were proud to take us there. Our interest, of course, was to find the mushrooms that grow on horse manure, but the ponies and their handlers soon captivated us. A memorable hour and a half, 15 species and five new additions to our list! Including *Stropharia semiglobata*, the common (elsewhere) *Stropharia* that grows on horse dung. Hitherto we have found only its relative, *Stropharia alcis*, common on

moose dung in our woods. Apart from relating a lovely memory, this story also relates what such a list can tell us about the people that live there. All Pony Refuge species but two are known dung decomposers, and most of them specialists of horse dung decomposition. If you knew mushrooms and only saw that list, you would immediately know that the people where these were collected keep horses. Thank you for taking this tour of our list with me. We did not bog down too much with scientific names, or scientific matter. I hope the tour made you

want to know more about mushrooms and what they tell you. And if you see how much information this simple list can tell us, you can surely understand how much more information it can tell a scientist, who knows mushrooms and is used to looking and interpreting such lists. While we thoroughly enjoy ourselves, we also contribute to this list, so that we can all eventually know more about our natural heritage—surely the secret of a good foray.



*Stropharia semiglobata*

# SPECIES LIST AND DISTRIBUTION BY FORAY TRAIL - LICHENS

by Michele Piercey-Normore

Species Name	Dildo Run	Boyd's Cove	Windmill Bight	Brimstone Head	Fogo Head	Auk Trail	Payne's Trail	Turpin's Trail	Oliver's Cove	Southwest Trail	Stag Harbour	Pony Farm	Indian Lookout	Squid Jigging T.	Saltwater Pond	Deadman's Bay	Ferry Terminal	Lab Building	TOTAL
<i>Alectoria ochroleuca</i>						1													1
<i>Alectoria sarmentosa</i>	1						1												2
<i>Arctoparmelia centrifuga</i>			1			1	1												3
<i>Arctoparmelia incurva</i>						1							1		1				3
<i>Arthonia patellulata</i>																1			1
<i>Aspicilia cinerea</i>																	1		1
<i>Baeomyces rufus</i>						1													1
<i>Bryoria nitidula</i>						1													1
<i>Bryoria trichodes</i>	1						1												2
<i>Caloplaca arenaria</i>						1													1
<i>Candellariella aurella</i>												1							1
<i>Cetraria aculeata</i>						1										1			2
<i>Cetraria islandica</i>						1													1
<i>Cetraria laevigata</i>																		1	1
<i>Cetrariella delisei</i>						1										1			2
<i>Cladonia amaurocraea</i>						1													1
<i>Cladonia arbuscula</i>			1													1			2
<i>Cladonia borealis</i>						1			1										2
<i>Cladonia boryi</i>								1	1	1				1				1	5
<i>Cladonia carneola</i>			1						1										2
<i>Cladonia cenotea</i>			1										1			1			3
<i>Cladonia chlorophaea</i>			1			1		1					1	1					5
<i>Cladonia coniocraea</i>			1					1						1					3
<i>Cladonia cornuta</i>																1			1
<i>Cladonia cornuta subsp. groenlandica</i>																	1		1
<i>Cladonia crispata</i>						1										1			2
<i>Cladonia cristatella</i>			1										1			1			3
<i>Cladonia deformis</i>	1															1			2
<i>Cladonia digitata</i>													1						1
<i>Cladonia fimbriata</i>																1			1
<i>Cladonia gracilis</i>			1													1			2



Species Name	Dildo Run	Boyd's Cove	Windmill Bight	Brimstone Head	Fogo Head	Auk Trail	Payne's Trail	Turpin's Trail	Oliver's Cove	Southwest Trail	Stag Harbour	Pony Farm	Indian Lookout	Squid Jigging T.	Saltwater Pond	Deadman's Bay	Ferry Terminal	Lab Building	TOTAL
<i>Cladonia gracilis subsp. gracilis</i>						1													1
<i>Cladonia macrophylla</i>						1	1									1			3
<i>Cladonia maxima</i>																1			1
<i>Cladonia multiformis</i>																1			1
<i>Cladonia ochrochlora</i>			1					1											2
<i>Cladonia pyxidata</i>																1			1
<i>Cladonia rangiferina</i>						1										1			2
<i>Cladonia rei</i>						1													1
<i>Cladonia scabriuscula</i>								1					1			1		1	4
<i>Cladonia squamosa</i>																1			1
<i>Cladonia squamosa var. subsquamosa</i>																1			1
<i>Cladonia stellaris</i>						1		1								1			3
<i>Cladonia stygia</i>						1													1
<i>Cladonia subulata</i>			1													1			2
<i>Cladonia sulphurina</i>			1													1			2
<i>Cladonia terrae-novae</i>						1													1
<i>Cladonia uncialis</i>			1			1													2
<i>Cladonia verticillata</i>			1													1			2
<i>Cladonia wainioi</i>																1			1
<i>Diplotomma nivalis</i>													1						1
<i>Gowardia nigricans</i>						1													1
<i>Hypogymnia physodes</i>			1			1	1	1											4
<i>Hypogymnia tubulosa</i>			1																1
<i>Icmadophila ericetorum</i>													1	1					2
<i>Lasallia papillosa</i>						1	1	1										1	4
<i>Lecanora dispersa</i>						1								1					2
<i>Lecanora polytropa</i>						1								1					2
<i>Lecanora pulicaris</i>								1	1										2
<i>Lecanora symmicta</i>						1													1
<i>Lecideia auriculata</i>													1						1
<i>Lepraria lobificans</i>	1																		1
<i>Lepraria sp. (K-)</i>							1												1
<i>Leptogium cyanescens</i>													1						1
<i>Leptogium saturninum</i>													1						1
<i>Loxospora elatina</i>													1	1					2
<i>Melanelia disjuncta</i>														1					1

Species Name	Dildo Run	Boyd's Cove	Windmill Bight	Brimstone Head	Fogo Head	Auk Trail	Payne's Trail	Turpin's Trail	Oliver's Cove	Southwest Trail	Stag Harbour	Pony Farm	Indian Lookout	Squid Jigging T.	Saltwater Pond	Deadman's Bay	Ferry Terminal	Lab Building	TOTAL
<i>Melanelia hepaticum</i>						1													1
<i>Menegazzia terebrata</i>			1																1
<i>Melanelixia subaurifera</i>								1					1						2
<i>Mycoblastus sanguinarius</i>						1												1	2
<i>Nephroma arcticum</i>		1											1				1		3
<i>Nephroma bellum</i>													1						1
<i>Nephroma parile</i>													1						1
<i>Ochrolechia androgyna</i>						1							1	1					3
<i>Ochrolechia frigida</i>						1							1	1					3
<i>Ophioparma ventosa</i>						1								1					2
<i>Parmelia omphalodes</i>						1													1
<i>Parmelia saxatilis</i>			1			1	1	1	1					1		1			7
<i>Parmelia sulcata</i>						1	1						1			1			4
<i>Parmeliopsis ambigua</i>													1						1
<i>Parmeliopsis hyperopta</i>			1																1
<i>Peltigera aphthosa</i>											1		1						2
<i>Peltigera canina</i>			1		1			1					1			1			5
<i>Peltigera degenii</i>																			0
<i>Peltigera didactyla</i>								1								1			2
<i>Peltigera horizontalis</i>			1																1
<i>Peltigera leucophlebia</i>													1						1
<i>Peltigera membranacea</i>			1										1						2
<i>Peltigera neopolydactyla</i>														1					1
<i>Peltigera polydactyla</i>	1												1			1			3
<i>Peltigera ponojensis</i>													1						1
<i>Peltigera scabrosa</i>													1						1
<i>Physcia tenella</i>						1													1
<i>Pilophorus cereolis</i>													1						1
<i>Platismatia glauca</i>	1		1			1	1												4
<i>Polysporina simplex</i>				1															1
<i>Porpidia flavocaerulescens</i>						1							1	1					3
<i>Porpidia grisea?</i>						1							1	1					3
<i>Porpidia macrocarpa</i>														1					1
<i>Porpidia speira</i>						1								1					2
<i>Porpidia tuberculosa</i>						1								1					2
<i>Protopannaria pezizoides</i>						1								1					2

Species Name	Dildo Run	Boyd's Cove	Windmill Bight	Brimstone Head	Fogo Head	Auk Trail	Payne's Trail	Turpin's Trail	Oliver's Cove	Southwest Trail	Stag Harbour	Pony Farm	Indian Lookout	Squid Jigging T.	Saltwater Pond	Deadman's Bay	Ferry Terminal	Lab Building	TOTAL
<i>Psoroma hypnorum</i>														1					1
<i>Pycnothelia papillaria</i>														1					1
<i>Rhizocarpon geographicum</i>						1		1											2
<i>Rhizocarpon hochstetteri</i>						1								1					2
<i>Rhizocarpon lavatum</i>						1								1					2
<i>Rinodina tephraeaspis</i>														1					1
<i>Sarcosagium campestre?</i>																1			1
<i>Sphaerophorus fragilis</i>			1			1		1										1	4
<i>Stereocaulon glaucescens</i>																1			1
<i>Stereocaulon tomentosum</i>							1									1			2
<i>Trapeliopsis flexuosa</i>														1					1
<i>Trapeliopsis granulosa</i>						1								1					2
<i>Tuckermanopsis americana</i>							1												1
<i>Umbilicaria hyperborea</i>			1		1	1	1	1						1					6
<i>Umbilicaria mammulata</i>						1	1							1					3
<i>Umbilicaria polyphylla</i>																		1	1
<i>Umbilicaria torrefacta</i>			1																1
<i>Verrucaria muralis</i>													1	1					2
<i>Xanthoparmelia hypofusca</i>								1											1
<i>Xanthoparmelia viriduloumbrina</i>						1								1					2
<i>Xanthoria elegans</i>						1													1
<i>Xanthoria parietina</i>						1													1
<i>Xylographa opegraphella</i>														1		1			2
<i>Xylographa parallela</i>			1																1
<b>SUM</b>	6	1	25	1	2	52	14	17	5	1	1	1	31	31	1	33	2	7	

	Dildo Run	Boyd's Cove	Windmill Bight	Brimstone Head	Fogo Head	Auk Trail	Payne's Trail	Turpin's Trail	Oliver's Cove	Southwest Trail	Stag Harbour	Pony Farm	Indian Lookout	Squid Jigging T.	Saltwater Pond	Deadman's Bay	Ferry Terminal	Lab Building	TOTAL

# SURVEY OF THE LICHEN-FORMING ASCOMYCETES DURING THE 2013 NL FORAY

Chris Deduke and Michele Piercey-Normore

Lichens were collected by the authors in addition to other participants of the Foray. An effort was made to reduce duplicate collections from each location and to avoid excessive collecting. Identification keys used include Brodo et al. (2001), Gowan and Brodo (1988), Hinds and Hinds (2007), Thomson (1984, 1997), Sheard (2010), and Purvis et al. (1992). New reports for the province were based on the provisional lists of species from T. Ahti, J. McCarthy, and S. Clayden (unpublished).

## Species highlights

There were a total of 127 species of lichens and 247 specimens collected from the NL Foray in September 2013. Within this total number of species, there were 19 species of cyanobacterial lichens including 14 species in the Peltigeraceae, two Jelly lichens (*Leptogium*), two Foam lichens (*Stereocaulon*), and *Protopannaria pezizoides*. There were 38 species of *Cladonia* including four Reindeer lichens. *Peltigera degenii*, which was collected on Change Islands, has been reported for the province of Nova Scotia (Gowan and Brodo 1988) but not for Newfoundland and Labrador. Some of the other new species reports include some common but overlooked species also reported by Gowan and Brodo (1988) such as *Cladonia rei*, *C. stygia*, *C. sulphurina*, *Lobaria lobificans*, *Loxospora elatina*, *Ophioparma ventosa*, *Peltigera horizontalis*; some overlooked crustose species such as *Polysporina simplex*, *Porpidia flavocaerulescens*, *Rhizocarpon hochstetteri*, *Rinodina tephraeaspis*; and three crustose species that may need further investigation such as *Caloplaca arenaria*, *Porpidia grisea*, and *Sarcosagium campestre*.

Species diversity within the collection sites varied. Eighteen locations were sampled with the number of species ranging from one to 52 species (Figure 1). The sites with one or a few collections were not surveyed for lichens, and while seven sites were sampled more extensively than others for lichens, two sites were omitted from the graphs below: Turpin's Trail was not well sampled and showed low diversity probably because of low sampling effort as well as a grassy and disturbed habitat of a highly accessible park trail; and Payne's Trail was sampled but had fewer species collected than the others for unknown reasons. The five sites remaining are the Great Auk Trail, Deadman's Bay, Windmill Bight, Squid Jiggers Trail, and the Indian Lookout Trail.

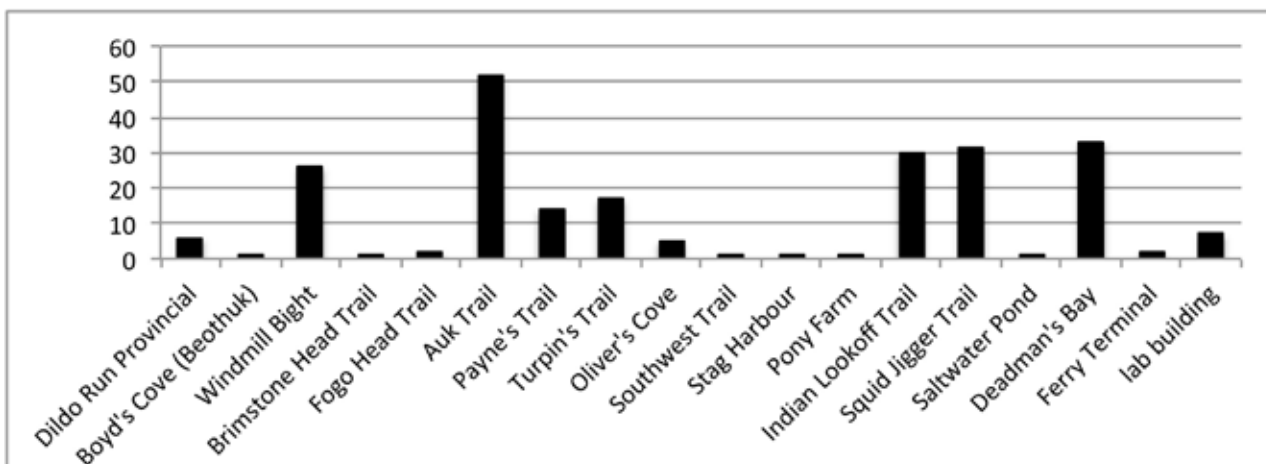


Figure 1: Number of species collected from each location visited during the NL Foray. The numbers on the y-axis are numbers of species.

### Species diversity for five sites

Species diversity varied within each of the five surveyed sites (Table 1). The pairwise comparison of the number of species common between sites shows that the Squid Jiggers Trail and Great Auk Trail are the most similar sites with 18 species in common; and Squid Jiggers Trail and Deadman’s Bay are the least similar sites with only two species in common. Squid Jiggers Trail and the Great Auk Trail are exposed seashore barrens with similar substrata of exposed bedrock and wind swept trees. Deadman’s Bay is a seashore sandy beach which is behind a sandbar, vegetated, and somewhat protected from the ocean. The pairwise comparison for sites with the largest number of species ranged from 51 to 78 species where the largest diversity was found between Deadman’s Bay and the Great Auk Trail, two sites that provide widely different substrata and habitats. While the site with the most unique species was the Great Auk Trail, the site with the least number of unique species was Windmill Bight, probably reflecting the combination of boreal and arctic alpine range extensions.

**Table 1:** Species diversity is shown here in three ways: number of species in common between sites is above the diagonal; total number of species in two locations is below the diagonal; and the number of unique species within each site is in the far left column.

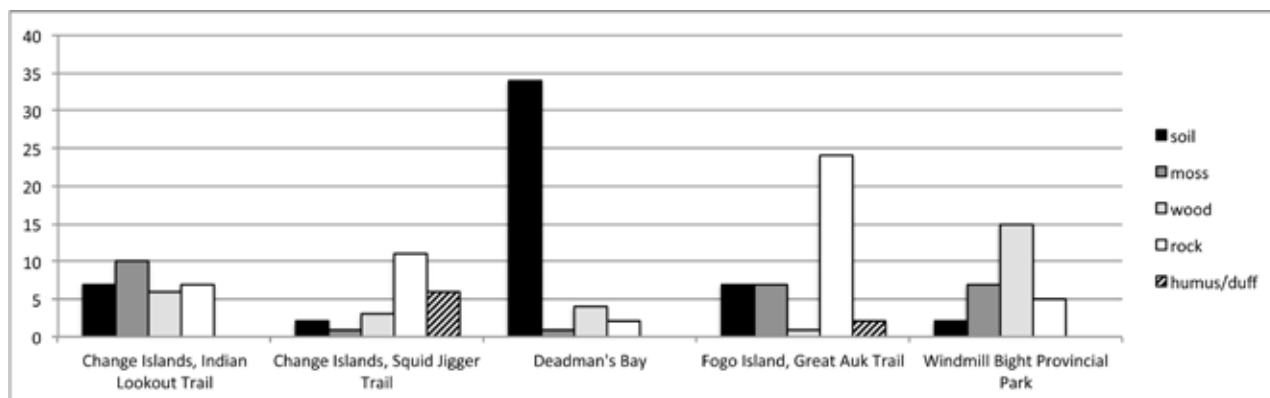
No. unique species	SITE	Windmill Point	Great Auk Trail	Indian Lookout	Squid Jiggers Trail	Deadman’s Bay
8	Windmill Point	\	8	5	4	9
20	Great Auk Trail	70	\	7	18	8
14	Indian Lookout	51	75	\	8	6
10	Squid Jiggers Trail	54	65	55	\	2
15	Deadman’s Bay	51	78	57	64	\

**Deadman’s Bay** contained a different suite of species because of the sandy/grassy substrate which was comprised mainly of club/cup *Cladonia* species. This habitat provided a rich source of early colonizing *Cladonia* species, which were large in size suggesting an optimal growing habitat for these species. *Cladonia macrophylla*, which usually grows on rock, was common on the sand in this site. *C. maxima*, which is usually found within boreal forests was also present here. *Peltigera canina* and *P. didactyla* are early colonizing Pelt lichens that contribute nitrogen to the immediate habitat. *Stereocaulon glaucescens* and *S. tomentosum* were both present on the sand. The driftwood and old wood at the seashore and along the higher elevations was surprisingly devoid of many lichens and was dominated by two *Xylographa* species. The lower elevation in the **Indian Lookout Trail** had many typical boreal species but it was also rich with cyanobacterial lichens including two *Leptogium*, three *Nephroma* species, and eight *Peltigera* species suggesting high levels of humidity and a stable environment. However, some of these species also had lichenicolous fungi (parasitic fungi) suggesting they were stressed probably by desiccation and disturbance. *Pilophorus cereolis* was also present with the cyanolichens on rock. *Alectoria ochroleuca* and *Bryoria nitidula*, two ground dwelling members of their genera, are reported for the **Great Auk Trail**,

and tend to be more common in arctic-alpine or tundra habitats. *Alectoria ochroleuca* is not included in either of the provisional checklists and may be a new record for NL. Other arctic-alpine species in this site include *Gowardii nigricans*, *Ochrolechia frigida*, *Rhizocarpon geographicum* (the common map lichen), *Sphaerophorus fragilis*, and *Umbilicaria hyperborea*. The Shield lichens, *Arctoparmelia incurva*, *A. centrifuga*, and *Xanthoparmelia viriduloumbrina* were common on rock in this site, with *X. viriduloumbrina* growing on exposed rocks, closer to the ocean than the *Arctoparmelia* species, which were found further inland away from the spray zone. Four species of *Porpidea* were collected on rock, *P. flavocaerulescens*, *P. grisea*, *P. speira*, and *P. tuberculosa*. *Rhizocarpon hochstetteri* was present in shaded areas on rock and the saltwater loving *R. lavatum* was also present. *Trapeliopsis granulosa* was also present in this site, which is common on disturbed soil, humus, and rotting wood, and is a pioneer species after fire. The **Squid Jiggers Trail** had many lichens similar to the Great Auk Trail in addition to *Pycnothelia papillaria* in open gravelly areas, and *Rinodina tephraspis* on small pebbles in a sheltered trickling brook. **Windmill Bight** contained a large number of boreal species and was the only site that had *Mennegazzia terrebrata*, a boreal foliose lichen on Balsam fir, but it also had a number of arctic alpine species.

### Substrate diversity

Species diversity was also reflected in the substrates that were available for lichen colonization (Figure 2). The substrate on which the lichens were found, was recorded for the five sites with the larger number of collections. These substrates reflect the habitat and the available space for lichens to grow. Lichens were collected evenly across soil, moss, wood, and rock in the Indian Lookout Trail but very few lichens were on humus/duff. The Squid Jiggers Trail and the Great Auk Trail were dominated by rock and humus, soil, or moss substrate, but Deadman's Bay was dominated by sandy soil with some wood. Lichens at Windmill Bight were mostly on wood and some on moss and rock.



**Figure 2:** Numbers of species collected on each substrate shown in the legend for each of five collection sites. Each substrate represents a broad definition, e.g. soil may reflect species growing directly on or above clay, sand, silt, etc. Wood represents species on living and dead bark, driftwood, rotting wood, etc.

### Summary

In summary, 19 new reports for species of lichen-forming ascomycetes in Newfoundland and Labrador resulted from the 2013 Foray, with an additional 3 records that may need further investigation. A longer period of time to collect at each site would likely have provided a larger number of species. The use of this list during the 2014 Foray and the presence of an invited expert would re-focus the collecting effort on crustose lichens and would likely increase the number of species for each location, new reports for the province, and confirm some of the existing reports.

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# THE MAIL BAG

or why the carrier pigeons assigned to serve the lavish Corporate and Editorial offices of OMPHALINA get hernias

A few years ago an older man here in coastal New Brunswick told me how his father used to take his boat out to an offshore island in search of seabird nests. When these were found, the eggs were removed and broken. The birds would lay a new set of fresh eggs that could be collected and eaten. My informant did not know if the birds then laid a third clutch.

This story reminds me of what I have heard about commercial mushroom picking, that harvesting mushrooms will actually *increase* the output of a favourite patch rather than harm it. Mushrooms, like bird's eggs, are the reproductive effort of the organisms that produce them. If the commercial pickers are to be believed, then it appears the fungus will attempt to reproduce even more if their first efforts are thwarted. As a biologist this bothers me.

Mushroom-producing fungi are essential elements in any ecosystem. Many of them form complex symbiotic relationships with the roots of trees where they participate in a cooperative exchange of nutrients benefiting both partners. It is widely known that most of our major forest trees simply cannot survive in nature without these fungal associations. The tree transfers sugars to the fungus, thus providing it with the energy to grow though the soil and gather phosphorus and nitrogen. The fungus is efficient enough to accumulate more than it needs and passes the excess back to the tree. In addition to these symbiotic relationships, many mushroom-producing fungi participate in the breakdown and recycling of dead plant and animal materials. In fact, fungi are the most important recyclers of wood in any forest.

Considering the profound importance of fungi in our forests we should give some thought to how our own activities might affect theirs. If by gathering large quantities of mushrooms we force fungi into increased reproduction at the expense of other activities we may find they are less efficient at supplying their tree partners with nutrients. Or maybe in the long term they may become less

abundant because their reproduction has been compromised. We don't really have the information to support such ideas, but why take the risk?

I find the October 2013 issue of OMPHALINA disturbing. Here we see accounts of people who go out into the forest to harvest huge quantities of mushrooms for profit. I can't help but compare this with those who used to go "egging", a now mostly illegal activity. Mushrooms are as essential to the fungus that produces them as eggs are to the birds that lay them. I am not against those who bring home some wild mushrooms for a meal. What repels me is over harvesting. Passenger pigeons, cod, great auks, herring and numerous other creatures have paid the price for it. Where I live chanterelles are abundant in late summer and offer a special seasonal treat, as do fiddleheads in the spring. When I gather them I take only enough for a meal and never deplete the whole patch. This way I can enjoy the fruits of summer without putting the forest at risk.

David Malloch  
Research Associate  
New Brunswick Museum

Ed note: [More to the point than the titles Dave supplied is that he is the Scientific consultant to FNL](#)





The commercial picking issue does have me upset and trembling! I notice that a fairly large number of young unemployed people who have just become interested in mushroom foraging for food and various presumed health benefits are selling their excess collections to local restaurants. I can't help but wonder what the effect of high volume commercial collecting might have long term, if any, on the productivity of favored sites.

Dianna Smith  
Editor: The Mycophile

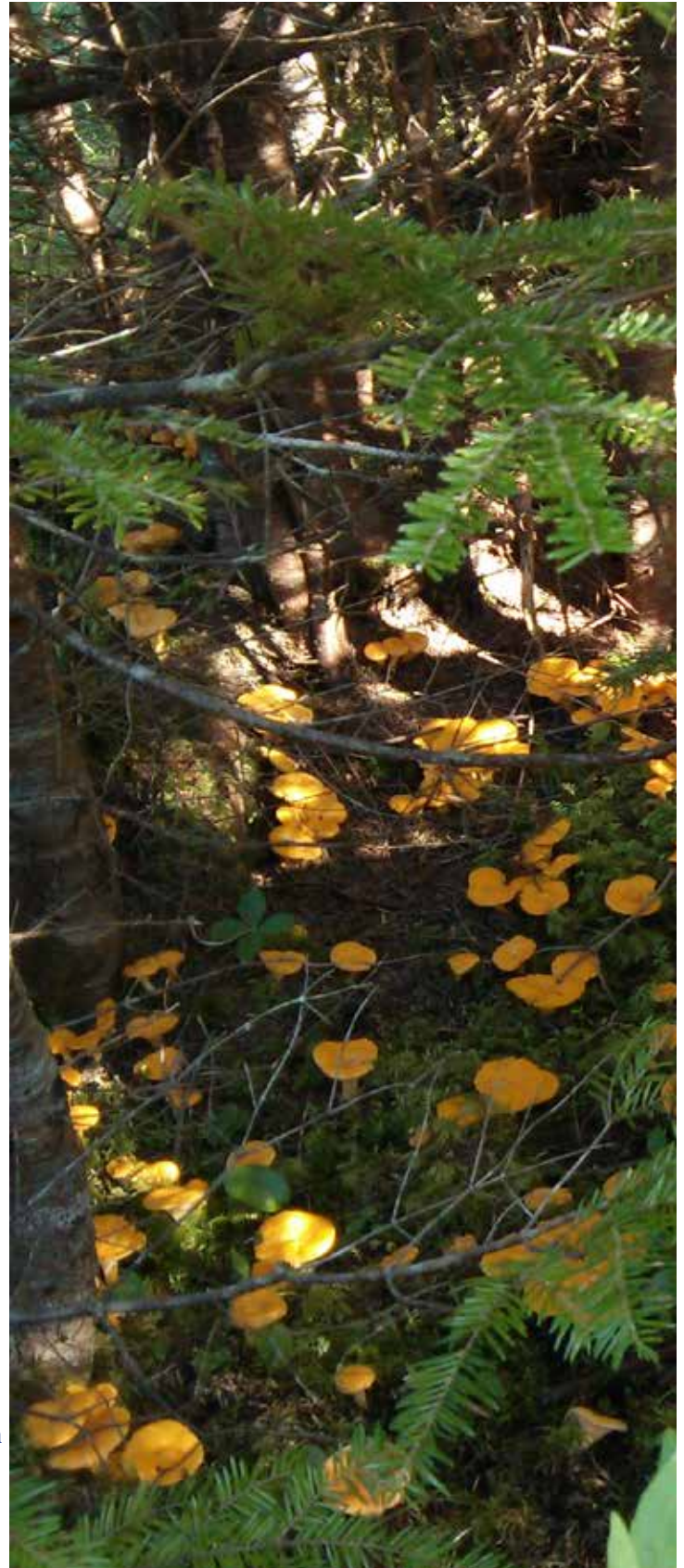


Reading the Thanksgiving issue, I was surprised to learn that *Lactarius helvus* has commercial value as an edible mushroom. In Europe this species was found to be toxic some ten or more years back. Apparently its effect is additive, with the accumulation of toxins over time, so that initial exposure seems harmless.

Leho Tedersoo, Tartu.

Ed note: In Estonia and Finland almost all species of *Lactarius* are considered to be desirable edibles, and parboiling the acrid ones to eliminate the toxins is a routine part in their preparation.

In his book, Riisikad: [Lactarius](#), Kuulo Kalamees singles out *L. helvus* as possibly the only *Lactarius* species that remains toxic even after parboiling, and cautions that throughout Europe it is indeed considered toxic, although the mechanism is poorly understood. Helvophages, take heed!





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