OMPHALINA

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FORAY 2012 REPORT

Newsletter of FORAY NEWFOUNDLAND AND LABRADOR

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Dec. 18, 2012

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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OMPHALINA *is the lackadaisical newsletter of Foray Newfoundland & Labrador. There is no schedule of publications, no promise to appear again. Its primary purpose is to serve as a conduit of information to registrants of the upcoming foray and secondarily as a communications tool with members.*

Issues of OMPHALINA *are archived in:*

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

seened AT *gmail* DOT *com,*

…who eagerly invites contributions to OMPHALINA*, dealing with any aspect even remotely related to mushrooms. Authors are guaranteed instant fame—fortune to follow. Authors retain copyright to published material, and submission indicates permission to publish, subject to the usual editorial decisions. Issues are freely available to the public on the FNL website. Because content is protected by authors' copyright, editors of other publications wishing to use any material, should ask first.*

COVER: *Squirrel Mycophile!*

Photo by Roger Smith. This is what he had to say about it …

The squirrel emerged from the woods as I was instructing a small group in the Photo Foray. As soon as it appeared the younger members of the group lost all interest in photographing the lovely clusters of Armillaria ostoyae growing on the tree stumps and instead used them as bait to attract the squirrel. What could I say - if you can't lick 'em, join 'em, so I switched to my telephoto zoom lens and shot over 30 photos of the squirrel myself.

After the excitement was over and we were walking back to the lodge, the two kids proclaimed that they had an awesome time, but I don't think it was a result of my stellar photography instruction…

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Message from the Guest Editor

Happy Christmas and a Bountiful New Year!

This is our long awaited Foray Report Issue. The elves at the Omphalina studios have been busy writing, cutting, and pasting, to bring you this issue just in time for holiday reading.

First, in our bag of goodies, we have an article by Nils Hallenberg concerning *Peniophora erikssonii* and a request for collections of the same.

This is followed by a handy dandy guide to lichen collection and identification by Michele Piercey-Normore. It is a nice refresher for those who attended her talk at the Foray. You may wish to keep these pages handy for future reference.

David Boyle was back again this year to offer another mushroom growing workshop. Participants innoculated logs with Shitake spawn and took them home dreaming of happy harvests. For more info, check out David's article in this issue.

In another article, Maria divulges the source of the mushroom pâté recipe that was used in Yvonne Thurlow's very successful cooking workshop. Do check out the picture Faye sent in of her rendition of the recipe.

Thanks to all who sent in pictures of participants and activities at the Foray. We have collected them in the Foray Fotos section. Contributions are always welcome, so please keep them coming.

Lastly, we have the "important bit" of this report issue -- the actual species list and the distribution by trail table– as well as the accompanying discussion by Andrus and Michele.

We had a great Foray this year. The mushrooms were plentiful. The weather was excellent. The workshops and talks fun and informative. The people were awesome. So there you have it, here we are balanced at the cusp of a new year, looking back at a successful Foray 2012, and looking forward to Foray 2013.

Happy mushrooming!
Marian Wissink

Photo: Roger Smith

Words from the President

One of the pleasures that I have as President of Foray Newfoundland and Labrador is having a forum to thank everyone for their participation in this project that we have embarked upon. We could not hold our Forays without the generous monetary and in-kind support that we receive from our partners, please see the list on page 41. Likewise, we would not exist without all of you interested mushroomers—many thanks, and please continue to participate!

Foray Newfoundland and Labrador held its first event in September 2003, so this September was our tenth gathering. It was also a record year for mushrooms, both in number of collections and number of species. We added 1,136 specimens to our fungarium, and 867 photographs of fungi and 141 photographs of lichens to our photo collection (Roger's camera is still steaming). A special feature of this year's Foray was the diversity of corticiates, and of the genera *Tricholoma*, *Hygrophorus*, *Hygrocybe*, and *Cortinarius*, and Michele brought in a wonderful collection of lichens. It was also without doubt the Year of the *Polyozellus*—they seemed to be everywhere.

Our Faculty this year—Jon-Otto Aarnæs, Gro Gulden, Nils Hallenberg, Renée Lebeuf, Faye Murrin, Todd Osmundson, André Paul (who identified material sent by mail but was unable to join us), Michele Piercey-Normore, Roger Smith, Greg Thorn, Steve Trudell, and Andrus Voitk—were an amazing team with an immense knowledge base, and I cannot thank them enough for their expertise, their patience, and their wonderful interactions with all of us.

We all had the chance to enjoy the talks by Andrus, Faye, Greg, Michele, Nils, Renée, and Todd, and to participate in the fascinating workshops and special walks with Andrus, David, Glynn, Greg, Judy, Maria, Michele, Nils, Roger, Tõnu, and Yvonne. The database team did a splendid job working their way through this year's flood of specimens—thank you Erin Duke, Claudia Hanel, Anne Marceau, Rosie Myers, April Muirhead, Diane Pelley, and Christian Wright. I would also like to thank our wonderful cookout team (Randy Batten, Ulrich Hochwald, and Aare Voitk), and the team who volunteered to clean up afterwards. Terra Nova Hospitality Home was, for a second year, the perfect base for the Foray, with great facilities and food, and an amazing tolerance for moved furniture—many thanks to Rhoda ,Vernon, Ken and Sharon, and to those who catered our reception meal.

The last group that I would like to thank starts its work as the Foray ends: the directors, whose job it is to ensure that the next event will run smoothly. Andrus—the founder of this organization—finds mycologists around the world who would like to join us, and works up our species list for the report; Geoff keeps us on a firm financial footing; Faye records meetings and decisions; Maria pulls together the workshops, Jamie is responsible for trail information, Jim runs our website and Flickr site, Marian designs the Foray information booklet and final report, Anne prepares the program of foray events, Randy retired this year as director of social events, and Tina, our newest director, is taking over his responsibilities—thank you all!

Never let anyone say that being the Foray President is a thankless job!

Michael Burzynski

FACULTY

Guest faculty:

Jon-Otto Aarnæs
Gro Gulden
Nils Hallenberg
Renée Lebeuf
Todd Osmundson
Michele Piercey-Normore
Roger Smith
Greg Thorn
Steve Trudell

Local Faculty:
Michael Burzynski
Faye Murrin
Andrus Voitk

Photo: Michael Burzynski

Photo: Michael Burzynski

Photo: Michael Burzynski

Photo: Michael Burzynski

Photo: Roger Smith

PARTICIPANTS

Andrus Voitk	Corner Brook, NL
Maria Voitk	Corner Brook, NL
Sarah Graham	Corner Brook, NL
Nils Hallenberg	Ebeltoff, Denmark
Glynn Bishop	Paradise, NL
Geoff Thurlow	Corner Brook, NL
Yvonne Thurlow	Corner Brook, NL
Roger Smith	Fredericton, NB
Michael Burzynski	Rocky Harbour, NL
Anne Marceau	Rocky Harbour, NL
Renée Lebeuf	Pierrefonds, QC
Gro Gulden	Drammen, Norway
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Tina Newbury	Corner Brook, NL
Bruce Rodrigues	Corner Brook, NL
Tarik Rodrigues	Corner Brook, NL
Kaden Rodrigues	Corner Brook, NL
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Jeri Graham	Corner Brook, NL
Roger Zilkowsky	Corner Brook, NL
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Ross Collier	Sandringham, NL
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Faye Murrin	Torbay, NL
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Diane Pelley	St John's, NL
Erin Duke	St John's, NL
Silver Michelin	North West River, NL
Rosie Myers	Corner Brook, NL
Christian Wright	Corner Brook, NL

Photo: Michael Burzynski

Peniophora aurantiaca or P. erikssonii?

Which species do we have in Newfoundland and Labrador?

Nils Hallenberg

Peniophora aurantiaca is a smooth, orange, corticioid fungus growing on dead branches of alder, all over Canada. Its striking colour and its preference for a specific host should make the species easy to recognize—if it were not for *P. erikssonii*, another species that superficially looks identical to *P. aurantiaca*. The story begins in Europe.

P. aurantiaca is a common and well-known species in alpine areas of southern and central Europe where it is found on branches to *Alnus viridis*. The French mycologist, Jacques Boidin, found that in some specimens the hyphae were devoid of clamp connections at the hyphal septa. (This is a character that can be seen only with the microscope.) Moreover, those specimens lacking clamps were never found on *Alnus viridis* but on attached dead branches of living tree-forming alders, *A. glutinosa* and *A. incana*. The differences in habitat and morphology became the basis for describing the species as new, and Boidin named it in honour of the Swedish corticiologist John Eriksson, who later became my teacher and supervisor in the University of Göteborg.

The two species are easily recognized with the microscope because of the big, ellipsoid spores (measuring 14-16 x 8-10 µm in *P. aurantiaca*; 15-20 x 10-13 µm in *P. erikssonii*), and the presence of both encrusted cystidia and gloeocystidia.

There is no doubt that *P. erikssonii* is an ecologically specialized species which most likely has evolved from *P. aurantiaca*. How can we be so sure about that, and why is it not the reverse, i.e. *P. aurantiaca* evolved from *P. erikssonii*? The answer follows from later research by Boidin. He made extensive studies on life cycles of corticioid fungi and found that by far the most common cycle—and the original one—involved the formation of clamp connections on hyphae. When spores are liberated from fruitbodies, some of them may have the great fortune to get attached to a surface like an alder branch, where they may grow out and form the first hyphae, the so-called primary mycelium. When such a mycelium comes in close contact with another primary mycelium of the same species, they may fuse and form a secondary mycelium. The secondary mycelium has now got clamp connections at the septa—a first sign of successful sexual pairing. This, of course, is necessary to complete the life cycle. It is possible to mimic the pairing process in the laboratory so that we know fairly well how these things are take place.

P. erikssonii, on the other hand, has no clamp connections on the hyphae, and there are some indications that the species is autofertile. When we try to fuse primary mycelia in the laboratory they simply do not mate, not even intermingle. Further indications that *P. erikssonii* has evolved from *P. aurantiaca* is found in phylogenetic analysis based on ITS sequences (Küffer & Hallenberg 2000).[1]

Both species seem to occur in temperate to subalpine areas all over the northern hemisphere on alder species. While their differences in host preferences are quite distinct in Europe, it does not

seem to be so in North America. Here, *P. aurantiaca* is by far the most common of the two; however, it has not only been reported from its favourite, *Alnus*, but also from other broad-leaved hosts and even from fir.[2] *P. erikssonii* on the other hand, has only been recorded a few times (in Canada: NT, PQ, YT) and seems to be a much more rare species, only found on *Alnus* species.

It was therefore a great surprise for me that the two specimens I collected in Terra Nova this year were both completely devoid of clamps and should be named *P. erikssonii*. Spore sizes were 14-17 x 9.5-11 µm, seemingly intermediate between the two. It may be that *P. erikssonii* is an overlooked species and that it has been erroneously identified as *P. aurantiaca*. If the collection has not been examined microscopically, such a mistake is understandable. It is hard to believe that *P. erikssonii* is only found in Terra Nova on Newfoundland, and I would therefore ask all interested in investigating these matters for other collections from the Island. Dried specimens can be sent to me at:

Nils Hallenberg
Erik Menveds vej 11
DK 8400 Ebeltoft
Denmark

References

1. Küffer N, Hallenberg N: Intraspecific variability in *Peniophora aurantiaca* (Basidiomycetes): A comparison between specimens from North America and Switzerland. Nordic Journal of Botany, 20:713-716. 2000.
2. Ginns J, Lefebvre MNL: Lignicolous Corticioid Fungi of North America. APS Press, St. Paul, Minnesota. 1993.
3. Eriksson J, Hjortstam K, Ryvarden L: The Corticiaceae of North Europe, Vol. 5. Fungiflora, Oslo. 1978.

Illustrations

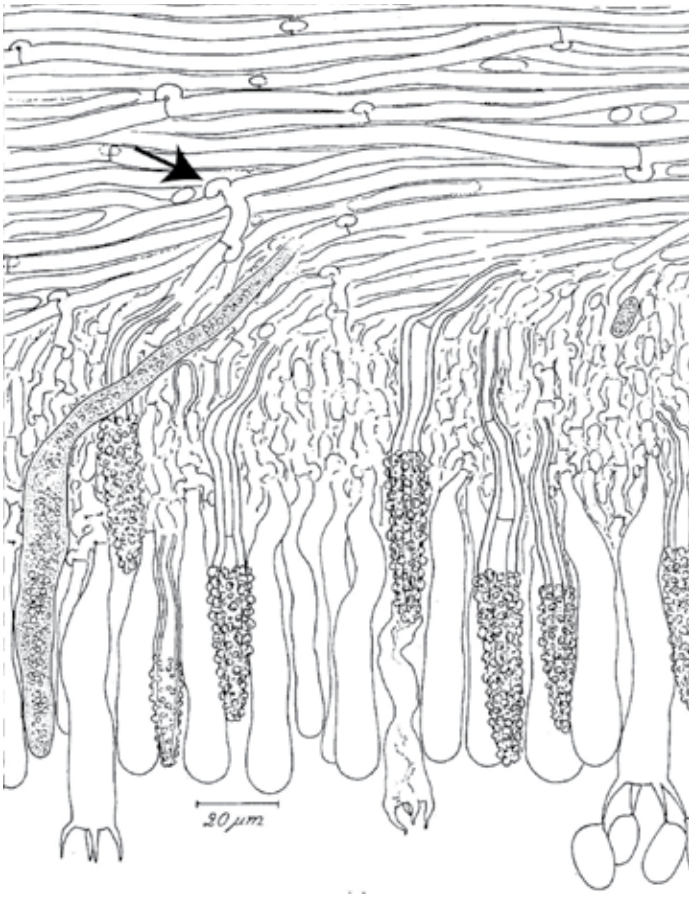
Title banner, upper : *Peniophora aurantiaca*

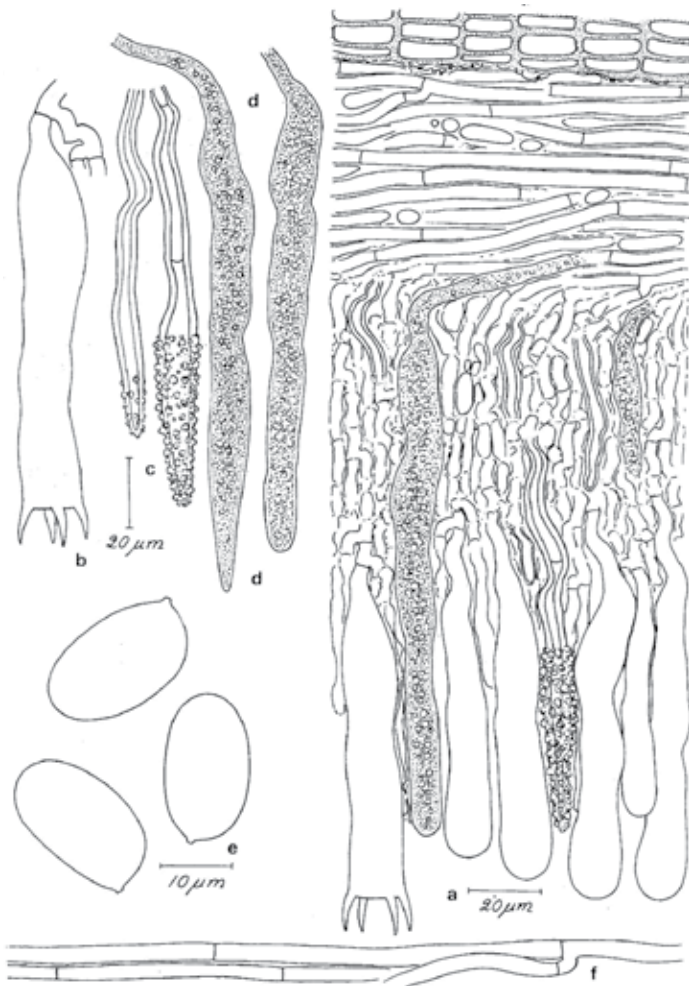
Title banner, lower: *Peniophora erikssonii*

Upper right: a section through a fruitbody of *P. aurantiaca*. The arrow points to a clamp connection.

Lower right: *P. erikssonii* with details observed in the microscope: a) section through fruitbody, b) basidium, c) encrusted cystidia, d) gloeocystidia, e) basidiospores, f) basal hyphae. Note that clamp connections are absent at the septa.

Reproduced from Corticiaceae of North Europe, vol. 5, with permission from Fungiflora. Microscopic drawings by John Eriksson.





QUICK GUIDE TO LICHEN COLLECTION AND IDENTIFICATION:

Michele Piercey-Normore

COLLECTING AND PRESERVING LICHENS

A dull damp day provides the best conditions for lichen collecting. Essential tools are a10x field lens, pocketknife, hammer and chisel, safety goggles, paper bags, marker, plastic bags for wet samples, pencil and notebook, compass, and GPS unit. Collected material should show all features of the lichen: old and young vegetative thallus, propagules, ascomata, attachment organs, and enough material for a 3x4 inch packet (smaller amounts are fine for crustose lichens). Be aware of your surroundings: do not collect an entire thallus if it is rare. Collecting on private property requires permission. Provincial and national parks require permits. First Nations lands require permission.

Lightly press macrolichens and place them in a numbered 3x4 inch packet. Record the collection information: date, habitat (macro and micro), substrate, exposure, aspect, and coordinates. Air dry as soon as possible (avoid heat and exposure to sunlight).

USING IDENTIFICATION KEYS

Learn to use dichotomous keys. Diagnostic features are listed in order of "importance". Use species descriptions and compare with herbarium specimens. You can also (with caution) use the internet to check your identifications.

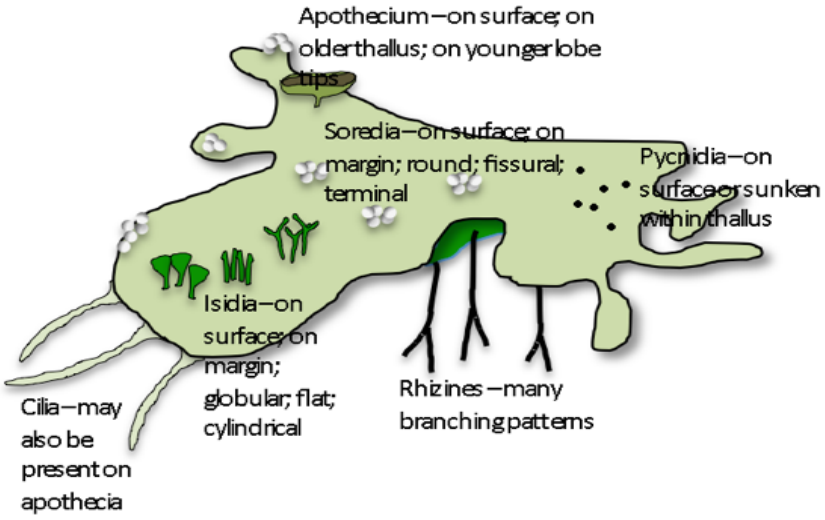
Good identification keys: • Hale. 1979. How to Know the Lichens, • Brodo et al., 2001. Lichens of North America, • Thomson, 1984. American Arctic Lichens: The Macrolichens. • Thomson, 1999. American Arctic Lichens: The Microlichens. • Purvis et al., 1992. Lichen Flora of Great Britian and Ireland. • Wetmore, 1967. Lichens of the Black Hills of South Dakota and Wyoming. • Thomson, 2003. Lichens of Wisconsin. • Goward, 1999. Macrolichens of British Columbia (two volumes). • Gowan and Brodo, 1988, The Lichens of Fundy National Park, New Brunswick, Canada. • Hinds and Hinds, 2007. The Macrolichens of New England. • Hale, 1990. A Synopsis of the Lichen Genus *Xanthoparmelia*. • Dibben, 1980. The Lichen Genus *Pertusaria*. • Howard, 1970. The Lichen Genus *Ochrolechia* in North America North of Mexico. • Brodo and Hawksworth, 1977. *Alectoria* and Allied Genera in North America.

LICHEN CHEMISTRY

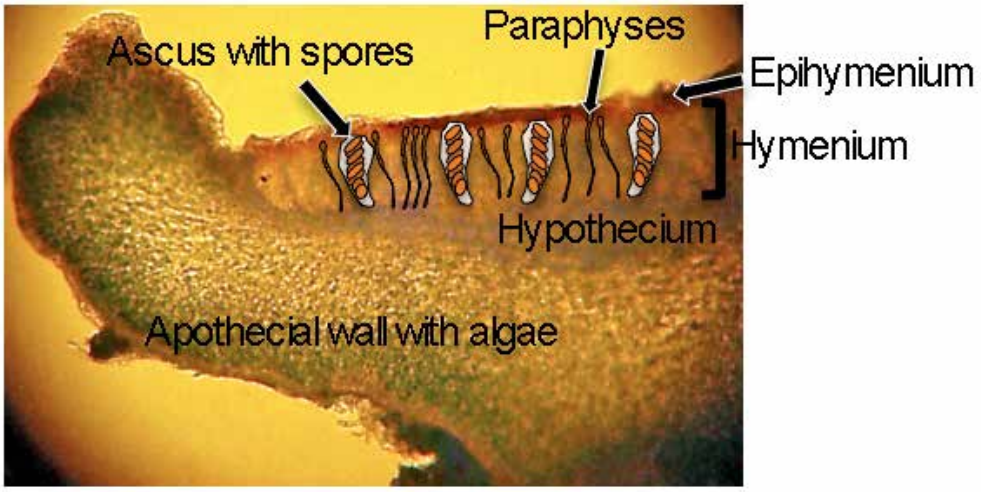
Certain chemical tests are routinely performed on lichen thalli to help determine species identifications. Remove a piece of dry thallus and place on a microscope slide under the dissecting microscope. You may need to slice through the cortex and medulla to view both tissue types. With a microcapillary tube, draw up the desired chemical and place the tip of the tube on the thallus section while watching through the microscope for a color change. No color change is a negative test. Any color change is positive and the color may be important for the next step in the key.

Characteristics of secondary metabolites (natural products) are routinely used in identification keys by microcrystal tests, spot tests, or thin layer chromatography (TLC). Common spot tests include the K test: 10% potassium hydroxide (sodium hydroxide or caustic soda); the C test: saturated sodium hypochlorite (caustic, bleach); the KC test: apply K, remove excess K and apply C; the PD test: 5% alcoholic para-phenylenediamine (carcinogenic); the I-test — Lugol's solution: contains iodine (toxic) to detect presence of starch. Spot tests may apply to cortex, medulla, apothecial sections. Scrape away the cortex to expose the white medulla. Apply the chemical with a microcapillary tube while observing under a dissecting microscope. The UV test uses ultra-violet light at the 254nm wavelength. Some secondary compounds fluoresce yellow, blue, or white. Place the entire thallus inside a UV light box (you may need to scrape away cortex to reveal medulla). Turn on the UV light and observe through the glass opening. Caution should be taken to prevent UV exposure to eyes or skin.

TERMINOLOGY:
• Growth forms: crustose—adhered directly to substrate; foliose—upper/lower surfaces attached to substrate by special structures; frruticose—upright from ground or pendant from trees or round with inner/outer surfaces. • Cladoniform: refers to *Cladonia* having both fruticose and crustose/foliose growth forms. • Symbionts: photobiont—photosynthetic partner; phycobiont—green algal partner; cyanobiont—cyanobacterial partner; mycobiont—fungal partner. • Rhizines: attachment organs that extend from underside of foliose thallus (e.g.: *Peltigera*). • Holdfast: single large attachment organ from underside of the thallus (*Umbilicaria*) • Tomentum: fine layer of "hairs" on upper surface (*Peltigera*) or lower surface (*Lobaria*) of thallus. • Hypothallus: large network of hyphae on lower side of thallus (*Degelia*) • Cilia: extensions from the margin of thallus (*Hypogymnia ascendens*) or apothecium (*Teloschistes chryophthalmus*). • Veins: thickenings of underside of thallus (*Peltigera*). • Cephalodia: compartments on or within thallus that hold the cyanobacterium (*Peltigera aphthosa*). • Cyphellae and pseudocyphellae: openings on the underside or vertical portions of the thallus (*Bryoria*). • Isidia: short corticated vegetative propagules as extensions of the thallus; may be cylindrical, globular, flat, branched (*Melanelia*). • Soredia: non-corticate vegetative propagules with hyphae and algae released from thallus surface in patches (*Peltigera didactyla*) or evenly dispersed (*Cladonia deformis*). • Lobule: tiny extension of a lobe. • Conidia (in pycnidia): asexual fungal propagules produced in flask shaped pycnidia; sunken within thallus or on thallus surface. • Podetium: upright hollow thallus (*Cladonia*). • Squamules: crustose primary thallus (*Cladonia*). • Pseudopodetium: solid white stalk (*Stereocaulon*). • Phyllocladia: squamulose or coralline structures on pseudopodetia (*Stereocaulon*).



Ascomata (Ascoma): Apothecia, perithecia
"Tissues" in the ascoma: hymenium (with paraphyses, asci, ascospores), hypothecium, ostiole, thallus wall, exciple (excipulum), "tissues" in the thallus (cortex, medulla, photobiont layer, stereome, central strand).



HOW TO MAKE A CROSS SECTION:

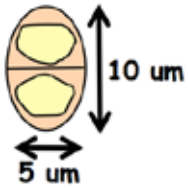
Making thallus sections from dry material

Foliose or fruiticose: Using a single edged razor blade, slice off a small piece (1cm) of lichen tissue and place in a drop of water on a slide. After rehydration, place the microscope slide under the dissecting microscope and adjust the focus. Look through the microscope - with forceps in one hand, hold the tissue in place. Using the razor blade in the other hand slice the tissue as thinly as possible. Make multiple slices to increase your chance of getting a thin piece. Remove any chunks of tissue with the forceps, place a coverslip on the sections, and examine under the compound microscope. Some features may be visible under the dissecting microscope.

Crustose or apothecium: Using a single edged razor blade make multiple vertical thin slices of the tissue or apothecium directly attached to the substrate. Make one horizontal cut below the apothecial sections and place in a drop of water on a clean slide. Spread the sections apart and place a cover slip over them. Examine under a compound microscope.

To observe fungal spores

Mount thin sections of an apothecium or perithecium (as described above) on a microscope slide and place a coverslip over them. Absorb excess water with filter paper. Using the eraser side of a pencil, press gently but firmly on the coverslip directly over the sections. Be careful not to break the coverslip. The pressure will cause the spores to be released from the asci for easier viewing. View the spores and record features before staining (size, color, # spores/ascus, wall thickness, cross walls, etc).



Staining

Staining is sometimes required in order to visualize the transparent fungal hyphae, and parts of the apothecium. Cotton blue or toluidine blue will stain the sections to allow better visualization of the tissues. Place a drop of stain on the slide at one side of the coverslip. With filter paper placed against the opposite edge of the coverslip, absorb the water while drawing the stain from the other side.

To make an algal squash

Mount thin sections of the thallus on a microscope slide and place a coverslip over them. Absorb excess water with filter paper. Using the eraser side of a pencil press gently but firmly on the coverslip directly over the section. Be careful not to break the coverslip. The pressure will cause the algae to separate from the fungal tissue. Grass green colored round cells with a single large chloroplast is *Trebouxia*; oval shaped cells is a non-trebouxoid alga, an orange filamentous alga is *Trentepohlia*, a string of beads is *Nostoc*, and others may be filamentous cyanobacteria.

USEFUL WEBSITES

• International Association of Lichenologists (IAL) homepage: http://www.lichenology.org/ • American Bryological and Lichenological Society (ABLS) homepage: http://www.abls.org/ • The British Lichen Society: http://www.thebls.org.uk/ • North American Lichen checklist: http://www.ndsu.nodak.edu/instruct/esslinge/chcklst/chcklst7.htm • Recent literature on lichens: http://www.nhm.uio.no/botanisk/bot-mus/lav/sok_rll.htm • Ways of Enlichenment photogallery: http://www.waysofenlichenment.net/lichens/ • Lichen photogallery, Natural History Museum, Univ. of Oslo: http://nhm2.uio.no/botanisk/lav/Photo_Gallery/index.php

David Boyle

Mushroom Growing Workshop

About a dozen aspiring cultivators attended the mushroom growing workshop. After a short talk about mushroom growing, this energetic group started doing it, by inoculating the birch logs that Tõnu had provided.

They drilled about 25 holes into each log, packed the holes with shiitake spawn (a sawdust mix colonized with actively growing mycelium) and capped them with molten wax. After getting into gear, the team inoculated 12 logs in about 30 minutes. Each of these with skill and luck could each produce a kilogram of shiitake each year for the next decade, for a grand total of 120 kg of mushrooms! Participants who took logs home should plan on taking the cooking workshop at next year's foray to be ready for their crop!

Normal practice is to inoculate logs in the spring so the mushroom mycelium can 'run' through the log during the summer, with a possible crop that fall or the following spring. We inoculated in the fall, so schedules will be different. Fungal growth rates are highest at about 30^0C, but are still significant if the temperature is above 5^0C or so, so the mycelium should grow out a few centimetres from the inoculation hole this fall. Freezing will not kill the fungus, so growth will resume next Spring, and then speed up as summer progresses. The logs should be well colonized and be ready to form the first "flush" (mushroom crop) by next September.

For this to happen, logs must be properly stored. The main goal is to keep the moisture content similar to that of a freshly cut log. They should not be covered with plastic, since this encourages contaminating fungi to grow on the log surface. Logs must be kept in an area with high humidity and relatively little air movement. Storing them under a coniferous canopy works well. They should be close to the ground, but not on it since this would allow competing fungi to enter the log from the soil. They might be kept up on e.g. bricks. Snow on the logs is good. They should be kept out of direct sun.

By next August, or perhaps a bit later, the logs may be ready to make mushrooms. White patches of mycelium may appear at the ends of the logs—mycelium that has grown down the log from the inoculation holes. These patches indicate that the log is colonized, but if the patches are not there, it may simply mean that the end of the log became too dry.

In either case it is worth trying to get the mushrooms to form. For this, the logs should be "shocked". One way to do this is to submerge them for about 24 hours in cool, clean water. This causes the temperature, carbon dioxide and

oxygen levels in the wood to change rapidly, which for some reason makes the mycelium feel that it is time to make mushrooms. Soaking also serves to re-establish high moisture content.

After shocking, the logs should be placed in a vertical position, again, in a humid environment. Within about a week, mushrooms will start to form. They will usually emerge from the inoculation holes, but may appear elsewhere, especially in later flushes. If the air around the log is very humid, the mushrooms will become quite large and their surface will be smooth. Consider misting the logs as the mushrooms are forming. If the humidity is variable, the mushrooms will be smaller and have cracks in their surface. This is considered better by some, but yields will be lower. Both forms taste great.

If mushrooms do not form after the first shocking, do not despair! Put the logs back in the horizontal 'rest' position for an additional growing period (e.g. a month) then try shocking them again. Sometimes physically shocking with e.g. a mallet can work. A bolt of lightning might also serve. (This could also be a new cooking method). A few flushes per year are possible, and this can continue for ten years or more, or until the log is rotten or overtaken by other fungi.

At the workshop, we also quickly discussed growing mushrooms on nutrient-fortified sawdust. The main message here was that with a pressure cooker and some basic equipment, many mushroom species can be grown at home. However, the process is a little more complex than growing on logs, and because time was limited, we just went through the motions of doing it. (Mix sawdust and nutrients and water. Put the mix into sterilizable plastic bags. Sterilize in a pressure cooker for a few hours. Cool. Inoculate with spawn. Incubate for a few months. Shock. Harvest mushrooms.) Although this part of the workshop was rushed, it is hoped that participants came away thinking that this type of mushroom cultivation is something they might try. With a little help from books, internet sites (google "mushroom cultivation") or fellow cultivators it is quite easy to grow many mushrooms at home. Shiitake and oyster mushrooms are good for starting, but there are many other possibilities. One might even consider isolating from mushrooms collected in the field, but this takes a bit of practice.

So, do not forget your logs! Keep them from drying out, and try shocking them at the end of next summer.

Do some reading and internet research and try growing other species on sawdust or other organic waste materials.

Experiment and have fun!

Please tell me how your logs perform <mboyleDOTsilkATgmailDOTcom>.

If you want some mushroom spawn contact me next April and I can perhaps sell you some, or direct you to a source. In any event, I should be interested in hearing how your shiitake logs and other mushroom growing adventures progress.

Mushroom Cooking Workshop

Maria Voitk

The highly successful cooking workshop given by Yvonne Thurlow involved making a mushroom pâté. Because the making would take up the full time and the pâté needs to set before consumption, Yvonne had made one at home for all to taste (with some sherry), while demonstrated the making of it. Yvonne's pâté earned raves from participants, and drew interlopers from far and wide, hoping to get a taste. The fresh creation was allowed to cool and enjoyed 24 hours later by the faculty at their last supper, after the foray was over.

We were unable to contact the original author for permission to reproduce her recipe, so are unable to lay it out for you here. However, you can find it on the web at <http://www.lcbo.com/lcbo-ear/RecipeController?language=EN&recipeType=1&action=recipe&recipeID=2450>. As it states, it is time-consuming. However, the recipe is easy to follow and the results reward the effort many times over. It calls for three different mushrooms, as well as some button mushrooms for final decoration. The shiitake were purchased cultured mushrooms, but the lobster and porcini (*Boletus edulis*) were collected locally for this dish. As Dana Speers, the author, says, you may wish to experiment with some other substitutions of your own, and even try the decoration with some attractive wild mushrooms. We should have several good choices in our woods.

Photo: Faye Murrin

Faye Murrin, one of the workshop participants, went straight home and made the pâté twice, for two sets of guests, earning kudos both times. She sent along this picture of her finished product.

Photos: Michael Burzynski

***Yvonne Thurlow**, the instructor, with the remains of her first pâté, and her smiling class.*

FORAY NEWFOUNDLAND AND LABRADOR

Photo: Roger Smith

TERRA NOVA 2012

Foray Fotos

Photos: Michael Burzynski

Photos: Michael Burzynski

Photos: Roger Smith

Photos: TA Loeffler

Photo: Roger Smith

Photo: Michael Burzynski

Photo: Roger Smith

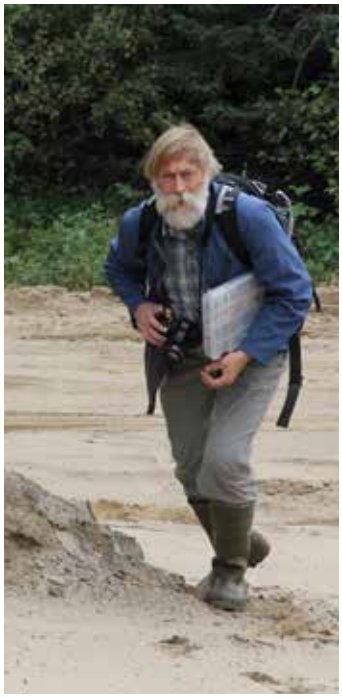


Photo: Roger Smith

Photo: Michael Burzynski

Photo: TA Loeffler

Photo: TA Loeffler

PROGRAM

	Friday	
noon	Mycoblitz at Lockston Path Provincial Park	
4 – 6 pm	Check-in at Terra Nova Hospitality Home	
6:00	Reception	
7:30	Introduction to the foray	
8:00	Michelle Piercey-Normore Beneficial partners: Lichen-forming fungi - Identification and natural products	
8:45	break	
9:00	Faye Murrin Mushrooms 101 – a beginner's guide to mushrooms	Greg Thorn Will the real chanterelle please stand up?
		Renée Lebeuf My favourite waxy caps of NL

	Saturday
8:00 am	Breakfast
9:00	Forays (see trails)
	Lunch on the trail
3:00	Sorting and identification
5:00 pm	Quidi Vidi QuuQup
7:00	Andrus Voitk Truffle adventures in Newfoundland and Labrador
7:30	Nils Hallenberg What is under the surface? - Unwrapping the corticioid fungi.
8:15	break
8:30	Todd Osmundson Laccarias of Newfoundland
9:00	Beddy-bye or socializing

SUNDAY							
8:00 am	Breakfast						
8:40	Group photo						
	OUTSIDE WORKSHOPS			INSIDE WORKSHOPS			
9-10	Lichen walk with Michelle	Pick for the pot with Judy	Watercolour sketching with Glynn	Growing mushrooms with David	Microscopy with Greg	Tables with Renee	
10-11						Tables with Faye	Using a key with Andrus
11-12	Wood rot walk with Nils	Pick for the pot with Maria	Photography with Roger	Cooking mushrooms with Yvonne		Tables with Steve	
12-1					Chaga with Tõnu	Tables with Greg	
1:00	Lunch						
2:00	Annual General Meeting						
2:30	Wrap-up and Thank-you						

TRAIL DESCRIPTIONS

Foray # / Park Map Number – Trail Name Difficulty Distance
Terrain & habitat
Access to trail site

1/TNNP # 4 – Blue Hill West Trail Easy to moderate 5 km (return) /1.5 hr
Through mature spruce forest, some burn over, includes Ecological Monitoring Assessment Network site
Access: from the TCH through a small parking lot opposite the Blue Hill Road

2/TNNP #5 – Blue Hill Pond Trail Easy 7 km (return) /2 hr
Along coast, then incline with boardwalks through black spruce forest, bog and fen
Access: from the left of the Visitor's Centre Parking Lot, start on the Buckley Cove's Trail for 1 km, then take the left fork

3/TNNP # 7 & 8 – Heritage Trail Loop and upper Coastal Trail
Easy to moderate 1 km + 4.5 km
1 km loop then coastal trail along Newman's Sound, black spruce and balsam fir mixed forest
Access: from the Visitor's Center, to the right of the Parking lot, trail starts by going over bridge with Headquarter's wharf half way along trail

4/TNNP #9 & 8– Campground loop and lower Coastal Trail
Easy 4 km + 4.5 km
Loop around campground trail plus lower Coastal trail along Newman's Sound; black spruce and balsam fir mixed forest
Access: from the Newman's Sound day-use area, Headquarter's wharf half way along trail

5/TNNP # 10 – Minchin Cove & South Broad Cove
Easy (boat ride then ~2 km)
Balsam fir, with mixed forest including some hardwood; some boardwalk
Access: by boat only for foray; it is part of the Outport trail which is longest in the Park at 46 km

6/TNNP # 11 - Ochre Hill Easy to moderate 8 km (loop 2 km)
Balsam Fir and mixed forest, relatively narrow path, some steep hills; some higher alpine vegetation, some wet boggy areas
Access: from TCH, turn onto gravel road that goes up to Ochre Hill Lookout; trailhead approximately 1 km before lookout

7/TNNP #12 - Sandy Pond Easy 3 km
Loop around pond, much along a boardwalk; spruce / mixed forest, bog
Access: easily accessible from parking lots either direction; (roadside to the parking lots may be very productive)

SPECIES LIST AND DISTRIBUTION BY FORAY TRAIL

by Andrus Voitk

2012 Foray Species List

Red font = new species to list

Green background = lichenized ascomycete

Yellow background = common (pedestrian) mushroom species

TOT = Total number of collections for the species

L = Lockston Path Provincial Park

G = Gambo red pine stand

TN = road to and around Terra Nova community

SB = South Broad Cove, TNNP

SP = Sandy Pond Trail, TNNP

C = Campground area, TNNP

H = Heritage Trail, TNNP

BH = Blue Hill Trail, TNNP

M = Minchin Cove, TNNP

HQ = grounds around Terra Nova Hospitality Home

OH = Ochre Hill Trail, TNNP

M = Miscellaneous or unmarked regions

Notes:

1. Lichenized basidiomycetes (there was only one, *Lichenomphalia umbellifera*) are not marked as "lichens", but shown as "mushrooms", for uniformity with past practice.
2. For lichenized ascomycetes, "common" or pedestrian is not calculated, because collection numbers were not meant to be representative of abundance.
3. Total species per trail include "mushrooms" only. Lichenized ascomycetes excluded, because all trails were not surveyed for lichens, so that differences are not meaningful.
4. The species lists will be available for download from our website in two forms, in addition to what you find here. There will be the species list for Terra Nova 2012, in alphabetical order, and the new species will be added to the updated Annotated Cumulative Species List, split in the morphological categories.

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Alectoria sarmentosa	6			4	2								
Aleuria aurantia	2					2							
Aleurodiscus amorphus	1	1											
Aleurodiscus penicillatus	1			1									
Alnicola sphagneti	2					2							
Alpova parvispora	1										1		
Amanita bisporigera	1						1						
Amanita flavoconia	1		1										
Amanita fulva	2	1	1										
Amanita muscaria var. guessowii	2							2					
Amanita porphyria	3	1	1				1						
Amanita sinicoflava	2									2			
Ampulloclitocybe clavipes	1			1									
Antrodia heteromorpha	4	2					1	1	1	1			
Apiosporina morbosa	1										1		
Arctoparmeila centrifuga	3		1	1								1	
Armillaria ostoyae	15	6	3		1	1		1	1	1	2		
Armillaria sinapina	4		3				1						
Arrhenia acerosa	1	1											
Arrhenia obscurata	1		1										
Ascobolus ciliatus	1									1			
Ascobolus stercorarius	1			1									
Ascocoryne turficola	1				1								
Athelia decipiens	1	1											
Baeomyces rufus	1		1										
Bankera violascens	5		2	2					1				
Basidiodendron caesiocinereum	1			1									
Bisporella citrina	1			1									
Bjerkandera adusta	1			1									
Boidinia propinqua	1			1									
Boletopsis grisea	1			1									
Boletus huronensis	2		2										
Botryobasidium medium	1	1											
Botryobasidium subcoronatum	1				1								
Botryobasidium vagum	2		1	1									
Bryoria furcellata	3	2	1										
Bryoria fuscescens	1	1											
Bryoria trichodes	2	1		1									
Buellia punctata	1				1								
Callistosporium luteoolivaceum	1	1											

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Calocera cornea	2	1				1							
Candellariella aurella	1				1								
Cantharellula umbonata	7	1	2	4									
Cantharellus roseocanus	3	2								1			
Catathelasma ventricosum	3	2				1							
Cetraria muricata	1			1									
Chalciporus piperatus	1							1					
Cheilymenia fimicola	1			1									
Cheilymenia stercorea	1									1			
Chlorociboria aeruginascens	1				1								
Chroogomphus ochraceus	2		2										
Cladonia arbuscula	6	1	1	2				1				1	
Cladonia arbuscula ssp. *squarrosa*	1		1										
Cladonia boryi	3		1	1	1								
Cladonia caespiticia	1				1								
Cladonia cenotea	7	1		3	1			1				1	
Cladonia chlorophaea	1	1											
Cladonia cornuta	3		1	2									
Cladonia crispata	9		5	2	1			1					
Cladonia cristatella	3	1	1	1									
Cladonia deformis	3		2	1									
Cladonia digitata	1		1										
Cladonia gracilis ssp. *gracilis*	1		1										
Cladonia gracilis var. *elongata*	1							1					
Cladonia grayi	1			1									
Cladonia macilenta	3	1		2									
Cladonia maxima	5	1	1	1	1							1	
Cladonia metacorallifera	1			1									
Cladonia multiformis	1		1										
Cladonia ochrochlora	2	1		1									
Cladonia phyllophora	1											1	
Cladonia pleurota	8	1	2	2	2							1	
Cladonia rangiferina	8	1	1	3	1							1	
Cladonia rei	1		1										
Cladonia scabriuscula	2		1	1									
Cladonia squamosa	3		1		1							1	
Cladonia stellaris	6		1	2	1			1				1	
Cladonia strepsilis	1			1									
Cladonia stygia	1			1									
Cladonia subulata	1		1										

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Cladonia sulphurina	4		1	1	1							1	
Cladonia terrae-novae	2			1	1								
Cladonia turbinata	1				1								
Cladonia uncialis	4		2	1								1	
Cladonia verticillata	2		1	1									
Clavaria argillacea	4	1	1	3									
Clavaria falcata	1		1										
Clavaria rosea	1						1						
Clavariadelphus ligula	1	1											
Clavariadelphus sachalinensis	2	2											
Clavulina cinerea	5	1			2				1		1		
Clavulina coralloides	11	2	2	1			3	1	2				
Clavulinopsis fusiformis	2									2			
Clavulinopsis laeticolor	2						2						
Climacocystis borealis	4	1					1	1		1			
Clitocybe globispora	1								1				
Clitocybe subalpina	1	1											
Collybia cirrhata	3		1		1							1	
Coltricia perennis	9		1	3		2	2		1				
Coniophora arida	2			2									
Coniophora olivacea	1		1										
Connopus acervatus	6	1			1	2			2				
Conocybe lactea	1	1											
Conocybe watlingii	1									1			
Coprinopsis atramentaria	1						1						
Coprinus comatus	1												1
Coprotus luteus	1									1			
Cortinarius acutus	6	1	1	3	1								
Cortinarius alborufescens	2		1		1								
Cortinarius alboviolaceus	2	1									1		
Cortinarius armeniacus	2			1	1								
Cortinarius armillatus	2	1								1			
Cortinarius biformis	1	1											
Cortinarius brunneus	2		1		1								
Cortinarius callisteus	2		1						1				
Cortinarius camphoratus	8	2		2			1	2		1			
Cortinarius caperatus	10	4	1	2	1				2				
Cortinarius clarobrunneus	1		1										
Cortinarius collinitus	7	1	2	2	1						1		
Cortinarius croceus	2			2									

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Cortinarius delibutus	1			1									
Cortinarius depressus	1		1										
Cortinarius evernius	4	1	1							2			
Cortinarius flexipes	6				1		1	1	1		2		
Cortinarius gentilis	7	4		1		1					1		
Cortinarius grosmorneensis	2	2											
Cortinarius incognitus	5	1	2	1			1						
Cortinarius junghuhnii	1			1									
Cortinarius leucophanes	1			1									
Cortinarius limonius	12	2		1	3	1			3	2			
Cortinarius lucorum	2				1		1						
Cortinarius malachius	2		1	1									
Cortinarius mucifluus	5	3				1			1				
Cortinarius obtusus	1					1							
Cortinarius pholideus	4	1	1							2			
Cortinarius raphanoides	2		2										
Cortinarius scaurus	2									1	1		
Cortinarius semisanguineus	24	4	6	4	3	2	1	2	2				
Cortinarius sphagnophilus	3	1		1		1							
Cortinarius stemmatus	1			1									
Cortinarius stillatitius	2	1			1								
Cortinarius subcroceofolius	1	1											
Cortinarius traganus	12	1	2	1	1	1	2		2	1	1		
Cortinarius triformis	1										1		
Cortinarius trivialis	1		1										
Cortinarius venustus	1		1										
Cortinarius vespertinus	2				2								
Cortinarius vibratilis	2			1	1								
Coryne dubia	1					1							
Cotylidia undulata	1			1									
Craterellus tubaeformis	14	5		1	2	2	1	1	1	1			
Crucibulum laeve	1		1										
Cudonia circinans	1			1									
Cylindrobasidium evolvens	2			2									
Cystoderma amianthinum	8	2	1	2	1	1		1					
Cystodermella granulosa	1											1	
Dacrymyces chrysospermus	10	2	1	1		1	3	1	1				
Datronia scutellata	1			1									
Degelia plumbea	1												1
Diatrype bullata	1				1								

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Dibaeis baeomyces	4		1	2								1	
Dictyophora duplicata	1		1										
Ditiola peziziformis	1			1									
Endogone pisiformis	1											1	
Entoloma strictum	1			1									
Ephebe lanata	1	1					1						
Exidia glandulosa	2			1	1								
Exobasidium savilei	1		1										
Fayodia anthracobia	2			2									
Flavocetraria nivalis	1												
Fomes fomentarius	1											1	
Fomitopsis ochracea	2						1			1			
Fomitopsis pinicola	5						1	2	1	1			
Galerina atkinsoniana	4	1	1	2									
Galerina marginata	3		1	2									
Galerina sphagnicola	4		1	3									
Galerina tibiicystis	1				1								
Geoglossum umbratile	4	1					2					1	
Geopyxis carbonaria	1			1									
Gloeocystidiellum porosum	1			1									
Gloeophyllum sepiarium	12	2		4		3	1	2					
Gloiothele citrina	2			2									
Gomphidius glutinosus	3	1	3	1									
Gymnopilus junonius	2	1				1							
Gymnopilus penetrans	8	2	1	1		2	1				1		
Gymnopilus picreus	2					2							
Gymnopilus sapineus	1				1								
Gymnosporangium cornutum	1				1								
Hebeloma incarnatulum	4	1			2							1	
Hebeloma lutense	2	1			1								
Helminthosphaeria clavariarum	2	1	1										
Humidicutis marginata	2									2			
Humidicutis marginata var. *olivacea*	1							1					
Hydnellum aurantiacum	10		2	3	2	1	1			1			
Hydnellum caeruleum	3		2	1									
Hydnellum concrescens	3		2					1					
Hydnellum pineticola	9		1	4		1	1	1	1				
Hydnellum suaveolens	1			1									
Hydnellum velutinum var. *spongiosipes*	1				1								
Hydnum repandum	1			1									

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Hydnum rufescens	3			2		1							
Hydnum umbilicatum	6	5			1								
Hygrocybe acutoconica	2						2						
Hygrocybe borealis	1						1						
Hygrocybe cantharellus	2			1									1
Hygrocybe chlorophana	1						1						
Hygrocybe coccineocrenata	2							2					
Hygrocybe conica	2	1									1		
Hygrocybe insipida	1												1
Hygrocybe laeta	1									1			
Hygrocybe miniata	2	1								1			
Hygrocybe phaeococcinea	2						2						
Hygrocybe pratensis	2				1					1			
Hygrocybe psittacina	1	1											
Hygrocybe singeri	1	1											
Hygrocybe squamulosa	1						1						
Hygrophoropsis aurantiaca	7			3	1	2	1						
Hygrophoropsis rufa	3	1		2									
Hygrophorus agathosmus	1	1											
Hygrophorus monticola	6	1		1		1		2	1				
Hygrophorus piceae	4			1			2			1			
Hygrophorus pudorinus	1									1			
Hygrophorus speciosus	2			2									
Hymenochaete tabacina	1			1									
Hymenoscyphus imberbis	1		1										
Hymenoscyphus perilis	1		1										
Hyphodontia alutaria	4			1	1				2				
Hyphodontia arguta	1			1									
Hyphodontia aspera	2	1			1								
Hyphodontia hastata	2				1				1				
Hyphodontia pallidula	1			1									
Hyphodontia rimosissima	2			1	1								
Hyphodontia subalutacea	1				1								
Hypholoma capnoides	5			2		2				1			
Hypholoma dispersum	1	1											
Hypholoma elongatum	8	3	1	1	2	1							
Hypholoma subericaeum	1								1				
Hypogymnia incurvoides	1	1											
Hypogymnia physodes	1				1								
Hypogymnia tubulosa	1		1										

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Hypomyces chrysospermus	1						1						
Hypomyces luteovirens	1									1			
Hypoxylon fuscum	1			1									
Hypsizygus ulmarius	1			1									
Icmadophila ericetorum	2				1								
Imshangia aleurites	2	1	1										
Inocybe geophylla	1	1											
Inocybe lacera	2			1							1		
Inocybe microspora	1			1									
Inocybe rennyi	1			1									
Inocybe subcarpta	1			1									
Inonotus radiatus	4	1		1		1			1				
Ischnoderma benzoinum	2			1					1				
Laccaria bicolor	20		1	8	2	3	3	2		1			
Laccaria laccata var. pallidifolia	2								1		1		
Laccaria longipes	3			2					1				
Laccaria nobilis	6			2		4							
Laccaria proxima	2			2									
Lactarius affinis	1				1								
Lactarius camphoratus	2	1									1		
Lactarius deceptivus	3	3											
Lactarius deterrimus	5	2					1	1					1
Lactarius glyciosmus	1		1										
Lactarius helvus	5				1	1	1		2				
Lactarius hibbardae	13	5	4	2				1	1				
Lactarius lignyotus var. *canadensis*	9	2		2	2	2		1					
Lactarius lignyotus var. *lignyotus*	2				1						1		
Lactarius repraesentaneus	1						1						
Lactarius rufus	7		1	2	1		1	1	1				
Lactarius scrobiculatus var. *canadensis*	1											1	
Lactarius trivialis	1						1						
Lactarius vietus	2	1					1						
Lactarius vinaceorufescens	1							1					
Lecanora allophana	1				1								
Lecanora symmicta	3		3										
Leccinum holopus	8	3	1		2		1			1			
Leccinum scabrum	2		1	1									
Leccinum vulpinum	14	1	4			1	4	2	1			1	
Lecidea lulensis	1		1										
Leotia lubrica	8	4	1		1					2			

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Leotia viscosa	3	1								2			
Lichenomphalia umbellifera	1				1								
Limacella illinita	1		1										
Lobaria quercizans	1				1								
Loxospora ochrophaea	1		1										
Lycogala epidendrum	1			1									
Lycoperdon nigrescens	1	1											
Lycoperdon pyriforme	2		1					1					
Lyophyllum decastes	2		2										
Lyophyllum fuligineum	1					1							
Lyophyllum semitale	4		3	1									
Marasmiellus perforans	1				1								
Marasmius androsaceus	4		2	2									
Melanohalea trabeculata	1											1	
Merismodes fasciculata	1			1									
Microglossum rufum	1				1								
Mycena adonis	8			2	2	1		1	1			1	
Mycena capillaripes	2			2									
Mycena epipterygia	3	1				1			1				
Mycena flavoalba	1						1						
Mycena galericulata	2				1			1					
Mycena leptocephala	1		1										
Mycena maculata	1	1											
Mycena metata	1	1											
Mycena rosella	2	1		1									
Mycena rubromarginata	1				1								
Mycena sanguinolenta	1			1									
Mycena strobilinoides	2		2										
Mycena vulgaris	2	1	1										
Mycoblastus sanguinarius	1	1											
Mycocalicium subtile	1									1			
Neolecta irregularis	1		1										
Neottiella vivida	1		1										
Nephroma bellum	1				1								
Nidularia deformis	1			1									
Ochrolechia androgyna	2	1					1						
Ochrolechia frigida	2				1								1
Octospora rubens	2			2									
Onnia circinata	5	1			1			1		1		1	
Onnia tomentosa	5			1	1		2						1

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Oxyporus populinus	1								1				
Panellus stipticus	2		1	1									
Parmelia saxatilis	4	1		1	1							1	
Parmelia squarrosa	1		1										
Parmeliella triptophylla	1				1								
Parmeliopsis capitata	1		1										
Parmeliopsis hyperopta	2			1								1	
Paxillus involutus	5	3	1					1					
Peltigera aphthosa	3			1	1							1	
Peltigera canina	1											1	
Peltigera malacea	1											1	
Peltigera praetextata	1				1								
Peniophora aurantiaca	1		1										
Peniophora erikssonii	2			2									
Peniophorella praetermissa	2				1				1				
Peniophorella pubera	1				1								
Perenniporia subacida	1	1											
Perenniporia variegata	1								1				
Peziza badia	10	1	1	5			1	1					1
Peziza brunnea	1					1							
Peziza repanda	1						1						
Phaeophyscia pussiloides	1		1										
Phanerochaete sanguinea	1			1									
Phellinus chrysoloma	4				1		1	1	1				
Phellinus prunicola	1									1			
Phellinus tremulae	1					1							
Phellodon melaleucus	6			3				1	2				
Phellodon niger	5		2		2		1						
Phellodon tomentosus	2			1								1	
Pholiota alnicola	5			3	1					1			
Pholiota astragalina	2			1	1								
Pholiota highlandensis	1			1									
Pholiota mixta	5		1	3				1					
Pholiota spumosa	1						1						
Physarum viride	1					1							
Platismatia glauca	4		1	2	1								
Pleurocybella porrigens	3	1				1				1			
Pleurotus dryinus	1								1				
Plicatura nivea	2				1						1		
Plicaturopsis crispa	1				1								

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Polyozellus multiplex	5		1	2					2				
Polyporus brumalis	1		1										
Porpidea flavocoerulescens	1				1								
Postia caesia	2	1			1								
Postia fragilis	1			1									
Postia ptychogaster	1						1						
Postia tephroleuca	2					1		1					
Psathyrella conissans	1									1			
Pseudohydnum gelatinosum	4			1		2				1			
Pseudoomphalina pachyphylla	1			1									
Pseudotomentella tristis	1		1										
Psilocybe montana	1	1											
Psilocybe phyllogena	1	1											
Psilocybe semilanceata	1			1									
Pucciniastrum goeppertianum	3	3											
Radulomyces confluens	1				1								
Radulomyces hiemalis	2			2									
Ramalina dilacerata	1	1											
Ramalina roesleri	1	1											
Ramaria flaccida	1		1										
Rhizina undulata	2			2									
Rhizocarpon geographicum	1				1								
Rhizopogon pseudoroseolus	1		1										
Rhodocollybia butyracea	3			2		1							
Rhodocollybia maculata	6	2		1					2		1		
Rhodocybe caelata	1		1										
Rhodocybe hirneola	1			1									
Rickenella fibula	11	4	1	4	1	1							
Russula aquosa	5	3				1		1					
Russula cicatricata	1	1											
Russula dissimulans	1				1								
Russula emetica	3			1	1			1					
Russula paludosa	5	4				1							
Russula peckii	4	3				1							
Russula rosacea	1				1								
Sarcodon scabrosus	9		2		1	3	1	1	1				
Sarcodon stereosarcinon	2						2						
Scutellinia scutellata	1						1						
Scytinostroma galactinum	1				1								
Sistotrema confluens	1		1										

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Sistotrema octosporum	1	1											
Spathularia flavida	3	1					2						
Sphaerobolus stellatus	1			1									
Staurothele fissa	1				1								
Stereocaulon alpinum	1		1										
Stereocaulon condensatum	2		1	1									
Stereocaulon dactylophyllum	2			1				1					
Stereocaulon paschale	1							1					
Stereocaulon saxatile	1				1								
Stereocaulon vesuvianum	3			2	1								
Stereum rugosum	1			1									
Stereum sanguinolentum	1			1									
Stropharia alcis	5	2					1			1	1		
Stropharia hornemannii	1	1											
Suillus cavipes	19	4		2	3	2	2	1	2		2	1	
Suillus clintonianus	3	1		1				1					
Suillus flavidus	1				1								
Suillus glandulosus	2			1				1					
Suillus granulatus	1			1									
Suillus grevillei	11	2		2		1	3	1	2				
Suillus neoalbidipes	3		3										
Suillus paluster	9		1		2	2		1	2		1		
Suillus placidus	2			1	1								
Suillus serotinus	1							1					
Taphrina robinsoniana	1								1				
Thelephora terrestris	5		2	2							1		
Trametes ochracea	1		1										
Trapeliopsis granulosa	1			2									
Trechispora farinacea	3			1	1				1				
Trechispora microspora	1			1									
Tremella encephala	1			1									
Tremella foliacea	2	1					1						
Tremella mesenterica	1		1										
Trichaptum abietinum	5	1		3			1						
Trichaptum laricinum	4			1						2		1	
Tricholoma albobrunneum	2		1								1		
Tricholoma apium	1			1									
Tricholoma arvernense	2			1		1							
Tricholoma atrodiscum	3	1		2									
Tricholoma columbetta	1	1											

SpeciesName	TOT	L	G	TN	SB	SP	C	H	BH	M	HQ	OH	M
Tricholoma davisiae	4	1	1	1					1				
Tricholoma dulciolens	3			2		1							
Tricholoma equestre	10		4	2			1	2				1	
Tricholoma focale	21	1	5	5	1	2	1	2	3			1	
Tricholoma fulvum	3	1				1		1					
Tricholoma fumosoluteum	12	2		2	1	2		1	1		2	1	
Tricholoma imbricatum	1		1										
Tricholoma inamoenum	9	1	1	1		2	1	2			1		
Tricholoma matsutake	7		1	6									
Tricholoma pessundatum	10		2	5				1		1		1	
Tricholoma roseoacerbum	7		4	2				1					
Tricholoma saponaceum	2	1					1						
Tricholoma serratifolium	1							1					
Tricholoma sp. “Rusty trich”	2		1	1									
Tricholoma sp. “Unearthly trich”	1			1									
Tricholoma stans	2					2							
Tricholoma subsejunctum	5				3		1	1					
Tricholoma sulphureum	1			1									
Tricholoma terreum	5		3		1	1							
Tricholoma transmutans	4		2	1					1				
Tricholoma vaccinum	5			1		1		3					
Tricholoma virgatum	8	1	2	3				1				1	
Tricholoma viridilutescens	1					1							
Tricholomopsis sulfureoides	4		1				1			2			
Tubulicrinis calothrix	1			1									
Tubulicrinis gracillimus	2			1	1								
Tuckermanopsis americana	2		1	1									
Tuckermanopsis sepincola	1		1										
Tyromyces chioneus	4		1							3			
Umbilicaria muhlenbergii	3		1		1			1					
Umbilicaria polyphylla	1			1									
Usnea filipendula	1				1								
Usnea longissima	1			1									
Vararia investiens	1	1											
Veluticeps abietina	1				1								
Vulpicida pinastri	1		1										
Xerocomus gracilis	2	1											1
Xeromphalina campanella	1										1		
Xeromphalina cornui	3	1	1		1								
Total collections	1133	190	160	257	105	90	87	70	68	56	31	18	7
Total species (excl. asco liches)	386	118	106	157	85	63	65	56	51	44	27	18	7

WHAT DO THE DATA TELL US?

MUSHROOMS
(i.e. excluding lichenized ascomycetes)
Andrus Voitk

Data speak. If they did not, there would be no point gathering them. The simplest message of our data is the number of species and their names, that is, their diversity. Because we also count the number of collections of each species, our data also gives us a rough idea of the relative abundance of the species to each other. Recording the trails gives an idea of the distribution of these species in the region surveyed. All this is in the species list, with information on new species to our cumulative list gleaned from comparison to previous data. At the time of writing, we identified 385 species, 97 new to our cumulative list, bringing the cumulative total for 10 years of forays to 1,276 spp. Several collections are in the hands of our faculty for further study, so that we may see some additions to the list as these get determined.

The data reveal that the number of species collected was the highest in 10 years and the number of new species added to the cumulative list is among the highest. This suggests that in a boom year, the boom is across the board, affecting both common and rare mushrooms. For example, consider *Polyozellus multiplex*. It is an uncommon mushroom, with a single collection encountered in only two of our ten previous years. This year we had seven collections, three and a half times the total for a decade!

And, yes, our cumulative species curve keeps rising (Figure 1), suggesting that 1,276 species is nowhere near the maximum for our province, a message we have seen from year to year. But the real message is in what areas contribute to the rise. The major contribution to new species in 2012 come from three main areas: corticiates and allied polypores, tricholomas, and a whole host of small mushrooms, including hygrocybes, mycenas and "small strange stuff that does not resemble real mushrooms at all". This is VSE, the Visiting Specialist Effect, the result of our identifiers' particular expertise.

Nils Hallenberg did a yeoman's job in identifying corticiates and allied polypores. It is a somewhat specialized area, and beyond some common members, most of us have very little knowledge of this huge group of fungi. While the effect of Nils' contribution to new species is large, it would have been larger yet, were it not for Leif Ryvarden's visit last year. Leif's primary interest is polypores, but polypores and corticiates overlap so much that both our visitors are very expert in both areas. Thus, Nils identified

figure 1

a whole lot of species that were not new because Leif had identified them last year. The fact that Nils was able to find so many new species the year after Leif's visit, is evidence of how numerous and diverse the corticiates are—and how little most of us know them.

We also note a major increase in the number of *Tricholoma* species identified this year. We were fortunate to have not one, but two *Tricholoma* experts with us, Gro Gulden and Steve Trudell. This made for an interesting cross fertilization of ideas from north of us in Europe, and south of us on the Pacific coast, discussing northeastern North American material! Although we are the beneficiaries of this, I had the feeling that Gro and Steve enjoyed the situation even more. Both were aided by the timing of the foray. *Tricholoma* is a late season fruiter, so at the end of September the genus was probably at its peak, and that in a peak mushroom year.

René Leboeuf has an especial interest in *Hygrocybe* and *Mycena*, and this is again reflected by a noticeable spurt of these groups in our list. The "small and unusual" group is to a large part made up by Greg's penchant to root around fallen twigs and branches, looking at what might turn up. Molds, pyrenomycetes, small ascomycetes (to which Jon-Otto made his contribution), and other things like that. What is *Diatrype bullata*, you might ask? Well, it might look like a nondescript black spot on a twig, but pyrenomycete species number in the thousands, so collecting only those will keep adding to the list for years to come. Perhaps in a future issue of Omphalina we can meet a few of those thousands of species, to make a passing acquaintance with some of our microfungi.

The above observations suggest two ways that we can keep adding to our species list. One is to continue inviting faculty with specialized expertise, who can make contributions to groups in their area of interest. The other is to explore new habitat and substrate, expand our concept of what is a "mushroom". Surveying the barrens of northern Labrador will produce a whole new list of species from our usual boreal forest, but so will exploring twigs. The difference is that you do not have to travel for the twigs.

What about the "known" species, those we have collected before? Do they also leave messages in the data? Well, let us consider some of the larger groups. The greatest number of species were identified in *Cortinarius*. This may not be a surprise, because we know that the genus contains over 1,000 species. In truth, however, it is very much a surprise. First, although there may well be over 1,000 species worldwide, probably under 200 species is more accurate in our province. Many resemble each other, most are not remarkably colourful or memorable, and they are not considered edible. It is not common for an amateur foray, even with good identifiers, to be able to identify a large number of *Cortinarius* species in the absence of a *Cortinarius* specialist.

The 41 species is a tribute to our identifiers, but also to some education over the years with various faculty interested in the genus (Dave Malloch, Tuula Niskanen, Kare Liimatainen, André Paul). The last-named, who did not get to the foray this year, had some samples brought to him and identified 10 species, three of them new to our list. In other big groups we have identified 15 species of *Lactarius*, 10 of *Suillus*, 7 of *Russula* and 1 of *Entoloma*. Given the probable number of species, we seem to do passably well with *Lactarius*, probably well below our potential with *Russula*, and are close to hopeless with *Entoloma*. It is an ironic observation that we identified 100% of the species in the small and uncommon genus *Polyozellus*, while in the diverse and very common genus *Entoloma* we have probably identified 10% of what might be in the province.

The message of these data is clear: to increase our species list, we need to develop expertise in some of the big genera, *Entoloma* and *Russula* being the most obvious places to start. Experts should be invited repeatedly, until we become familiar with the characters of the species, as has happened to some degree with *Cortinarius*. It would also help, if each group had a local champion, a person or individual, who became interested in that group and built up a local bank of knowledge. At the same time, we should not abandon interest in those areas, where we have made some gains. Perhaps publications in Omphalina can help reinforce what we have learned. The other advice is to continue exploring the wild side of mycology, not ignore the little black dots as not "real mushrooms". As our rising curve tells us, "The sky's the limit."

LICHENIZED ASCOMYCETES
Michele Piercey-Normore

Lichenized basidiomycetes have been listed with non-lichenized fungi since the inception of the foray, before a formal lichen survey was added. To keep uniformity, only lichenized ascomycetes are reported here. *Lichenomphalia umbellifera* was the only lichenized basidiomycete collected this year.

195 lichen specimens were collected representing 95 taxa of lichenized ascomycetes. In 2011, 87 species were collected; this year's collections added 50 taxa to the lichenized ascomycete list, bringing the total for two years to 137 in the Terra Nova National Park region. It should be pointed out that a concerted effort was not made in 2011 to collect or record all lichenized ascomycetes. For example, the "weeds"[1], *Hypogymnia physodes* and *Platysmatia glauca*, did not appear on the 2011 list.

Photo: Claudia Hanel

Degelia plumbea, photographed during dry conditions.

Most of the lichen-fungi collected associated with green algae as their primary and sole photobiont. Six species associated with cyanobacteria as their primary and sole photobiont (*Ephebe linata, Nephroma bellum, Parmeliella tritophylla*, and three species of *Peltigera: P. canina, P. malacea*, and *P. praetextata)*. Eight lichen-fungi associate with green algae as their primary photobiont and cyanobacteria as their secondary photobiont (*Lobaria querzicans, Peltigera aphthosa*, and all six *Stereocaulon* species; *S. alpinum, S. condensatum, S. dactyllophyllum, S. paschale, S. saxatile*, and *S. vesuvianum*). One rare cyanobacterial species, *Degelia plumbea* was recorded in the Park but was not collected. *D. plumbea* was listed as Special Concern by COSEWIC in 2010.[2] Cyanobacterial lichens usually prefer special habitat conditions including long-lived unpolluted forest conditions with high humidity levels suggesting that the forests in TNNP are healthy forests.

For most genera, one or two species were collected. However, 34 species of *Cladonia* were collected. Six of these species are more or less restricted to the east coast of North America, while the other species are more widespread across North America. Six species of *Stereocaulon* were collected, commonly found on the east coast. Other notable species that are common in eastern North America include *A. sarmentosa*, *Cetraria muricata*, *Debaeis baeomyces*, *Lobaria querzicans*, *P. tritophylla*, *P. glauca*, *Umbilicaria polyphylla*, and *Usnea longissima*.

A number of specimens are worth mentioning because they showed an unusual feature. One unusual finding was *Loxospora ochrophaea*, which had both soredia and apothecia. The presence of both sexual and vegetative propagules is less common than a single type of propagule in lichens, but it occurs in some species. *L. ochrophaea* grows on the bark of pine and fir trees. *Ochrolechia frigida* was also collected that had both soredia (or granules) and apothecia in addition to a few spinules. *O. frigida* is known to have a variable morphology where it produces

apothecia or spinules in habitats with different moisture levels. It is also known that part of its life strategy is to begin its life as a parasite or saprobe on moss, where over time it will develop into the lichenized state.[3,4] A specimen of *Alectoria sarmentosa* was collected that had an apothecium, and several specimens of *Cladonia rangiferina* and *C. arbuscula* also had apothecia. Although these species are known to produce apothecia, they are rarely seen partially because they are not commonly produced and partially because of their

Degelia plumbea, moist state.

Photo: Claudia Hanel

small size. A chemospecies in the *C. chlorophaea* complex (*C. grayi*) was also collected. This species is very similar to *C. chlorophaea* in morphology but it produces grayanic acid sometimes in addition to fumarprotocetraric acid, which is the secondary metabolite produced by *C. chlorophaea*.

The collection of lichen species largely reflected the habitats that were visited in both years. The over 50% increase to the number of species in the second year from the same trails suggests that continued inventories would reveal additional numbers of species each year.

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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

Thank You!
Thank You for the Foray and all you do. Without it I never would have enjoyed myself today picking pound and pounds of Hydnumyumyums and Winter Chantrelles. Also I wouldn't have recognized and picked those 50 or so pounds of Chanterelles across the bay a couple of weeks ago. My freezer is stocked for the winter. The past foray was really great as have been all that I have attended. The organization was excellent and I look forward to next year at Fogo. The knowledge, enthusiasm and humour of the organizers are appreciated and it lends to a casual yet professional atmosphere at the foray.
Thanks a million
RZ

❄❄❄

Thanks to coaching and more exposure to specimen tables, I seem to have learned more about mushrooms than I had even hoped. Thanks for that, and I will keep plugging away at it. It's become a great hobby—way tougher than the other kingdoms I work with.
RC

❄❄❄

Isabelle and I both enjoyed the Foray & it has certainly enriched our collecting since. In fact the day after we got back we went to one of our favorite spots near the house & Belle found three nice matsutakes. A couple of days after that she found 6 more only about 200m away from the first lot. Mind you, I didn't find a blessed one!
best,
Bob Cuff

❄❄❄

and lastly, showing how useful the Foray caps are for locating kids in the woods.

"Mushroom hats on the trail."
Judy May

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People of Newfoundland and Labrador, through

- Department of Environment and Conservation
  - Parks and Natural Areas Division
  - Wildlife Division
- Department of Natural Resources
  - Center for Forest Science and Innovation

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FORAY NEWFOUNDLAND AND LABRADOR

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The second decade

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