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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.

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COVER

Aegolicus acadicus, northern saw-whet owl (Fr.: petite nyctale), Pasadena Ski and Nature Park, June 6, 2008. Photo by Henry Mann, identification confirmed by Lois Bateman and Monique Vassallo. Seen again in early April, 2010, in a different nesting box. Both times the owl remained in the box for about 3-4 weeks, although young were not seen.

Aegolicus acadicus Gmelin, first described from Nova Scotia in 1788, is a North American species with a range from the islands of British Columbia to Newfoundland and Labrador. It is a northern species, breeding primarily in coniferous or mixed forests of Canada and the northern United States, with some southern breeding populations in the cooler Mexican mountains.

The Natural History Society of Newfoundland and Labrador's Bird Check List lists it as rare on our Island, but reports it with equal frequency in all four seasons. Although the list does not record it as breeding on the island, it most likely does, to be seen

COVER, cont'd...

equally often in all four seasons. Both observations in Pasadena likely were of nesting, even though chicks were not observed. Brooding time is given as March to May. In our climate April to June is reasonable: its diet is small mammals, and it is much easier to catch the extra required to feed its brood after the snow is gone. Three to four weeks in a nesting box also suggests that it was observed rearing its young. The female hatches the eggs and rears the young, while the male hunts to bring food for her and the brood. However, after the eggs hatch the mother stays with young only about three to four weeks, then leaves, possibly to rear a second brood, while her first mate continues to feed the first brood; he keeps it up for about a month after they leave the nest. While she is in the nest, she keeps it clean, but you can imagine what it looks like when young finally leave! Old bits of food, pellets, guano and more all over the place. No wonder they don't come back to the same hole year after year, unlike many more civilized birds who do.

Talk about an **unbroken chain**! The young are slovenly and filthy, and the mother toils alone to keep a clean house until she finally up and leaves. The chicks swear when they grow up, they will never become slaves to fastidious cleanliness, and never, ever, ever leave their young for a new family. But surprise! When they grow up the females slave to keep the nest ever so tidy, but then leave. And the guys who swear nobody will ever catch them feeding a bunch of snotty kids for months on end—guess what they will be doing next year? We are slaves to how we've been reared by example.

OK, fine, but what is an owl doing on the cover of a mushroom journal? See the lead article on p. 4.

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Message from the Editor

Happy Midsummer! Ever notice how short our summers are? Well, no wonder. The official first day of summer is on Midsummer Day. And happy Fête de la Saint-Jean-Baptiste to our Québec members.

With this issue we step back to get a wider view, allowing us to see how some of the parts of the ecosphere fit together and the role of fungi in that system—even a glimpse at how we humans interact with mushrooms. The unbroken chain, the ties that join us and those that bind us, will be recurrent themes for this Editor.

This issue also tries to prepare us for our foray. As has been mentioned, this year we plan to survey lichens as well as other fungi. In preparation, we reprint an overview of lichens by Jim Cornish that appeared in the June, 2011, issue of Downhome Magazine. We thank Downhome for the kind permission to reprint this article. After this introduction, subsequent issues will present a series of short descriptions of individual lichens by Mac Pitcher.

The other article to prepare for the foray is the conk cross section. We need to know our conks, because Leif Ryvarden, an international polypore expert, will be with us, and we want to show him that we are not conknignorant on the Rock. We are not aware of any other source illustrating cross sections in a systematic way for the common conks in our or any area, so you may want to keep this article for future reference.

Please look at our website. Both the Annual Reports and **OMPHALINA** have been made available for reading through the services of ISSUU. This makes online reading much more pleasant, almost like having it in your hand. We need to fine-tune it a bit yet, but shall get there. Because of bandwidth issues, we'll have to put the files on separate pages, only a few per page. The way it is now requires a long time, before people not directly hard-wired to the net can read the files in full screen view. We also need to restore the ability for people to download the file for their own records or perusal. Stay with us and have patience.

CHOCOLATE CORT

Please note the appeal on p. 18 to be on the lookout for this mushroom. It should begin fruiting soon and we desperately need more collections to be able to determine if this is a new species. There is nothing like many eyes, and this sort of thing is where amateurs like us can be a real help to science.

Happy mushrooming and see you at the foray!
andrus



Foray matters...

Early Bird flying away

It is Midsummer, with **one week left to register at the Early Bird rate**. At press time just over 60% of available spots are filled, so if you are interested to join us this year and have not yet registered, you are advised to do so soon. By the end of the month the spots may be gone and for sure it will cost you more.

Workshops

Those interested in **Dyeing or Cooking workshops** should register with extra payment in advance. Filled in order of receipt. If oversubscribed, workshop fees for later registrants will be refunded at registration.

Reception

Final selection of the Minister's Welcoming Reception site to start off Friday afternoon-evening has not been done yet. It will be announced here in the next issue.

Fungal Arts

A reminder to the creative among us. Please bring your arts and crafts, whether for display or sale, to the **Fungal Arts Display**. **We need entrants, to make it interesting for everybody**. Register with Urve Manuel <urve DOT manuel AT gmail DOT com> by Aug. 15, so that she can organize the required space.

Alder contest

The gauntlet has not been picked up, although rumour has it that there is some experimenting going on. Please see the Alder Contest rules on p 12 of the last issue and dare to enter!

Postal strike

Do not worry about the strike, just mail in your registrations. The strike will not last forever and your registrations will eventually reach us. As soon as they do, we shall acknowledge receipt by email. There is a fixed limit and a real difference in accommodation quality, so it pays to register early.

Foray Information

All Foray information can be found in Vol II, Issue 3 of **OMPHALINA**, which can be found on our website <nlmushrooms.ca>. The website also has past Foray Reports and species lists for all forays, as well as a cumulative species list,

UNBROKEN CHAIN, SONG OF THE SAW-WHET OWL

Andrus Voitk

When numbers of the spotted owl began to decline in western North America, investigation linked it to a decrease in the flying squirrel population, the major dietary component of the spotted owl. Truffles, found in old growth forests, are the major food of the flying squirrel, and their supply decreased with logging, accounting for the loss of squirrels. Once these relationships were understood, spotted owl recovery was successfully managed by protecting old growth forests. As with any success, the story was bandied about, and now the three organisms, owl, squirrel and truffle, are often proffered to students of ecology as a classic example of a “circle of life”.

If you studied ecology and were taught this, you should ask your old *Alma Mater* for your tuition money back; should your request be refused, you don’t even need a good lawyer to get it, and with interest. Before age two one of our children attempted to draw a circle. Lack of coordination at that age prevented the two ends from meeting, and after several tries, the frustrated child closed the loop with a separate straight line. Even a baby knows that a circle is a closed loop. To call the story of owl, squirrel and truffle a circle, is to propose that the truffle eats the owl! Lack of logic aside, in the **International Year of the Forests** it is appropriate to point out that the forest, obviously important in the story, was completely left out of the “circle”. Those are but two obvious flaws with the concept. The more you begin to look into the mechanisms, interactions and players, the more you understand that Tim Rice was right when he wrote **Circle of life** for Disney’s “The Lion king”: *There’s far too much to take in here.*

Let us look at our own owl story, here in Newfoundland. *Aegolius acadicus*, the northern saw-whet owl (French: petite nyctale) is listed as rare on our Island. Its food of preference is the deer mouse, with vole as second choice, and other small mammals (shrews, chipmunks), birds and insects as occasional additions. Thus, deer mice and voles are links in the chain of survival (not ring of life!) for this small nocturnal owl. Could it be that the saw-whet owl is rare here because its favourite

food is not native to the Island? Could the increased sightings reflect the increase of the deer mouse population after its introduction? In other words, a change in the condition of one of the links.

Perhaps. In that case, man, by introducing the deer mouse to Newfoundland, has an important place in the chain. The cover photo, showing the owl in a nesting box, attests to a second way man could secure that place: provider of nesting sites. Without the benefit of man-made boxes, the saw-whet owl nests almost exclusively in old woodpecker nests left behind by the hairy woodpecker or northern flicker. Most of the time these holes are on the small side, perhaps another reason the owl is uncommon here, and more common in regions with larger woodpeck-



Male hairy woodpecker on a snag. In Newfoundland this bird is probably the most common maker of nesting cavities for the owl. Both it and the snag are links in the chain. As is Fomitopsis pinicola, which makes the cavities possible

ers. Thus, add woodpeckers to the chain.

By this time you might ask, “Why all these birds in a mushroom journal?” Before you sick your not-so-good lawyer on **OMPHALINA** to recover your membership fee, let us meet the real hero of this story,

Fomitopsis pinicola. Please refer back to the 2011 (Vol II) issue No 2 (Feb. 27) for a description of this fungus. In the same issue read also about *F. ochracea*, another species in the genus that does the same thing in our birch as *F. pinicola* does in our soft-wood. These fungi grow primarily in dead

standing wood, where they cause heart rot, digesting cellulose. This leaves crumbly brown cubes of lignin. Probably because the thin outer wood remains reasonably strong, and the central cubical brown rot is easy to break up and scoop out, woodpeckers prefer trees with *Fomitopsis* rot for nest sites. Studies of woodpecker nests show *F. pinicola* in nesting trees many times more than any other fungus, and inoculating trees with *F. pinicola* has been adopted as an effective method in woodpecker recovery in areas where they have become scarce. In short, no *F. pinicola*, no woodpecker; no woodpecker, no saw-whet owl. Some may well point to the breeding box on the cover, but the bird is an owl, not a phoenix. It did not arise *de novo* out of ashes, but had to be here for a while in order to occupy the box. So the mushroom remains safely ensconced as the hero.

Just like the truffle in the western owl-squirrel-truffle “ring”, mushrooms also have a similar place in the chain in Newfoundland as food, albeit not as dramatically evident. All the rodents that are the food source for the saw-whet owl eat mushrooms. Although mushrooms are not such a prominent portion in their

diet as truffles are for flying squirrels, nevertheless for some—particularly the saw-whet owl’s favourite, the deer mouse—lack of mushrooms would present a hardship and reduce the population.

Lest we be accused of not seeing the forest for the

mushrooms, let us celebrate the **International Year of the Forests** by placing the forest solidly into this chain. For owls or woodpeckers to nest, they need a good supply of snags, dead standing trees, surrounded by cover-giving woods. This requires a forest of some maturity. Needless



Fomitopsis pinicola, hero of our story, growing on balsam fir, beginning to prepare a nest for the saw-whet owl, via a woodpecker link.

to say, the forest must be of such composition that *F. pinicola* grows there. Although an ubiquitous mushroom, there are huge tracts of land where the mushroom is rare. It disappears with clearcutting and is uncommon in areas of young regenerating forests. Many managed forests also lose snags because deadwood is culled or trees are thinned so that each remaining one is extremely healthy. I encourage you all to read the charmingly written story of ten snags by David Suddjian <<http://santacruzbirdclub.org/art-snags.html>> to learn how managed forests can be remanaged to bring back birds. Thus, as we see, not only do trees, snags and the forest have a firm place in the chain, but the place of man is again reinforced, this time in a negative way. Man’s interaction with the forest can directly influence whether it does or does not harbour a bird to put on the cover of this mushroom magazine.

Now that we have linked the forest in the chain, we have cause to return to mushrooms. Without mushrooms there would be no forest. The truffle mentioned in the western “circle” was not casual morsel for the flying squirrel. It is one of thousands of



Tomentella subilacina, believe it or not, another link in the saw-whet owl's chain of existence. As are you and I. It is not bad to be on par with a *Tomentella*. Clearly, it would make a suitable cover picture for a birding journal. Photo: Roger Smith.

mycorrhizal mushrooms, mushrooms that feed trees in exchange for some sugars. Fungal mycelium is far more efficient at extracting water and minerals from the earth than even the finest root hair. Trees benefit from this via the mycorrhizal relationship, built up during millennia of coevolution. If you have not seen a truffle in our province and are not sure you know a mycorrhizal mushroom, here is half an alphabet full of relative common mycorrhizal genera: *Amanita*, *Boletus*, *Cantharellus*, *Entoloma*, *Fuscoboletinus*, *Gyromitra*, *Hydnellum*, *Inocybe*, *Lactarius*, *Morchella*, *Phellodon*, *Russula*, *Tricholoma*. Most of those should be familiar at least to a degree, to most amateurs with an interest in mushrooms.

Fungi also enter the picture as recyclers of carbon. Trees are made of carbon, and forests represent a huge segment of available carbon. Dead trees make up a big carbon bank, but we cannot bank it all. Some has to be returned to the system, or soon there would be a shortage of carbon with which to make new trees. *Fomitopsis pinicola* is but one of thousands of mushroom species (we'll skip the half-alphabet list this time), whose main purpose is the decomposition of organic matter to release carbon back into circulation. Without carbon, there would be no trees, no forest and no owl.

This has been but a brief overview, touching some of the more prominent links in a long and complicated chain, which joins

us all. The focus is arbitrary. To illustrate the point, we featured an owl on the cover of a mushroom magazine. We may as easily have featured a mushroom. Although *Fomitopsis pinicola* was presented here as a key link, in a chain every link is important for its integrity. Thus, it would be eminently logical for a birding magazine to put the picture of *Tomentella subilacina*, a member of one of the major mycorrhizal genera helping to bring about a tree, on its cover. Somehow, I doubt it. However, this does

not invalidate the point that we are all interconnected and interdependent—echoes of the ties that bind us. Here in Newfoundland if the links are all in balance, mushroomers can hear the rare saw-whet owl in the forest. If we know that we are a link in its chain, as it is in ours, then we are far less likely to upset that balance or think that interference with “remote” links may not have an effect on this small owl.

The title of this story comes from **Unbroken chain** by the Grateful Dead. The lines make clear the relationship we have to the owl (chain) and how we must keep it (unbroken) if we wish to hear its song. My father-in-law sharpened all his saws by hand, and mine too, if he found them dull. I have not heard that sound since his death at age 94. It was not at all like the call of the saw-whet owl.



Saw-whet owl in another nesting box in the same area, photographed by Henry Mann April 5, 2010.

My Favourite Mushroom: *Coprinus comatus*

Jim Cornish



Coprinus comatus (Müll.: Fr. Gray 1797) is a favourite among mushroom collectors. A delicious edible with no dangerous lookalikes, it is easily identifiable, even with a passing glance. These characteristics and the unusual way it releases spores, make *C. comatus* one of my favourite mushrooms to find, watch and photograph.

Coprinus used to be a large genus that included blackspored mushrooms, most of which release their spores through self-digestion. Recent molecular

analysis found that these morphologic features were shared by species with quite different genetic backgrounds. Consequently, the genus is now split into three other genera, leaving only *C. comatus*, the type species, and a few close relatives in Genus *Coprinus*. These very similar relatives have not been recorded in Newfoundland and Labrador, so either they have been missed or *C. comatus* is our only representative of the genus.

What's in a Name?

Plenty, if you know the English translation of the Greek and Latin words often used in taxonomy. *Coprinus* comes from the Greek “kopro” meaning “dung”, a reference to the manure treated substrates from which many species of this genus commonly grow. Its specific name derives from the Latin “coma”, meaning “hair”, hence two of its three common names: shaggy mane and lawyer's wig.

Habitat

Coprinus comatus is a saprobe; a decomposer that feeds on dead or decaying organic material. Its preference for nutrient rich soils somewhat limits its growth to lawns and to the grassy grounds of parks and sports fields. It is also present but less common along footpaths, meadows and open woodland. The mushroom grows singly or in small clusters and seems to appear overnight during wet weather or after heavy rains. In our province it tends to be a fall mushroom, most commonly appearing toward the end of the mushroom season.



Appearance

Coprinus comatus is visually distinctive. Its near-cylindrical cap is 3 to 7 cm across and 10 to 35 cm tall. The cap is crowned with a pale brown skullcap. Elsewhere, the cap is white and covered with recurved shaggy scales that are coarse and tan-coloured at their tips. The gills are crowded, free from the stem and rapidly change colour from white to pink and, when the spores are “ripe”, black.

The stem of *C. comatus* is white, smooth, straight and slightly bulbous at the base. Its center has a cottony yarn-like string that can easily be removed. A loose ring of veil tissue often hidden by the cap is present in the juvenile stage.

A Mushroom with an Auto Self-destruct

Coprinus comatus has a unique method of releasing its black spores. The cap “melts away” in a self-digestion process called autolysis. The process is gradual, and begins at the edge. When the spores are ready to be released, hydrolytic enzymes liquefy the cap rim into a telltale inky-black goo, hence the name “inky caps” being applied to all *Coprinus* species, including many of its former members. The

cap then recurves, giving the mushroom a bell shape to create enough open space near the cap margins for the spores to escape before autolysis of the gills. While some spores get caught in the goo, most are ejected into the air. The self-digestion process continues progressively upward until all that remains is the stem and a small portion of the skullcap. The whole process lasts just a few days.

The Incredible Hulk of Mushrooms

Coprinus comatus can generate enough force to crack and lift asphalt, a remarkable feat given the nature of its soft tissue and its seemingly fragile appearance. It does this by absorbing water and then expanding to create an upward force.

Uses

Coprinus comatus has recently drawn the attention of the medical research community. Recent analysis has shown it to contain antitumor compounds that inhibit the growth of human breast cancer cells. Experiments with mice have demonstrated that Vanadium salts in *C. comatus* can help regulate blood glucose concentrations. Vanadium compounds are known to lower blood sugar and are investigated as potential





oral hypoglycemic agents.

C. comatus can also be used to dye wool, fabrics and paper and not surprisingly, was once used to make writing ink. In addition, the living fungus is known to kill and digest nematodes, a fascinating way for some fungi to add Nitrogen to their diet.

A Culinary Delight

While *Coprinus comatus* is a delicious edible, it must be harvested before autolysis begins and cooked as quickly as possible afterwards. It will not keep in the refrigerator overnight. Once the black goo appears, it is unsightly and far less palatable. Consequently, collectors who find a mature *C. comatus* revisit the site often to harvest any at the button and juvenile stages before autodigestion begins.

I have not eaten shaggy mane, but David Spahr in his book, **Edible and Medicinal Mushrooms of New England and Eastern Canada**, states that you



should cook these mushrooms whole or halved and not in small pieces. Sauté 3-5 minutes in butter with chopped onions, salt and pepper. Serve alone or with other foods that are not strong in flavour or freeze for later use. The liquid released, and there is a lot of it with this species, is subtle and pleasant in taste and transfers well to the liquids in dairy dishes, soups, pasta, and poultry. The liquid from sautéing can also be poured off, frozen and used in soups later. Most of the flavor in *C. comatus* is lost if dried.

Fourth edition of the Red Book of Finnish species 2010



Esteri O henoja, Botanical M useum, U niversity of O ulu, Finland

The Fourth edition of the Finnish Red Book was published December, 1, 2010. Lists can be downloaded from <www.environment.fi/redlist>.

About 5,600 taxa were treated and threat status estimated for 3,383 fungal species. Ten taxa are considered extinct from Finland, 40 species are critically endangered (CR), 75 endangered (EN), 136 vulnerable (VU), and 205 near threatened (NT). Most of the former DD-species are now in class NE (not evaluated). The tables on regionally threatened fungi are under preparation and will be published during 2011.

Changes in the forest environment are the primary cause of threat, e.g. decrease of decaying wood. Also, overgrowth of meadows and construction of waters, roads and buildings have threatened fungi and many other organisms. Lack of monitoring made it impossible to estimate the influence of the supposed climate change as a threatening factor.



Editorial comments

The Red Book

...is a list of threatened species, arranged by threat category, encompassing all living organisms in a country or region. International guidelines for threat category are used in the classification and the data reviewed periodically. In Finland the Book is published by the Ministry of the Environment. Esteri was a coauthor of the fungal section.

To publish data on rarity requires knowledge of the existing species. We do not know the species of fungi that grow in Newfoundland and Labrador, (or Canada) and could, therefore, not produce such a book. Our foray helps to produce a list of species in time.

We do, however, publish and update a Red Book in Canada. It lists wholesale prices for used cars.

Sarcosoma globosum

...is an interesting spring mushroom of dramatic appearance—a 4-6" diameter globe with a black gelatinous sporemass. In Finland it is NT (near threatened), but apparently on the rise, as opposed to most of Europe, where it is decreasing. Its preferred habitat is old growth spruce forests. There is no reason why it should not grow in Newfoundland and Labrador, unbeknownst to us all. It fruits in May, when woods are muddy, and areas of old growth spruce are by definition already inaccessible (no accessible spruce would remain old!). Dave Malloch wrote us about a recently discovered colony that he visited in Acadia National Park in Maine. Despite its looks, *Sarcosoma globosum* is a relative of the morel, fruiting at the same time.

Conks in cross section

Andrus Voitek

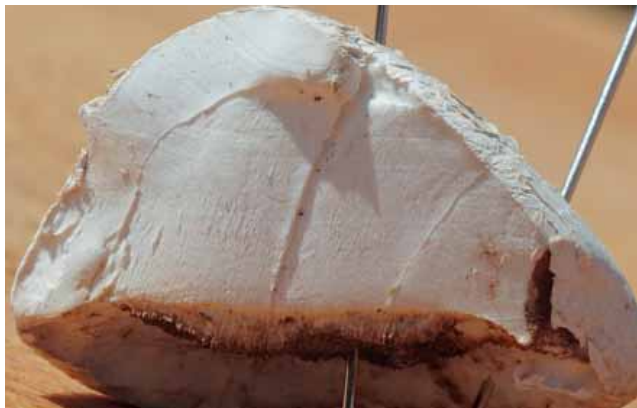
Our five large common conks, in order of ease of identification, are: *Piptoperus betulinus*, *Fomitopsis pinicola*, *Ganoderma applanatum*, *Fomes fomentarius* and members of the *Phellinus igniarius* complex. The first two cause brown rot, the others white. All can be weak parasites, although usually they are found on dead wood. All can be found on birch, although *Fomitopsis pinicola* prefers conifers. Save for *P. betulinus*, all are perennials. All have characteristic appearances, faithfully described in books, with good pictures illustrating typical fruiting bodies. At times, however, deep in the forest and far from these books, they can present a very confusing picture, making identification by outward appearance difficult even for veteran polypore aficionados.

In these instances it is good to know that inside they are more distinct than outside—to cross section, divide the conk vertically through the middle. As with all morphological features, there is the “typical” and then the rest. No single feature is foolproof all the time. Age, stage, size, time, position, condition and time of harvest may all influence the appearance of the cross section.

NOTE: All cross sections oriented as if the conk were attached to a standing tree on the right, projecting leftward.

Piptoperus betulinus

We really have only four large conks that you need to worry about, because the commonest, *Piptoperus betulinus*, is almost always unmistakable. Its colour varies from white to reddish brown. It has a small lateral attachment, either at the side of the cap or extended into a lateral stem of varying length, even hanging down. The pore layer is horizontal. Found exclusively on birch, it is easily recognized by the overlapping (involute) edge, extending beyond the pore surface. The tubes may be intact or hang as teeth in age. An annual, it has only one layer of pores. The flesh is soft and white with no obvious structure or layering.



Fomitopsis pinicola

Fomitopsis pinicola is also virtually foolproof to recognize due to its characteristic red band, giving it the common name **red banded polypore** (OMPHALINA II-2, pp 12-14). In youth, or when the band is not distinct, its identification can be confusing. Its close relative, *Fomitopsis ochracea*, also found on our birch, fooled me for several years (OMPHALINA II-2, pp 9-11). However, the cross section is similar for both, and is characteristic for *Fomitopsis*.

Colour of the cut surface is beige-tan, considerably lighter than the remaining three, all of which are brown. The tube layers are distinct, separated by a thinner tan hyphal layer, and the layers for the current and 1-2 previous years are very light in colour, the current year being off-white. Often sectioning causes partial separation of the layers. The context is woody, with characteristic whorls, like growth rings. Pore

surface is about 45° to the ground. Adjacent fruiting bodies fuse where they meet, creating big, complex, Ganoderma-applanatum-like structures.



Ganoderma applanatum

Ganoderma applanatum, **artist's conk/polypore**, is also easy to recognize when classical, just by its flat shape. Not surprisingly, it also has many facets—both hoof and wedge shaped fruiting bodies can be found. Another typical appearance is the irregular, knobby cap, often fused to its neighbours. In our province it is most common on old birch stumps, not on standing trees. More than any of the others, this fruiting body tends to incorporate nearby plants, even small bushy trees. During sporulation this conk is characterized by being covered by a layer of its brown spores. Apparently they drop down, but are then carried upwards on rising air, to settle and fall on the cap. Its white pore surface turns brown when marked with blunt pressure, allowing one to use it for drawing and artwork, giving rise to its common name. This feature does not seem to be as pronounced in our conks, and may not be such a good identifier.

On cross section, the colour is darker than the previous ones, with red or very slight purple tones in the brown, and a pore surface angled slightly up from the horizontal. Tube layers remain distinct, separated by brown and white hyphae. That, and several lines of white hyphae in the context, running parallel to the cap, are the distinctive features.



Art:
Vito Testa

Photo:
Michael
Burzynski





Fomes fomentarius

Fomes fomentarius, **tinder/hoof conk/polypore/mushroom**, is easy to recognize when classical (like the two medium sized ones in the middle, above—these are half-width, as both have been sectioned in half), but has so many variations of size, colour and shape, that it can stump the most studious student of stumps. Here, again, a quick cross to the cross section may help bring some lucidity.

Fresh pore mouths are white. Pore surface is parallel to the ground. Overall colour is a darker chocolate brown. Old pore layers are distinguishable, but somewhat obscured by varying amount of white hyphae that migrate across these borders. As a result,

the layers do not separate on sectioning. Note that the tube layers, the context and the covering are well demarcated, distinct from each other. The diagnostic feature on cross section for this conk is a soft granular core in the upper part of the context, above the tube layer, where the conk is attached to the tree. This is so soft, that often it is left behind on the tree trunk when removing the conk, as illustrated by the middle conk, below. The core is best seen in the small specimen. In the others it broke/crumbled when sectioned, so that the surface is not even and the granularity obscures some of the detail. Note that the middle specimen is cut at an angle that is not parallel to the tubes, making it a bit more difficult to distinguish the tube layers.



Phellinus igniarius complex

Phellinus igniarius, **iqmik**, represents a complex of species on various hosts. Many are morphologically similar and can only be separated by the host, others require breeding studies or sequencing to determine species. The resupinate end of the *Phellinus* spectrum is easy to separate from the preceding conks, but those with a pore surface parallel to the ground can be difficult to tell from the previous three, not to mention from each other. Fuses with close fruiting bodies.

The one feature that all birch *Phellini* that form a cap share in common is that this cap turns totally black with age, becomes fissured and cracked and often studded with larval holes. This happens whether it is called *P. cinereus* (gray) or *P. nigricans* (blackening). *Fomes fomentarius* may also be quite dark, but it is a matte dark gray, not shiny black, and does not crack.

The *Phellinus* cross section is the same, whether it is the *P. igniarius* type with horizontal pore surface, or the more resupinate *P. laevigatus*/*P. lundelli* type with pore surface angling a bit away from the tree as it ascends. (The latter two can be separated by poremouth size: 8-10/mm for the former, and 5-6 for the other.) The colour is the darkest brown of the group, the tissues and layers the least distinct and old tube layers the thinnest. The inside also often cracks and fissures, frequently not along tissue planes.



The chocolate *Cortinarius*

Tuula Niskanen, Kare Liimatainen, Andrus Voitek



Big leafy cortinariuses are unusual early in the season. In their pursuit of Nordic *Cortinarii*, Niskanen, Liimatainen and Kytövuori found one, a new species, which they named *Cortinarius niveotraganus*. Its preliminary description in their *Cortinarius* chapter of **Funga Nordica** limited its distribution to Finland and Sweden. Shortly thereafter a similar mushroom, above, was found in western Newfoundland. It resembled *Cortinarius niveotraganus* macroscopically, but had somewhat smaller spores, and its DNA differed slightly—raising the possibility of a new species. The host tree may also suggest a different species: the Scandinavian mushrooms were birch associates, while this grew under balsam fir (although some birch was not too far away, so a birch association is not excluded).

The Nordic specimens had a pleasant smell, while the Newfoundland specimen smelled like an old potato. However, what was remarkable, was the

smell after drying. 18 months after drying, the Newfoundland collection gave off a very obvious and appealing smell of chocolate. Checking the Nordic specimens showed that they also smelled pleasantly of chocolate.

We are not aware of any other mushrooms producing a chocolate smell, and report this as an enjoyable curiosity of no particular meaning, a bit of fungal fluff and trivial excelsior.

The ulterior motive behind this communication is to ask you to be on the alert for a big white *Cortinarius*, cropping up in late June to August. If you find it, please take a photo, record the date, location, smell and nearby trees. Collect the specimens, cut in half and leave to dry exposed to room air. Then notify the Editor of this journal. We need to examine a few more North American collections to determine whether ours is a new, hitherto undescribed species.

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What's to Like about Lichens?

A lot, it turns out. They are a source of food, of medicine, and of concern to environmentalists.

By Jim Cornish

We see them hanging like hair

from the limbs of spruce and fir trees, covering exposed bark and rocks like shields, and sprouting like matchsticks and pixie cups from the forest floor. But seldom, if ever, do we stop and take in the diversity in size, colour and form of lichens.

Lichens are not plants, but a perfect example of a mutually beneficial living arrangement between fungus and algae. For its part, the fungus absorbs minerals and water from the air and shares them with the algae. Algae then uses these nutrients to

Jim Cornish photo



British Soldier Lichen
Cladonia cristatella

These red-tipped lichens resemble in colour a late 18th-century British soldier's hat, hence their common name. They typically grow along the edges of trails and on decaying wood, often among other lichens. The tallest one pictured here measures just 2 cm.



Sulphur Cup Lichens
Cladonia deformis

These cup lichens are the comedians of the lichen world. Their deformed shapes create some interesting structures.



Hair Lichens
Alectoria and Bryoria

Commonly called witch's hair (the green strands) and horse's hair (the brown strands), they are good indicators of air quality; they are often missing from urban and industrial areas.

Jim Cornish photos

produce the food both organisms need to grow and reproduce. Consequently, this dynamic duo is able to survive in places and under conditions together that they could not possibly endure on their own.

Very resilient, lichens can remain dormant during long dry spells and come back to life when moistened by rain, dew and high humidity. Although brittle and dull in colour when dry, within minutes of being wetted, they become brighter (an indication the algae is actively making food) and pliable. Because they are often dormant, lichens grow very slowly, from as little as a millimetre to just a few centimetres over a growing season.

The last of this lichen

One lichen species is rapidly becoming unique to the island of Newfoundland. Called the boreal felt lichen (*Erioderma pedicellatum*), it has survived since the time when North America, Africa and Europe formed one continent about 500 million years ago. Unfortunately, it's not likely to survive our impact on its environment. Listed as one of the most endangered lichens on the planet, just about all of the world's remaining individual specimens live in eastern Newfoundland.

The plight of the boreal felt lichen became public knowledge in the mid-1990s, largely through the efforts of Eugene Conway, who found the lichen while on a fishing trip in Locker's Waters on the Avalon Peninsula. When the area was about to be logged, Conway advocated for the protection of the lichen. As a result, it was declared a "species of special concern" by COSEWIC, the Committee on the Status of Endangered



Mac Pitcher photo

The boreal felt lichen, *Erioderma pedicellatum*, is rapidly disappearing from Newfoundland. It grows mostly on the trunks of balsam fir. Its light grey to greyish-green surface is covered with felt-like white hairs and showy reddish coloured buds. The edges are light-fringed and typically curl upwards to reveal a mat of white hairs.

Wildlife in Canada, and “vulnerable” under the Endangered Species Act of Newfoundland and Labrador.

According to environmental consultant and researcher Dr. Ian Goudie, there is some debate over the total number of individual lichens remaining. A documented population of about 1,000 individuals found in the Lockyer’s Waters area in the mid-1990s is now down to less than 300. These numbers are unsustainable and the species may well be completely gone within a few decades.

The boreal felt lichen is threatened by natural and manmade stressors. The natural ones include forest fires, aging stands, windfall, insect outbreaks and climate change. Of greatest concern is browsing by moose. While moose don’t eat the lichen,



Mac Pitcher photo

The vole ears lichen, *Erioderma mollissimum*, was recently discovered in the old growth forest of the Avalon Wilderness Reserve. It, too, is threatened, but a larger distribution worldwide may help ensure this species survives a little longer.



Star-tipped Reindeer Lichen
Cladonia stellaris

Several lookalike species of this lichen are collectively called reindeer lichen. It often carpets large patches of open forest floor and barrens. It is the main food source for caribou in Newfoundland and Labrador, particularly in winter.



Lung Lichen
Lobaria pulmonaria

So-called because it looks like lung tissue and has been used to treat a variety of respiratory ailments, this lichen is beige to pale green when dry, and rapidly turns bright green when wetted.



Tube Lichens
Hypogymnia physodes

Growing like tubes on the branches and bark of conifers and birch, it is one of our most common forest lichens. These lichens are found in damp areas and are more tolerant of air pollutants.

Jim Cornish photos

they destroy the seedlings on which future tree growth – and lichen habitat – depend.

“About 95 per cent of our balsam fir trees are not regenerating,” says Goudie. “Trees that should be about 30-50 years old are just not there because of over-browsing by moose.”

The immediate threat, however, is wood harvesting and land development.

Why we like lichens

Lichens are an important source of food for insects, slugs and caribou. Some varieties are even used as nest liners by some 50 species of birds.

They are useful to people, too. Our great-grandparents called lichens “moldow” and “molly fudge,” and collected them for firestarters and boiled them to make clothing dyes – a practice that still exists in cultures around the world. Some lichens are also used to make soaps and perfumes. Rich in carbohydrates, they can be eaten in emergency situations, despite their rather acidic taste. And if you are really stuck, lichens such as the familiar old man’s beard make acceptable toilet tissue. In folk medicine, lichens were also used to treat headaches, toothaches, tuberculosis, diabetes and asthma. Maybe a cure for some of our most devastating diseases will one day be found in lichens.

For those watching environmental change, lichens are like the canaries in the coal mine. They are used to monitor air quality and serve as umbrella species – living indicators of a wide range of environmental and ecological problems. Although lichens are hardy, it doesn’t take much to wipe them out. And because they prefer pristine environments and extract nutrients from the air,



Jim Cornish photo

Map Lichen

Rhizocarpon geographicum

These brightly coloured lichens are nature's pioneers. They grow almost exclusively on exposed rocks and are commonly named for their map-like appearance. They grow slowly and at predictable rates, allowing geomorphologists to use them to estimate when landscapes became exposed from under retreating glaciers.

lichens are particularly sensitive to air pollution and micro-environmental change. Consequently, metropolitan and industrial areas are referred to as "lichen deserts" because they are often stripped of their lichens by air pollutants.

A unique combination of landscape, weather and geography has created very diverse ecosystems across Newfoundland and Labrador, from arctic-like barrens to heaths, bogs and boreal forests. Lichens are a conspicuous and highly diverse part of all these areas. So, the next time you are walking the wilds, stop and take a closer look at the exquisite world carpeting the ground and decorating the trees above. It may be an "enlichening" experience! 🌍



Reprinted, with kind permission, from the June, 2011, issue of Downhome Magazine

the mail bag

or why the passenger pigeons assigned to serve the

Lavish Corporate and Editorial offices of OMPHALINA get her nias

Several nice letters again—keep them coming! We just love them. The most some hilarious ones discussed crows and haberdashery, unfortunately not in this journal, so shall go unpublished here.

ERRATA—few corrections by sharp eyes:

1. *MelamPSorella*, not *Melamsporella*, one of the rusts in Issue 1.
2. A friend of the family Chailleti (one T) wrote to say *Amylostereum chailletii*, not *A. chaillettii*. This was in the species list of the **Report on our Winter Nature Walk and Foray**. If you are interested to see that Report, it is available for download from our website, as are all foray reports, species lists and back issues of OMPHALINA.



This morel picture attached to the last e-mail elicited the response below:



No accounting for what catches people's fancy.

The alder tongue gall series in the last issue made a new record—the most spontaneous number of laudatory letters for any article or series to date. And from across the board, professional mycologists to rank amateurs. Two people sent in their own pictures. Both articles are already quoted on the web <<http://www.flickr.com/photos/23587843@N07/2728580267/in/pool-84638739@N00>>. Incredible but true: the popularity of alder tongues even beat out the faves about recipes.

Speaking of which, another mystery. Right from the outset the recipes drew the most letters, clearly uncontested favourite section of the newsletter. If everybody loves them, why are there no submissions??? The poor Empty Skillet Editor can't be expected to edit AND contribute all the material, now, can she?

Dear Editor, I feel that you did our morels in Newfoundland an injustice, depicting insalubrious Morel mewlings prematurely aborted by your rapacious greed beside a dime in your last e-mail. As if that's what grows here! Here's a picture of only part of what we collected just to-day, lying beside my violin. And no, this is not a trick picture, altered or PhotoShopped in any way. This is the real thing. Fiddle-sized Morels like this can be found in Newfoundland and Labrador every spring, you just have to know where to look. If you don't know, don't spread your misconception when mailing out OMPHALINA and shame us all. OMPHALINA is read far beyond our borders, so be careful what you say! And another thing I am not at all pssso with

Our first abusive letter, further flowery over-the-top invective left unpublished, along with probably fictitious name.

Ed.

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Parks and Natural Areas Division
Wildlife Division
Department of Natural Resources
Center for Forest Science and Innovation
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Memorial University
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LI CHENS added this year!



2011	2011	2011
	2011	2011
2011	2011	2011
	2011	2011
2011	2011	2011
	2011	2011
2011	2011	2011

Terra Nova National Park

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