REPORT of

FORAY NEWFOUNDLAND & LABRADOR

September 28-30, 2007

Burry Heights
Avalon Peninsula

LINNÆUS TERCENTENARY FORAY

OFFICIAL PARTICIPANT OF THE
SWEDISH ACADEMY OF
SCIENCES' INTERNATIONAL
LINNÆUS CELEBRATIONS

SPONSORS:

The Department of Environment, & Conservation:
- Parks & Natural Areas Division
- Wildlife Division
- Salmonier Nature Park

The Department of Tourism, Culture & Recreation:
- The Rooms Corporation, Provincial Museum

Gros Morne Cooperating Association
Sir Wilfred Grenfell College
Memorial University
Gros Morne National Park
Terra Nova National Park
Quidi Vidi Brewing Company

Andrus Voitk

CONTENTS

NOTE: Just as the foray tries to serve many interests, so also this Report tries to serve its many constituents. Some of the material may be too detailed, some too tedious and boring, much of it irreverent or irrelevant to many interest groups. The ecologist may be interested in how many collections of a species came in. The park interpreter may want to know what are the common mushrooms in her park. The foray participant may just want a memento of what went on. The mycologist may wish to know what species fruit on the Avalon. And so on. If much of it is not pertinent to you, please ignore it. You need not feel bad for not reading it all. It is easier to write one report, including things pertinent to faculty, participants, sponsors, biologists, other mycologists and mycophiles and so forth, than trying to write a separate Report for each group. Yes, I'm lazy!

Photographs by Roger Smith and Andrus Voitk
Ecoregion maps courtesy Department of Energy and Conservation

Copies of this Report, the Reports for 2003 - 2006 and Annotated Cumulative Species List can be downloaded in pdf form from the mushroom section of the Humber Natural History Society's web page, <www.hnhs.ca/mushrooms/>.
Please feel free to use or circulate this and any of the other documents.

Comments & questions — <mushrooms@hnhs.ca>

FACULTY

Guest

Britt Bunyard	*NAMA*
Kare Liimatainen	*University of Helsinki*
Dave Malloch	*New Brunswick Museum*
Tuula Niskanen	*University of Helsinki*
Jorinde Nuytinck	*University of Ghent*
Roger Smith	*University of New Brunswick*
Vello Soots	*Mycological Soc of Toronto*
Greg Thorn	*Western University*

Local

Michael Burzynski	*Gros Morne National Park*
Faye Murrin	Memorial University
Andrus Voitk	*Humber Natural History Soc*
Gary Warren	*Canadian Forestry Service*

TRAIL LEADERS (in addition to the above)

Guest

Bill Richards
Nancy Ironside
Pat Burchell

Local

John Maunder
Judy May
Mac Pitcher
Maria Voitk

CHEFS

Mushroom

Gene Herzberg
Vito Testa
Aare Voitk

Roadkill

Randy Batten
Mac Pitcher
Roger Zilkowsky

REGISTRARS

Judy May
Maria Voitk

DOCUMENTATION

Michael Burzynski
Brad Butler
Melissa Creasey
Claudia Hanel
Susan Knight
Anne Marceau
Meherzad Romer
Roger Smith
Kenny Tuach
Aare Voitk
and many others

TRAILS

1. Salmonier Nature Park (provincial)
Boreal forest. Boardwalk all the way.

2. Salmonier back to — Avalon Wilderness area (provincial)
Boreal forest, bogs. More remote, rougher trails but easily passable.

3. Butter Pot Provincial Park
Boreal forest. Good trails.

4. La Manche Provincial Park
Boreal forest. Good trails.

5. Castle Hill Historic Site (federal)
Boreal forest, fields of lawn. Good walking, moderate hills to climb.

6. Not used

7. Deer Park (community)
Relatively easy walk. Lush and moist protected boreal forest with some southern plantlife.

8. Cape St. Mary's Ecological Reserve (provincial)
Flat walking over some heath. Coastal highlands heath with dwarf trees.
Area divided into segments with groups responsible for foraging their segment. At least 1 1/2 hr's drive from Lavrock, each way.

9. Brother Brennan Environmental Education Centre (private)
Boreal forest, trails, easy walking. Probably signature trail for the Avalon Forest Ecoregion.

PARTICIPANTS

Reverse alphabetical order.

It is a sad comment on our society but I removed the e-mail addresses that are usually found here. Many people find these a convenient way to stay in touch with some of the participants they befriended at the foray. Unfortunately this practice is no longer safe. This report will be distributed electronically and posted on our website. Spammers send spiders or crawl engines all over public sites and copy any e-mail addresses found there to add to their lists for future spam distribution. Thus any address posted on our site will eventually attract spam.

Apparently if you put your address up as a graphic or image, most spiders will not recognize it as a bona fide e-mail address and will not copy it. With the fast pace of technology, even this may have only a limited time to work.

Therefore, if you lost somebody's e-mail whom you wish to contact, please let me know and I'll be pleased to send it to you. My address is on the obvious graphic below:

<mushrooms@hnhs.ca>

Roger Zilkowski	Corner Brook NL
Graham Zilkowski	Corner Brook NL
Tony Wright	Toronto ON
Marianna Wright	Toronto ON
Marian Wissink	St John's NL
Gary Warren	Corner Brook NL
Ann Walsh	Sharbot Lake ON
Maria Voitk	Humber Village NL
Andrus Voitk	Humber Village NL
Aare Voitk	Humber Village NL
Kenny Tuach	Corner Brook NL
Greg Thorn	London ON
Vito Testa	Toronto ON
Sue Sullivan	Humber Village NL
Helen Spencer	Torbay NL
Beth Spencer	Torbay NL
Geert Spanoge	Drongen Belgium
Arjen Spanoge	Drongen Belgium
Vello Soots	Don Mills ON
Roger Smith	Fredericton NB
Meherzad Romer	Corner Brook NL
Bill Richards	Fort Saskatchewan AB
Mac Pitcher	Holyrood NL
Laura Park	Harbour Main NL
Jorinde Nuytinck	Drongen Belgium
Tuula Niskanen	Helsinki Finland
Faye Murrin	St John's NL
Anita Moyst	Glouchester ON
Kevin McAleese	St John's NL
Judy May	Humber Village NL
John Maunder	Pouch Cove NL
Anne Marceau	Rocky Harbour NL
Phyllis Mann	Pasadena NL
Henry Mann	Pasadena NL
Dave Malloch	Little Lepreau NB
Ethel Luhtanen	Calgary AB
Kare Liimatainen	Helsinki Finland
Eugene Koczkur	Scarborough ON
Susan Knight	St John's NL
Clara Jenniex	Humber Village NL
Nancy Ironside	Orillia ON
Gerald Hussey	Bonavista NL
Karen Herzberg	St John's NL
Gene Herzberg	St John's NL
Pat Hayward	Rigolet Labrador
Claudia Hanel	Corner Brook NL
Sarah Graham	Corner Brook NL
Jeri Graham	Corner Brook NL
Jamie Graham	Corner Brook NL
Alan Gan	Richmond Hill ON
Heather Ewing	Battersea ON
Melissa Creasey	Corner Brook NL
Nathalie Djan-Chékar	Witless Bay NL
Ava Djan-Chékar	Witless Bay NL
Michael Burzynski	Rocky Harbour NL
Brad Butler	Corner Brook NL
Pat Burchell	Don Mills ON
Britt Bunyard	Germantown WI
Diethard Bohme	Concord ON
Randy Batten	Conception Bay S NL
Fredrik Alfer	Stockholm Sweden

PROGRAM

LINNÆUS TERCENTENARY FORAY

FRIDAY, Sep 15, 2006

12:00 PM - 3:00 PM
Cape St Mary's Mycoblitz

4:00 PM
Welcome reception
Hosted by the people of Newfoundland and Labrador through the Ministry of Environment & Conservation, The Hon. Clyde Jackman, MHA, Minister.

7:00 PM
Mushroom ID Contest winners & other important stuff

7:45 PM
CAROLUS LINNÆUS TERCENTENARY PANEL DISCUSSION
Dave Malloch, Tuula Niskanen, Jorinde Nuytinck, Greg Thorn:
Concepts around the species concept

SATURDAY, Sep 16, 2006

9:00 AM
Forays

5:00 PM
Quidi Vidi Mushroom QuuQup and BBQ roadkill mooseburgers

7:00 PM
Find of the day & Forager of the day awards & other important stuff

7:15 PM
Britt Bunyard: *What's eating you?*
8:15 PM
Andrus Voitk:
4 yrs & 5 forays—what have we learned?

SUNDAY, Sep 17, 2006

8:40 AM
Group photo on the grounds
9:00 AM – OUTSIDE
Pick for the Pot with **Judy May & Maria Voitk**
Corts in the woods with **Kare Liimatainen**
Bugs n Slugs in the woods with **Britt Bunyard**

9:00 AM – INSIDE
Tables with **Vello Soots**
Lactarii with **Jorinde Nuytinck**
Microscopy with **Dave Malloch**

10:00 AM – INSIDE
Tables with **Greg Thorn**
Corts with **Tuula Niskanen**

11:00 AM – OUTSIDE
Foto Phoray with **Vello Soots**
Corts in the woods with **Tuula Niskanen**

11:00 AM – INSIDE
Tables with **Faye Murrin & Gary Warren**
Lactarii with **Jorinde Nuytinck**
Microscopy with **Greg Thorn**

12:00 PM – INSIDE
Tables with **Dave Malloch**
Russulae with **Jorinde Nuytinck**

2:00 PM
CAROLUS LINNÆUS TERCENTENARY GUEST LECTURE
Britt Bunyard:
Evolution of fungi—600 million years in 60 minutes

3:00 PM
Wrap-up & Thank you

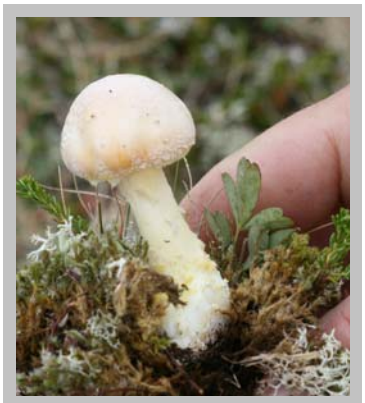
REPORT

From empty to full (and identified) in 48 hrs

This year's Foray was sponsored by its several kind partners: **The Department of Environment, & Conservation, the Hon. Clyde Jackman, Minister (**Parks & Natural Areas Division, Wildlife Division, Salmonier Nature Park)**, The Department of Tourism, Culture & Recreation, the Hon. Tom Hedderson, Minister (**The Rooms Corporation, Provincial Museum) **Gros Morne Cooperating Association, Sir Wilfred Grenfell College, Memorial University, Gros Morne National Park, Terra Nova National Park and Quidi Vidi Brewing Company**.

Gannet Rock

The Foray started with a Faculty Foray, providing our experts an informal forum to meet our mushrooms, our trails and each other. We enjoyed our largest ever number of participants: mushroom enthusiasts from Labrador, the Great Northern Peninsu-la, Central Newfoundland, the West Coast and the Avalon (yes, even St John's) joined visitors from Alberta, Belgium, Finland, USA, Ontario and New Brunswick to forage the autumn woods of the Avalon Peninsula for species to be identified with the help of experts. Most were veterans of previous forays, with a little under one-quarter of the participants as newcomers to our foray. Youth was again noticeable this year: four children and a significant number of students, with about 25% of participants in their thirties or less.



Amanita wellsii

Foraging the Cape's barrens

The new sport of tuckdiving

The Foray opened with a reception by the Department of Environment & Conservation. Pictures of Cape St Mary's and other memorabilia were presented to our out of province guest faculty members on behalf of the people of Newfoundland and Labrador via the Department of Environment & Conservation. All registrants received a

Joy = silver vessels laden with cod tongues

Presentation of commemorative plate to the King's man

handsome registration package from the Department.

2007 is the 300th birthday of Carl Linnæus, the great Swedish scientist, who conceived of the phylogenetic order for classifying organisms and the binominal system for naming them. This event was celebrated worldwide and our foray was an official participant of the international events overseen by the Swedish Academy of Sciences. To note this, the First Secretary of the Swedish Embassy, Mr Fredrik Alfer, was our guest of honour at the foray. A glass plate depicting the gannets of Cape St. Mary's and the Linnæus tercentenary logo, commissioned from award-winning Newfoundland glass artist Urve Manuel, was presented to Mr Alfer. In return, he presented all participants with a colour booklet describing the life and contributions of Carl Linnnæus, as well as some Swedish cookbooks for the chefs.

Small teams, under expert leadership, went forth into selected trails, foraging for mushrooms. As last year, mushrooms were a bit scarce but again a very interesting variety of species was collected by the foraging teams. The weather was pleasantly sunny throughout, except for our main foraging day, when it was pleasantly rainy. As

Honour those fallen on the Foto Phoray

That little thing? Don't be ridiculous!

before, foragers were very diligent about the use of collecting slips—virtually no specimen came in without a slip, duly filled out. Specimens were sorted with attempt to identify at least to genus. These were then submitted to the experts' approval and authenticated specimens taken

More tuckdiving

Quidi Vidi & mooseburgers: some eat & drink, some take pictures

Advice for the Quidi Vidi QuuQup: you can eat any mushroom once!

to the exhibition hall. Our experts did yeoman's work, using microscopes, chemicals, tomes of books and each other for consultation to pin a name on an elusive, pesky little mushroom, backed with voucher photographs and specimens. The latter part of the process was carried out by the biggest data base team it has been our fortune to have. We have always enjoyed good support from all levels of government and this year's support allowed us to engage more young people in the database work than ever before. How hard did the volunteer expert and data base team work? Well, staying up until 1:30 AM seemed to be routine and some reported seeing folks still working at 3:00 AM one night. No matter, all were up and at it for 8:00 AM breakfast the next morning, in good spirits. This is the sort of thing people do willingly, so long as it is for free and nobody threatens to pay them for it.

Predictably, the Quidi Vidi QuuQup was a huge success. Five different wild mushrooms were prepared under the eyes of Chef-in-Chief Gene Herzberg, while Roadkill Roastmeister Mac Pitcher oversaw the Kill Krew cooking up his prepared mooseburgers. Beer was again kindly supplied by Quidi Vidi Breweries. As last year, every scrap of solid and liquid was consumed.

Friday evening we celebrated the birthday boy, Carl Linnæus, with a panel discussion devoted to the species concept. Apparently there have been some changes since Linnæus proposed his concept. The resultant exposition by our learned panel proved quite heavy going but we did our level best to grasp the concepts presented. Linnæus would have chuckled. Saturday we had a dissertation on mycophagous insects, followed by a review of what our data has told us after the first five forays. Another Linnæan lecture, this time on the evolution of fungi, closed the scientific program for this year.

Sunday was devoted to giving participants access to our faculty and our mushrooms in small groups. Small workshops around microscopy, small groups of mushrooms or overview of our display tables were led by the faculty. Those wishing fresh air had the option of outdoor sessions devoted to photography, identification of small groups of mushrooms or the picking of edibles. This proved a very popular format that we plan to continue in future forays. Starting at noon on Friday allows us to use Sunday for small group didactic sessions without losing collecting time. Although an early Friday start is problematic for working people, judging by the comments we received in feed-back, people felt this was a worthwhile trade-off.

The end result: **1,124** (!) collections processed, **276** mushroom species identified, **106** new to our forays, bringing our cumulative species list to **670**. A lot of work!

The Pick-for-the-pot crew sort their finds

The species concept panel in full swing; Linnæus would have chuckled.

Tables with Faye

Corts with Tuula

Lactarii with Jorinde

Tables with Vello

Participants of the 2007 foray, including photoshopped missing persons

HIGHLIGHTS

MYCOLOGICAL & OTHERWISE

As in past years, these are some of events that were highlights for me that I should like to share with you. I hope you had highlights of your own… Top of the list must be the cheerful, courteous and helpful attitude of the participants. Everybody was always in a good mood and pitched in, wherever help was needed. There was a palpable spirit of camaraderie in the air that made it a pleasure to take part. Thank you.

To me, the Panel Discussion on the Species Concept provided a special kind of highlight. I had been advised that such a discussion is likely to soar to a level beyond the reach of many in the audience, not versed in the academic background required to take it all in. Stubborn, I persisted. Well, from your comments to me later, I now know that I should have listened to my advisor. I was touched by the courtesy shown to me as organizer and our panelists: after the coffee-break, everybody returned for the second half, including all of those, who told me they lacked the background training to fully appreciate the material presented. Later, many more told me that the panel discussion was often at the limit or beyond a lay audience but several went on to reassure me that they are fairly certain that they suffered no irreversible harm from being exposed to this discussion—some felt they may even have come to appreciate the difficulties around naming a species in mycology and the help genetic studies may bring to this problem. The comments made it was clear I had erred with the programming, yet not a single comment was offered as a complaint; people were appreciative of the attempt.

Two ladies have separately told me that they found it refreshing to find among the faculty some young ladies instead of old men. Well, I don't know whom they meant by old! While we try to be neither sexist nor ageist, I must admit that Jorinde and Tuula were indeed a delightful addition to our faculty. Perhaps they wish to return? They would surely be welcome.

The rare but ubiquitous *Ascocoryne turficola*, resting in its home of red bog *Sphagnum*. On many the stem has a dark violet colour.

While on the subject of faculty, I have never seen a faculty work harder or longer hours. Working to 1:00 AM was routine and one night some were still keying things out behind their microscopes at 3:00 AM. Yet all were bright and cheerful at breakfast, ready to go at it again. I am quite certain that our highest species list ever was due to this, certainly not an exceptional mushroom year. But as you see, it was exceptional! It's not the mushrooms, it's the people. A real highlight.

Never mind, on to the mushrooms. The find of the foray must surely be *Ascocoryne* (*Sarcoleotia*) *turficola*. This jelly fungus is hitherto known only from the Orient and Europe, where it is considered rare; we have been unable to find any report of it in North America. Yet, this year it has been found in Newfoundland from June to October, from the west coast of the Northern Peninsula to the Avalon. Britt Bunyard is busy gathering the data on it in order to report this in the mycological literature.

Other highlights consisted of some epiphanic moments, giving me an insight into some of our mushrooms. First of these started before the foray, the Section *Deliciosi* of Lactarius. Jorinde's DNA work on our past specimens told us 1) that neither *L. deliciosus* nor *L. deterrimus* grow here and 2) that we have only two species, *L. thyinos* and *L. "deterrimus"*; hitherto the latter has been called erroneously *L. deterrimus* and, thus, is going without a proper name. It has not been renamed because at the moment it is not clear, whether we are dealing with one or more species, so for now it keeps the misapplied name *L. "deterrimus"*. Well, on this basis we devised a table-key to differentiate between them, to be tested at the foray. While we did not have many specimens so late in the season, our experience suggested it was quite easy to distinguish between the two with this table.

Next discovery is the differentiation between *Suillus laricinus* and *Suillus serotinus*. We have collected a mushroom we have identified as *S. laricinus* at almost every foray, including this one. However, this time Greg decided to study it a little closer. According to the books, the cut flesh of *S. laricinus* turns blue-green on exposure to air. Our mushrooms may have gone through a blue-green phase but went on to turn gray-violet that eventually darkened. This reaction is typical of a close look-alike, *S. serotinus*, a much less common mushroom in most places. Well, on reviewing our past collections, where some idea of flesh discolouration is seen on photographs, it looks gray-violet, not blue-green. This makes

A mushroom identified as *Fuscoboletinus laricinus* in 2006. The much less common *F. serotinus* was distinguished from *F. laricinus* because after turning blue, its flesh continues to a violet-gray and eventually a dark red-brown. Note the violet gray discolouration of the flesh above the tube layer and the upper stalk and some red-brown stains elsewhere. The cap of *F. serotinus* is said to be covered with a lot of dark brown gluten, unlike its lighter relative. In other views a dark glutenous cap of this specimen was apparent.

one suspect that perhaps all that grows in our province is *S. serotinus*, not *S. laricinus*. Now that we have seen the light, we have something to look at a little closer in future forays.

Next is the matter of the common Tamarack Jack or *Suillus grevillei*, a mushroom we see in large quantities every year. Ours is usually red-brown, whereas in northern Europe the same mushroom is yellow. The yellow one was named *S. grevillei* and Peck, an American mycologist, named the dark red-brown one found here *S. clintonianus* (no, not *that* Clinton but the same for whom the lily genus *Clintonia* is named). Totally uncharacteristically, we in North America have elected to eschew the American name, treating both as synonyms, whereas the good folks in northern Europe treat them as separate species. I suspect that DNA studies will eventually show that both are synonymous, differentiated only by a small typo in the genetic code area controlling dark red pigment, no more a species than an albino (flavino for a yellow one?). Until such studies are done, it seems more correct to recognize them as two distinct species. We have collected both on every foray, the yellow one considerably less common than the red-brown. Again, all have not been photographed or preserved, making retrospective "corrections" difficult. But henceforth our Tamarack Jack will be called *S. clintonianus*, reserving *S. grevillei* for its less common yellow counterpart. Trivia: both are sold in markets in Russia, the dark *S. clintonianus* commanding a higher price than its golden cousin (impeccable source: Tuula).

We owe thanks to Nancy Ironside and Tony Wright for contributing to an epiphanic moment regarding jelly babies. We have hitherto recognized two species, the yellowheaded *Leotia lubrica* and greenheaded *L. viscosa*; both have yellow stems. Books also describe one that is a dusky green overall, *L. atrovirens*. I wondered why we have never seen the last one and on further reading found that some authors consider it to be of variable colour both to the degree and distribution of greenness. Resolved to look for it a little closer, I was told by Nancy that the latest is that the in-between colour was due to a parasite and to ask for more details from Tony, who knew the full story. Indeed, Tony told me, the various dusky green ones have been shown to be the result of colonization of *L. lubrica* by a fungal parasite, *Hypomyces leotiicola*. Apparently at least one North American foray has already reported it on its species list but if we pay close attention to the TWO "i"-s in the species epithet, we could be the first foray to report it, spelled correctly.

Two yellow *Suillus grevillei* photographed at our 2004 foray, alongside a young *S. clintonianus*. Because they were considered synonymous, collections were often mixed, adding to the difficulty of retrospective "correction".

Fine, so far, so good. Instead of looking for the elusive *L. atrovirens*, all we have to do is to report all the in-between collections as a combination of *L. lubrica* and *H. leotiicola*, paying particular heed to get the two "i"-s. So we did. However, piqued by this introduction, Tony and Greg pursued the matter further after the foray. As you might suspect, the final jury is not yet in on this one. People have compared the genetic make-up of species in this genus. Do you think they found two species or three? Yep, you're right: four. Furthermore, they felt that cap colour was not always a reliable guide to species. [Comment: a large spectrum of cap colours can be described as green or yellow; because the authors did not specify how they

Collage to show some of the spectrum of green in the *Leotiae*. A - Classical L. viscosa, bright green cap, yellow stem. B - Classical *L. lubrica*, yellow cap and stem. C-H - progressive olive-green tones on yellow background; different light and exposure makes direct comparison seem more difficult than it is. F is a light version of H. Note the seemingly two species on G. Or are they? Would they be likely to grow like this? Cap colour dark and not as bright as in A. Mushrooms similar to those in C-H have been labelled *L. atrovirens* by some. H - similar to "classical" depiction of *L. atrovirens* in most texts. At better magnification and resolution, H can be seen to be clearly parasitized by a small fungus, *Hypomyces leotiicola*. Does the parasite alter the content of the outside stem layer to gel or is that intrinsic to the species? We don't know.

elected to record one colour or the other, it is difficult to know how the determination of species was done. It may turn out that with some strict guidelines, cap colour, as used morphologically thus far, is quite reliable.] These workers went on to conclude that genetically there was a species fitting with *L. atrovirens*. Great, so we can go back and call all our in-between finds *L. atrovirens*? Guess again. This species can be distinguished from the others by the presence of gel in the outer layer of the stem. We didn't check for this, so we can't call ours anything but the two species we have used in the past, knowing that some may hide one, possibly two other species within them.

How do we handle handle these problems? We suspect we have misidentified some species in the past. Unfortunately, we do not have sufficient information to revise these retroactively with accuracy. Arbitrary renaming may introduce more artifact into our list than was there previously. While the photograph of "*F. laricinus*" seems reasonably clear, not every collection was photographed, many were not cut to expose the flesh and those that were did not always show a colour reaction. As the *S. grevillei* picture shows, collections thought to be the same were often photographed, dried and stored together. After a lot of consultation, we elected to leave past identifications but to change to an annotated list: add to our Cumulative List an Appendix of numbered remarks about species that might hide other species or contain other identification problems.

There you have it. On the 300th birthday of Linnæus we still have difficulty with the species concept. These problems provide puzzles, which some of us find so interesting that we consider them highlights. Go figure! The theme of artifactual data will be explored further in this year's data analysis. But first, the list.

SPECIES LIST

276 SPECIES, 106 (38%) NEW TO NL CUMULATIVE SPECIES LIST

Developed by Michael Burzynski & Andrus Voitk with plenty of help from the Faculty and the Documentation Team
Identifiers: Dave Malloch, Faye Murrin, Tuula Niskanen, Jorinde Nuytinck, Vello Soots, Greg Thorn, Andrus Voitk, Gary Warren

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Bury Heights	BBEEC	TOT
Aleurodiscus amorphus					1									**1**
Amanita bisporigera			1								2	1		**4**
Amanita flavoconia			2						1				1	**4**
Amanita fulva								1						**1**
Amanita muscaria			1	1										**2**
Amanita porphyria		1			4			1			1		1	**8**
Amanita wellsii										20				**20**
Apiosporina morbosa			1											**1**
Armillaria ostoyae			2		2						3			**7**
Armillaria sinapina					1									**1**
Arrhenia sphagnicola			1									1		**2**
Ascocoryne cylichnium													1	**1**
Ascocoryne turficola													3	**3**
Bankera violascens											3		1	**4**
Bisporella citrina											1			**1**
Calocera carnea											1			**1**
Calocera viscosa							1							**1**
Camarophyllus pratensis			1								1			**2**
Cantharellula umbonata							2				1			**3**
Cantharellus cibarius		1	3		1			1	1		1		2	**10**
Catathelasma ventricosa									1				1	**2**
Chalciporus piperatus					1						1			**2**
Cheilymenia fimicola					1									**1**
Chlorociboria aeruginascens					1									**1**
Chroogomphus rutilans							2							**2**
Cladosporium herbarum										1				**1**
Clavaria falcata			1											**1**
Clavulina cinerea	1				1					1	1		1	**5**
Clavulina cristata			3		5					6	3		6	**23**
Clavulina rugosa												1		**1**
Collybia cookei											1			**1**
Collybia tuberosa							1						1	**2**
Coprinus ephemeroides								1						**1**
Coprinus stercoreus								1						**1**
Cortinarius acutus					4			1		1				**6**
Cortinarius alboviolaceus					2									**2**
Cortinarius angelesianus											1			**1**
Cortinarius anomalus			2							1	2	1		**6**
Cortinarius armeniacus					1						3			**4**
Cortinarius armillatus					3							1		**4**
Cortinarius atrocaeruleus					3									**3**
Cortinarius bataillei					1									**1**
Cortinarius brunneus		1	3		1	1		1	2	1	4	3		**17**
Cortinarius callisteus									1		1			**2**
Cortinarius camphoratus				2	2	1			3		1		6	**15**
Cortinarius casimiri			1											**1**
Cortinarius cinnamomeus					12									**12**

database. The numbers in each box indicate the number of collections for that species from that foray trail. A simple list, without this clutter, is available for download from our website <www.hnhs.ca/mushrooms/>, as is an updated Annotated Cumulative Species List for all our past five forays. Notations on that list explain areas of ambiguity or potential error. It should be understood that all identifications done under foray circumstances have an innate element of uncertainty. In many instances the identifier has qualified the identification with modifiers like "cf", "coll", "group", "sl". These have been retained in the raw data to record the identifiers degree of confidence but have been left out of the list to make it easier to read.

NOTES:

1. Taxonomy: Index Fungorum has been followed for the most part.
2. Names in blue indicate species new to NL cumulative species list.
3. Names in green indicate species common to all our forays to date.
4. List tentative and incomplete. As I write this, our European faculty has not received the specimens sent home for further study. Additions expected. This list may seem complex. Just look at the first column, if all you want is to know the species identified. Because this Report is also a report for the use of the Department of Environment and Conservation, it shows the breakdown of what was found where. This enables each protected area to develop its own

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Bury Heights	BBEEC	TOT
Cortinarius crassus					2									**2**
Cortinarius croceus					2			1				1		**4**
Cortinarius decipiens					1									**1**
Cortinarius disjungendus			1						1					**2**
Cortinarius evernius		2	4		5			2		1		1	2	**17**
Cortinarius flexipes			3		4	1		1		1	4	2	2	**18**
Cortinarius fulvo-ochrascens										3				**3**
Cortinarius gentilis			1		1						1	1		**4**
Cortinarius huronensis			1											**1**
Cortinarius illuminus									1				1	**2**
Cortinarius imbutus					2									**2**
Cortinarius ionophyllus			1											**1**
Cortinarius limonius			1		1						2			**4**
Cortinarius luteo-ornatus											1			**1**
Cortinarius malachius					1			1						**2**
Cortinarius malicorius									2				1	**3**
Cortinarius mucifluus					1						1			**2**
Cortinarius mucosus							2							**2**
Cortinarius multiformis			1					1	1				3	**6**
Cortinarius obtusus		1	4		5	2		2	1	1	1	2	1	**20**
Cortinarius ochrophyllus					1									**1**
Cortinarius quarciticus							1							**1**
Cortinarius rubellus											1			**1**
Cortinarius saginus											1			**1**
Cortinarius sanguineus	1										1			**2**
Cortinarius scaurus		1	1					1	1		1		2	**7**
Cortinarius semisanguineus	1						1				2			**4**
Cortinarius stillatitius			3		2	2			3	1	2	1	1	**15**
Cortinarius subtortus		1	2		1				1		1			**6**
Cortinarius tortuosus		1	2					3			1	1	3	**11**
Cortinarius traganus					6		1	1	1		3	2		**14**
Cortinarius turmalis			1		1			1					1	**4**
Cortinarius vibratilis					1									**1**
Craterellus tubaeformis		2	5		1	1		1	1		3	1	1	**16**
Cystoderma amianthinum			2											**2**
Cystoderma granulosum								1						**1**
Dacrymyces chrysospermus		1	2						1		2		2	**8**
Dasyscyphus virgineus					1									**1**
Endogone pisiformis			1											**1**
Entoloma carbonicola										1				**1**
Entoloma cetratum			1											**1**
Entoloma subsepiaceum										1				**1**
Fomitopsis pinicola		1	1					4	1		2	1	1	**11**
Fuscoboletinus paluster			1								1			**2**
Fuscoboletinus serotinus			1								3			**4**
Fuscoboletinus spectabilis											1			**1**
Galerina calyptrata			1											**1**

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Bury Heights	BBEEC	TOT
Galerina hypnorum												1		**1**
Galerina leptocystis			1											**1**
Galerina paludosa			1								1			**2**
Galerina sphagnicola			1	1										**2**
Galerina sphagnorum						2								**2**
Galerina tibiicystis													2	**2**
Gloeophyllum sepiarium		1			1			1			1			**4**
Gomphidius glutinosus							2							**2**
Gomphus floccosus													1	**1**
Gymnopilus bellulus			1							2				**3**
Gymnopilus junonius	1													**1**
Gymnopilus penetrans											2			**2**
Gymnopilus picreus													2	**2**
Gymnopus acervatus			1								1	2		**4**
Hapalopilus rutilans									1					**1**
Hebeloma crustuliniforme										1				**1**
hebeloma hiemale												1		**1**
Hebeloma incarnatulum			1		1					1	1	2		**6**
Hebeloma vaccinum										2				**2**
Helvella lacunosa			3											**3**
Hemimycena lactea				1					1					**2**
Henningsomyces candidus					1									**1**
Hirschioporus abietinus			3					2	1		1	2		**9**
Hyaloscypha albohyalina			1											**1**
Hydnellum aurantiacum							1							**1**
Hydnellum caeruleum							2							**2**
Hydnellum suaveolens												1		**1**
Hydnum albomagnum		1	2									1	1	**5**
Hydnum repandum			3		1			1	1		1	1	1	**9**
Hydnum rufescens			1								1			**2**
Hydnum umbilicatum		1	2					3				1	2	**9**
Hygrocybe coccinea										2				**2**
Hygrocybe conica												1		**1**
Hygrocybe laeta			1											**1**
Hygrocybe miniata			3		1			1						**5**
Hygrocybe psittacina												1		**1**
Hygrocybe punicea										1				**1**
Hygrocybe turunda var. ***sphagnophila***			1								1		1	**3**
Hygrophorus monticola					4									**4**
Hymenoscyphus calyculus				1										**1**
Hypholoma capnoides		1	2		1			2			3	1	5	**15**
Hypholoma elongatum			2								2	1		**5**
Hypholoma marginatum					2							1		**3**
Hypholoma udum			1											**1**
Hypomyces hyalinus											1			**1**
Hypomyces leotiicola		2									1	1		**4**
Inocybe napipes			1											**1**

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Burry Heights	BBEEC	TOT
Inocybe petiginosa					1									**1**
Inocybe virgata											1			**1**
Iodophanus carneus					1									**1**
Jahnoporus hirtus		1	3										1	**5**
Laccaria laccata		2	15	2	1	2	2	2	1	11	9	1	9	**57**
Laccaria longipes					1									**1**
Lachnellula agassizii			1							1				**2**
Lactarius affinis var. *viridilactis*			3						1					**4**
Lactarius aquifluus								2			1			**3**
Lactarius camphoratus					4			1			1	2		**8**
Lactarius chrysorrheus										1				**1**
Lactarius deceptivus		1	4		3				1		3	1	1	**14**
Lactarius deterrimus			2						1		1			**4**
Lactarius fumosus										6				**6**
Lactarius gerardii													1	**1**
Lactarius glyciosmus			7		3							4		**14**
Lactarius hibbardae		1	3		1			1			4	3	1	**14**
Lactarius hysginus								1	1	1				**3**
Lactarius lignyotus		1	2					1	1		2		2	**9**
Lactarius mucidus	1													**1**
Lactarius necator		1	4							1			6	**12**
Lactarius rufus													2	**2**
Lactarius sphagneti											1			**1**
Lactarius theiogalus		2	4					2		4		1	1	**14**
Lactarius thyinos			3		5				1		1	1		**11**
Lactarius trivialis			1		7			3	1	1	2	2		**17**
Lactarius turpis											1			**1**
Lactarius uvidus			2											**2**
Lactarius vellereus						1								**1**
Lactarius vinaceorufescens			4			1		1			3	1	2	**12**
Leccinum aurantiacum							2				1			**3**
Leccinum niveum		1			1						2			**4**
Leccinum scabrum					4						2			**6**
Leotia lubrica		2	6		5			3			2	2	4	**24**
Leotia viscosa		1			2			1			2	1		**7**
Lepista nuda								1						**1**
Leucogyrophana lichenicola											1			**1**
Lichenomphalia umbellifera		1	2											**3**
Lycogala epidendrum													1	**1**
Lycoperdon caudatum										2				**2**
Lycoperdon curtisii										1				**1**
Lycoperdon perlatum										1				**1**
Lyophyllum connatum			1											**1**
Lyophyllum decastes					1		1							**2**
Lyophyllum fumosum							1							**1**
Marasmius androsaceus					2									**2**
Marasmius oreades												1		**1**

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Bury Heights	BBEEC	TOT
Melanoleuca alboflavida			1											**1**
Melastiza chateri											1			**1**
Mycena adonis			2					2	1			1	2	**8**
Mycena borealis		1	1			1		1					1	**5**
Mycena epipterygia			1		1							1		**3**
Mycena filopes			3		2						1			**6**
Mycena flavoalba								1					1	**2**
Mycena galericulata			1											**1**
Mycena haematopus			1										4	**5**
Mycena leptocephala	1													**1**
Mycena oregonensis			1											**1**
Mycena strobilinoides							1							**1**
Mycena urania			1											**1**
Neocudoniella radicella			2								1	1		**4**
Neolecta irregularis		1	4		1			1		1	2	1	3	**14**
Nolanea stricta												1		**1**
Panaeolus foenisecii			1											**1**
Panellus stipticus					1									**1**
Paxillus involutus			3		1			3			7	1	3	**18**
Paxillus rubicundulus					1		1							**2**
Perenniporia subacida			1								1		1	**3**
Phaeolus schweinitzii	1								1					**2**
Pholiota alnicola					1									**1**
Pholiota astragalina			2					3				1	3	**9**
Pholiota mixta				3										**3**
Pholiota spumosa											1			**1**
Pleurocybella porrigens			4					3		1	1	2	4	**15**
Pluteus salicinus			1								1			**2**
Podophacidium xanthomelum					1									**1**
Postia stiptica													1	**1**
Psathyrella piluliformis					1									**1**
Pseudohydnum gelatinosum											1		1	**2**
Psilocybe semilanceata												1		**1**
Rhodocollybia maculata					4				1		1			**6**
Rhodocollybia maculata var. *scorzonerea*											1			**1**
Rickenella fibula											1			**1**
Rozites caperatus		1												**1**
Russula abietina												1		**1**
Russula adusta											1			**1**
Russula aeruginea			2		1									**3**
Russula claroflava													1	**1**
Russula cyanoxantha		1			2			1					1	**5**
Russula decolorans										1		1		**2**
Russula delica										1				**1**
Russula emetica			6					1	1		1			**9**
Russula fragilis		1	3					2	1	2	1			**10**
Russula heterophylla					1									**1**

SpeciesName	Unknown	Salmonier-Ava	Salmonier	Marystown Jac	La Manche	Hawke Hill	Gambo Red	Deer Park	Castle Hill	Cape St Mary's	Butter-pot	Burry Heights	BBEEC	TOT
Russula laurocerasi					1								1	**2**
Russula paludosa			2					1		1	1		1	**6**
Russula peckii		1	9		6			1	1	4		1	1	**24**
Russula raoultii										1				**1**
Russula rosacea								3		1				**4**
Russula silvicola			1											**1**
Scutellinia scutellata											1			**1**
Spinellus fusiger								1						**1**
Stereum sanguinolentum			1											**1**
Stropharia alcis			1					2				1	6	**10**
Stropharia ambigua													1	**1**
Suillus cavipes		2	3	2	3	1		1			6	1		**19**
Suillus clintonianus	1		1	2					2		8		1	**15**
Suillus granulatus				2			2							**4**
Suillus grevillei											1	1		**2**
Suillus intermedius							2							**2**
Suillus luteus				4										**4**
Tephrocybe striipilea			1										4	**5**
Tricholoma acre			3		1				3				2	**9**
Tricholoma atrosquamosum													1	**1**
Tricholoma davisiae					1		1	3					3	**8**
Tricholoma flavum			1											**1**
Tricholoma focale											1			**1**
Tricholoma fulvum		1			1						1		2	**5**
Tricholoma fumosoluteum			1											**1**
Tricholoma intermedium									2		1			**3**
Tricholoma magnivelare					1		1							**2**
Tricholoma pessundatum			1		2							1		**4**
Tricholoma sejunctum		1	1		2				1		1			**6**
Tricholoma transmutans		1						1	2		2			**6**
Tricholoma vaccinum										1				**1**
Tricholoma virgatum			1		3							1		**5**
Tricholoma viridilutescens					2								1	**3**
Tricholomopsis decora													1	**1**
Tricholomopsis rutilans											1			**1**
Tubaria confragosa											1		2	3
Tubaria minutalis			1											**1**
Tyromyces chioneus	1													**1**
Xerocomus gracilis			2					2		8	1			**13**
Xeromphalina campanella		1	3					1						**5**

WHAT DO THE DATA MEAN?

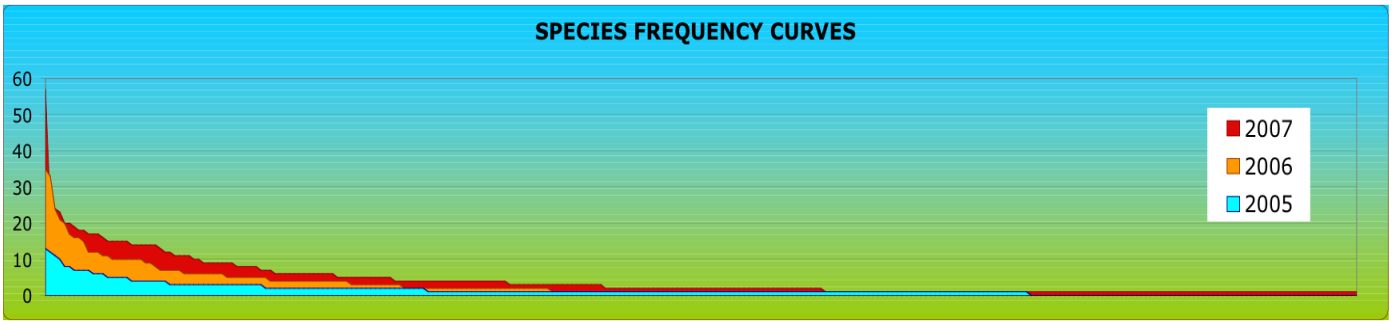
In previous years the Report has attempted to interpret our data. Such interpretations assume robust data. This year we shall discuss some areas of potential weakness in our data.

Mushrooms do not grow in isolation but are part of a larger ecosystem. Therefore, any findings are subject to influence by external forces, trees and plants, weather, drought, temperature, etc. An obvious example is rain: everybody knows that there are less mushrooms in a dry spell and more appear after rainfall. There are other, less obvious examples. For example, our list from Labrador in 2005 has more similarities with the list from Gros Morne in 2003 than Gros Morne in 2005. Why? Well, perhaps this is an indication of Labrador's more northerly location. Both Gros Morne and Labrador forays in 2005 were held in the beginning of September; the 2003 Gros Morne foray was held in the beginning of October. Thus, in 2003 several late season species were collected. For the shorter summers of Labrador, the beginning of September may already have been the time for late season species to fruit.

Ecosystem influence can be seen on the above graph. Dark blue indicates species found on their trail only, light blue those found on other trails as well and the white line shows the precent of unique species. Cape St Mary's and Gambo Red Pine have a significantly greater proportion of unique species. These two trails are in different ecoregions from the rest. Adding them to a foray in the Avalon Forest Ecoregion gives a false impression of the species growing there—a case of human behaviour introducing error into the data.

Because data is collected and filed by human beings, external variables due to human behaviour are introduced automatically into our data. The Highlights section showed how identification is subject to some error. Because we cannot record every potential variable of every collection, retrospective "correction" could introduce even more errors—another potential source of error due to human behaviour. Scientific studies use rigorous collecting methods in an effort to minimize the effect of human behaviour. Such methodology is not appropriate for the amateur foray. We have to learn to live with both mushrooms and human beings, knowing that whenever we interpret our results we interpret not only the mushrooms but also ourselves.

This is not necessarily bad. While, as all married readers know, it is difficult to predict the behaviour of any single individual, the behaviour of large groups of individuals is predictable with amazing accuracy. Therefore, external influences due to human behaviour introduced into our data should be



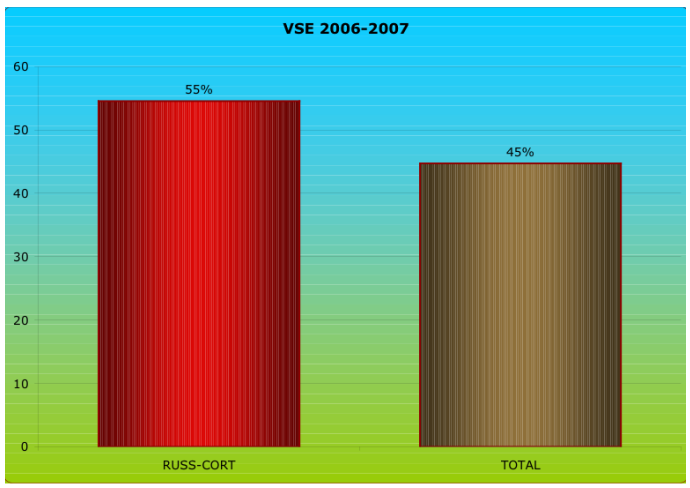
relatively consistent and reproducible from foray to foray. This leaves mushrooms as the single most important variable. Still, it is necessary to be aware of nonmycological influences on our data, before trying to interpret them.

As example, look at the Species Frequency curves. Each species is shown on the X axis and the number of collections on the Y. You may remember the curve with 2005 and 2006 data from last year's Report. The huge increase in collections of common species from 2005 to 2006 was attributed to a better understanding that knowing frequency also contributes to our knowledge—a change due to altered human behaviour, not mushrooms. Please note that the change continues: in 2007 even more collections of the common species are recorded. The commonest, Laccaria laccata, is now recorded 57 times. This increase may not be due to an increase of *Laccaria laccata*. A few of us were intent on differentiating this species from its close relatives, so more were brought in. Unfortunately, we lacked some required resources to separate closely related species, so all came out as *L. laccata*—another example of human behaviour influencing results.

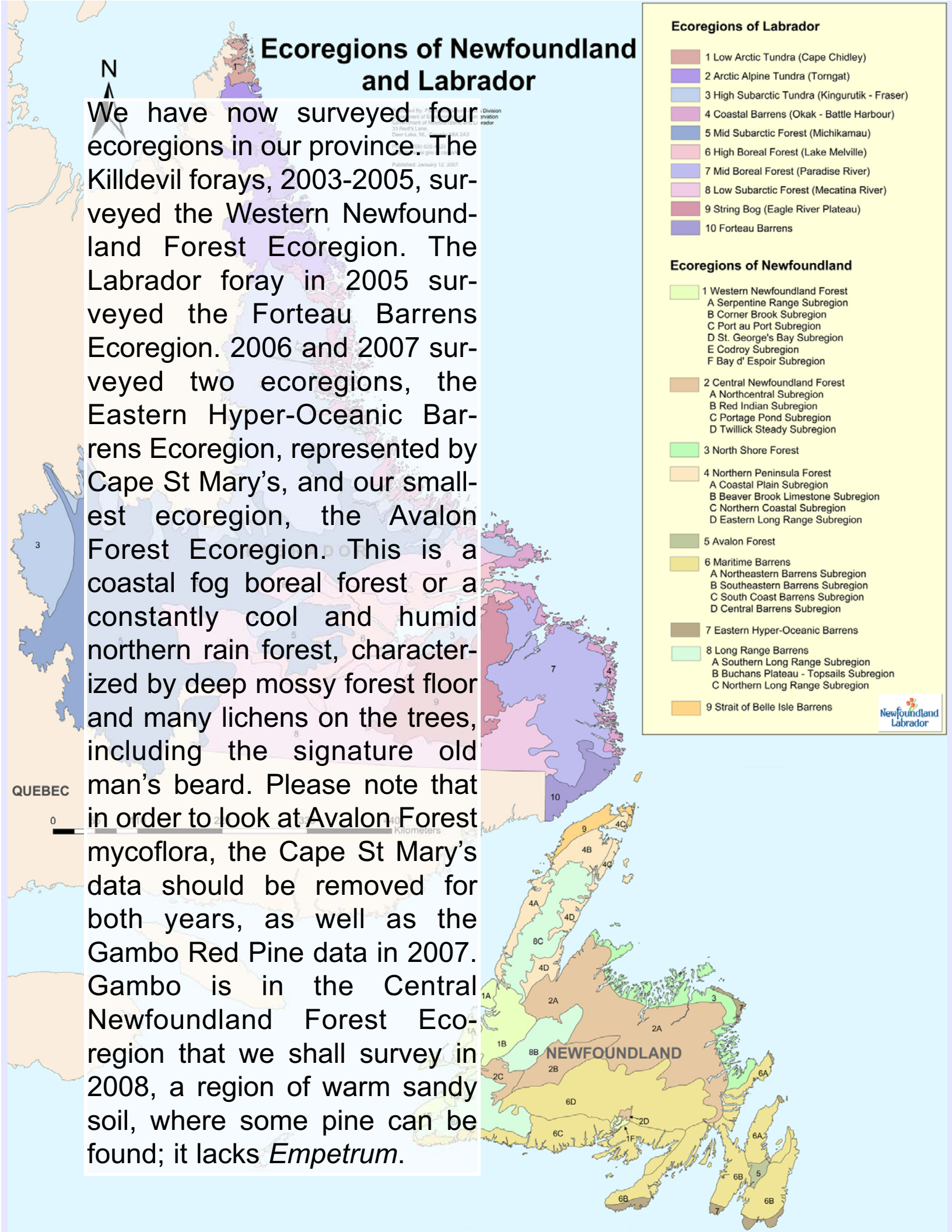
A similar interpretation can be placed on the large number of *Amanita wellsii* brought in. Compared to 2006, there were far less mushrooms, including *A. wellsii*, at Cape St Mary's. However, this year *A. wellsii* was introduced to the group as a special find and the signature mushroom for the Cape. As a result, people focussed on this mushroom, and in the absence of too many species competing for attention, probably almost every *A. wellsii* growing on the Cape was brought in! While the total number of species fell 11%, the number of collections of *A. wellsii* rose 150%—a case of frequency exaggerated by human behaviour. Similar results are known for beautiful, colourful or unusual mushrooms—proportionately more of these are usually brought in than their more dowdy relatives.

VSE (Visiting Subspecialist Effect) is a well-known factor of human behaviour influencing data. This year we had a subspecialist for *Cortinarius* and one for Russulaceae (*Lactarius* and *Russula*). Compared to 2006 in the same region, the number of *Cortinarius* and Russulaceae species identified rose 55%, while overall number of species identified rose 45%. Thus there was a 10% greater rise in the subspecialists' species than overall. A different look at the data shows that 35% of the 85 more species identified in 2007 came from the subspecialists' groups. The actual contribution of new species made by the subspecialists is somewhat less, because not all new species in the subspecilaists' groups were identified by the subspecialists. By the same token, the subspecialists identified new species outside their groups. Our data definitely confirm VSE, although much more detailed analyses would need to be made to determine the exact skew given to foray data by subspecialists.

Armed with this insight from our data of how human behaviour can influence them, we are in a better position to judge the reliability of interpretations of our data, as well as those of others, in the future.



Ecoregions of Newfoundland and Labrador



We have now surveyed four ecoregions in our province. The Killdevil forays, 2003-2005, surveyed the Western Newfoundland Forest Ecoregion. The Labrador foray in 2005 surveyed the Forteau Barrens Ecoregion. 2006 and 2007 surveyed two ecoregions, the Eastern Hyper-Oceanic Barrens Ecoregion, represented by Cape St Mary's, and our smallest ecoregion, the Avalon Forest Ecoregion. This is a coastal fog boreal forest or a constantly cool and humid northern rain forest, characterized by deep mossy forest floor and many lichens on the trees, including the signature old man's beard. Please note that in order to look at Avalon Forest mycoflora, the Cape St Mary's data should be removed for both years, as well as the Gambo Red Pine data in 2007. Gambo is in the Central Newfoundland Forest Ecoregion that we shall survey in 2008, a region of warm sandy soil, where some pine can be found; it lacks *Empetrum*.

Advance Notice!!!

FORAY NEWFOUNDLAND & LABRADOR 2008

GUEST FACULTY*:

Ron Exeter
Kuulo Kalamees
Gavin Kernaghan
Urmas Kõljalg
Ed Lickey
Dave Malloch
Raymond McNeil
Roger Smith
Greg Thorn

* Tentative at time of Report. Changes, additions expected with time.

Central Newfoundland

Max Simm's Camp**

September 12-14, 2008

Mark your calendars now!

Check back on our web site from time to time for more details as they develop:
<http://www.hnhs.ca/mushrooms/>

** 48° 58' 16" N and 55° 32' 26" W puts you on the parking lot. Try it with Google Earth.