FUNGIFAMA

March 2017. Table of Contents

SVIMS member Terrie Finston screens endangered plants for pathogenic fungi in the Hintz lab at UVic. Photo: Tom Witte

Long live the SVIMS!

From amateurs to professionals, from field to lab, our club members and events are diverse, relevant and entertaining.

Thank you to all the volunteers who drive it forward!

PREZ SEZ

Another great mushroom dinner was put on by the Golden City Restaurant with 50 people attending. Thanks to everyone who helped with making this event happen. We were all curious about the soup, reported to be made of "lamb's stomach mushroom". I'm not all that familiar with the look of lamb's stomachs, but if any of you are, please check out our SVIMS calendar for the March picture of the morel and let us know if we should support a new common name.

We have a great list of events planned again for the rest of the year so continue to check SVIMS webpage for upcoming events. We are planning to continue our emphasis on safety and will have at least one presentation put on by a search and rescue expert, on how not to get lost and how to survive if you do.

Barb and I will be hosting the President's picnic at 350 Benjamin Road on June 4. We will send out more details closer to the date, but please mark your calendars. As the picnic is outside we start early at 4:30 because when the sun goes behind trees, it can be cool (as in chilly).

With mixed feelings, I received the news that Tom and Euan will be stepping down as editors of Fungifama. They have done a great job since they began with the January 2016 issue. However their considerable talents have created new opportunities with new directions for each of them (for Tom in Ottawa and Euan in Victoria). Fortunately they have offered to assist a new volunteer during a transition so I hope we can get someone for this soon. If any of you have an interest in working on the newsletter or can think of someone who would, please contact me or one of the board members. Fungifama always has been an outstanding feature of SVIMS. Many thanks to Tom and Euan for their good work!

It's been a pleasure to have our turn at the newsletter over the last two SVIMS seasons, but sadly we must bow out. Thanks for reading!

If you'd like to take over, please contact

fungifama@gmail.com

THE COVER ILLUSTRATION IS A DEPICTION OF FUNGUSMAN, A MYTHOLOGICAL CHARACTER IN HAIDA LORE. THE PIECE WAS GENEROUSLY PRODUCED AND DONATED TO FUNGIFAMA BY ARTIST SHAWN O'KEEFE, AND IS INSPIRED BY THE WORK OF CHARLES EDENSHAW. SHAWN HAS BEEN THE ARTISTIC POWERHOUSE BEHIND PHILLIPS BREWING AND MALTING CO. SINCE ITS INCEPTION. HE RUNS ARTIFICIAL FLAVOUR GRAPHIC ENGINEERING, A VICTORIA-BASED DESIGN COMPANY. HIS ART IS ONE PART IRREVERENT PSYCHEDELIA, TWO PARTS REVERENT PACIFICANA. YOU CAN FIND MORE OF SHAWN'S WORK AT WWW.TRUST36.CA.

UPCOMING SVIMS EVENTS

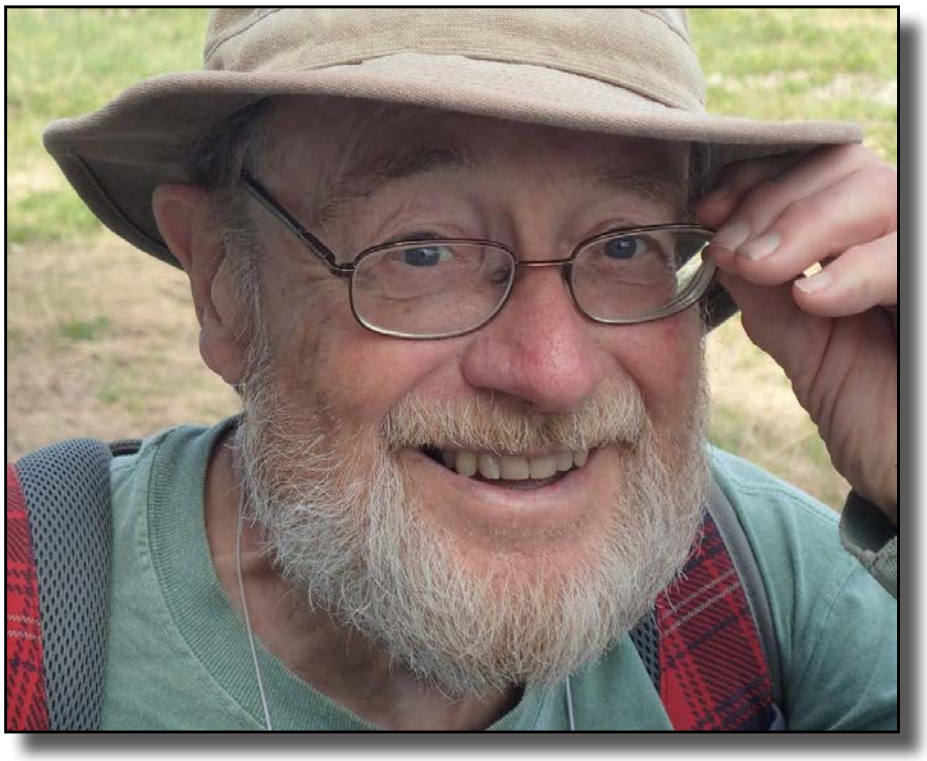
APRIL 6: SVIMS MONTHLY MEETING - PFC
7PM TO 9PM
SPEAKER: BRYCE KENDRICK

MAY 4: SVIMS MONTHLY MEETING - PFC
7PM TO 9PM
ANDY AND KEM VIDEO CLIP FESTIVAL

JUNE 4: PRESIDENT'S PICNIC
4:30PM
350 BENJAMIN ROAD

SVIMS Speaker Series...

April SVIMS Speaker...



SVIMS members are in for a real treat at our April monthly meeting! One of the world's foremost mycologists walks among us, and is a SVIMS member. Bryce Kendrick's talk Thursday April 6 will be about counting fungi. Sort of like counting sheep, but guaranteed not to put you to sleep.

You may assume that the enumeration of fungi in forest soils involves painstaking, time-consuming collection and identification of individual fruit bodies. Until very recently, your assumption would have been correct. But Bryce's talk will explore the way in which newly developed techniques involving the mass extraction and sequencing of DNA is changing all of that.

Bryce Kendrick was born in 1933, and raised and intensively educated in Liverpool, England. He came to Canada in 1958, as a Post-Doctoral Fellow of the National Research Council. After several years with Agriculture Canada, he joined the Biology Department, University of Waterloo in 1965, retiring from there after 30 years to the shore of Vancouver Island.

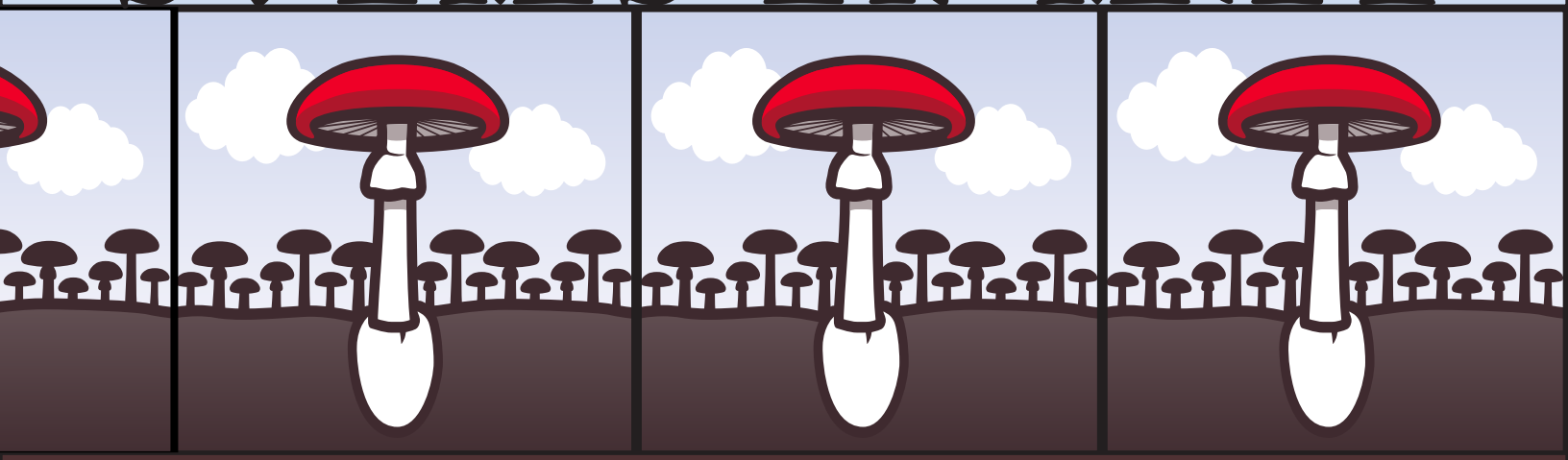
Bryce was a Guggenheim Fellow in 1979, and was elected a Fellow of the Royal Society of Canada in 1981. He received the 'Distinguished Mycologist' award of the Mycological Society of America in 1995, and was elected a Centenary Fellow of the British Mycological Society in 1996. In 2001 he was the invited keynote speaker at the Mycological Society of Japan annual meeting in Tokyo, and in June 2001 received the Lawson Medal of the Canadian Botanical Association.

He has studied fungi for over 65 years, and has authored over 300 mycological publications, including several books. Bryce's research and that of his 25 graduate students probed many aspects of the fungi -- their systematic relationships, their ecology on land, in the air, and in water, the development of their reproductive structures, the effects of toxic substances on them, their intimate symbiotic associations with plants.

Although best known as an authority on moulds, Bryce is a generalist, with a broad spectrum of interests ranging from birds to coral reefs, and he is deeply involved in the environmental movement, spending much time and energy destroying broom, gorse and other invasive aliens in local conservation areas.

For more information on Bryce check out www.mycolog.com, or his youtube video series as brycekendrick1.

COMING TO SVIMS IN MAY



Feeling the burden of too much information, too much science, and too many books? How about a SVIMS meeting with Something Completely Different? Join us Thursday, May 4, 7:00 pm, at the PFC for the second, totally new, Andy and Kem Video clip festival. You'll learn, you'll laugh, you'll cry!

The evening kicks off with some popcorn and a free raffle for great prizes. it's a Wear Your Mushroom night -- accessorize with your favourite mushroom wear -- hats, shirts, badges, hairdos, shoes -- and win a prize for Best Fungal Bling.

At the Andy and Kem Film Festival you'll see a collage of some of the best fungal clips on the web. Watch as spores take over the world. See what a morel sees just before it dies. Meet a stinkhorn that makes Godzilla look like a beauty contestant. Find out what Ghostbusters has to do with mushrooms.

Rave reviews for the event:

"Andy and Kem have an eye for the unusual. They're not much to look at, though. They remind me of the emojis you would send after you realize that you have just eaten a death cap mushroom." -- J. Bieber

To All SVIMS members in good standing:

Please submit photos for
SVIMS 2018 Mushroom Calendar

The purpose of the calendar is to celebrate the joy of mushrooming and to inform people about mushrooms growing on south Vancouver Island. Last year we almost cancelled the production of the calendar because not enough members submitted photos before the deadline. Because a member can have only one photo in each calendar, at least 14 members need to submit photographs.

Please READ the following IMPORTANT INFORMATION before submitting your photos.

WHO can submit photographs: *Only SVIMS members in good standing*.

SUBMISSION DATES: submit all photographs after May 7th and before June 30th 2017.

HOW: To arrange how to submit your photos, please email Mabel Jean at seagulls@islandnet.com . A Selection Panel chooses the photographs for the calendar.

WHAT: We want visually appealing and artistic graphic art and photographs that illustrate:

- the diversity of mushrooms found on southern Vancouver Island, both edibles and non-edibles, or
- mushroom cookery, art or crafts, or
- interaction of mushrooms with people, animals, other organisms or the environment, or
- SVIMS events or activities.

HOW MANY: Maximum 15 photos from each person.
No member will have more than one photo in the calendar, so you have a good chance to have one of your photos selected.

PHOTO SIZE: *High resolution* version (2,000 pixels in width) *must be available* to be included in the calendar. *Low resolution* (approximately 600x800 pixels) photos are needed for the Selection Panel.

INCLUDE identification information of specific mushrooms e.g. habitat, spore colour, when seen

South Vancouver Island Mycological Society

Psiloscience or Pseudoscience? Psychedelic medicine sprouts anew in end-of-life care

by Euan Thomson

As a species, we don't die well. The late Noreen Campbell, one of Canada's first approved patients for physician-assisted death, described her experience preparing for her own death this winter: "As soon as I stopped worrying about how I would die, when I would die, how I would manage dying, I was able to really recognize how invasive those negative thoughts were in my space. And to realize that I didn't need to keep them anymore." Physician-assisted death is a new option for certain Canadian patients in palliative care, and while Noreen's mental clarity on the matter is cause for celebration, many patients in similar circumstances continue to wrestle with the enormity of their final days through the crippling fog of depression, anxiety and other mental illnesses.

Medical technology has given many of our sick extensions on their due dates, thanks to advances that in many cases were right under our noses for millennia, such as antibiotics. And while there is no disputing the intrinsic value of this added time, there is a clear need to improve its quality. Fortunately, yet another ancient trick of fungal chemistry may be on the verge of doing just that.

Two reports in a fall issue of the Journal of Psychopharmacology have demonstrated compelling evidence that a single strong dose of psilocybin, the psychedelic ingredient in magic mushrooms, produces immediate and lasting positive impacts on the mental health of end-of-life care patients (Ross et al., 2016; Griffiths et al., 2016). In both studies the subjects were late-stage cancer patients distributed largely among Caucasian males and females from a fairly diverse age range. The studies were conducted with 30 and 50 patients, respectively, and included a high standard of design that included the following features:

-placebo controls, meaning the patients were split into a treated and untreated categories but were not aware of which treatment they received. The placebo for the Ross study was niacin, while Griffiths et al. opted to compare a full dose of psilocybin with a very small dose that was expected to produce no detectable effects.

-double-blinded dosage, meaning not only were the patients unaware of which treatment they received but so were the study facilitators.

-crossover design, meaning each patient received both a placebo dose and a psilocybin treatment in two separate dose periods, which results in each patient acting as his or her own experimental control as impacts are monitored before and after each treatment.

The studies used standard measures of depression and anxiety to gauge and compare the impacts of the two different treatments. Both studies found clinically significant decreases in both depression and anxiety following treatment with psilocybin versus the placebo. The effects were shown in both studies to last beyond several months, indicating that a single large dose of psilocybin under psychologist-guided conditions seems to provide stable improvements in mental health for patients undergoing highly traumatic existential experiences.

The one major pitfall of both studies is a factor

known as the expectancy effect. This occurs when a given treatment has distinguishing features, such as the hallucinatory effects of psilocybin, that make it likely for a patient to determine which treatment he or she has received. In many non-psychopharmacological drug trials, patients are typically unable to determine whether they have received the treatment or placebo, but this is a largely unavoidable obstacle for psilocybin. Nonetheless, the data suggest strong positive effects of psilocybin on the patients' well-being; in response, other researchers in the field have called for additional studies to be undertaken with greater numbers of patients (Nutt, 2016).

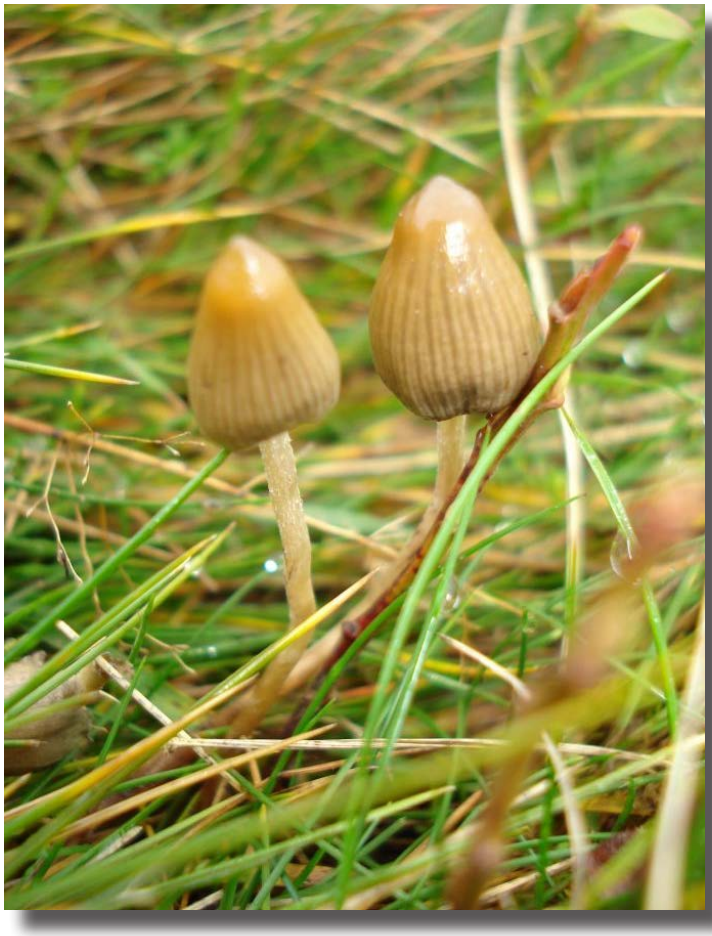
With ongoing experiments at several top-tier research institutions looking into the impacts of psychedelic drug treatments on addiction, depression, anxiety, and other mental illnesses, it's no wonder that hype is building among the public and the medical research community. However, as with any drug trials it is extremely important to remain skeptical despite where our own experiences and beliefs may lead us. The burden must always be on well-designed research to speak for itself, not for proponents on either side of a debate to push an agenda.

References

Ross, S., et al. 2016. Rapid and sustained symptom reduction following psilocybin treatment for anxiety and depression in patients with life-threatening cancer: a randomized controlled trial. J. Psychopharmacol. 30:1165-1180.

Griffiths, R., et al. 2016. Psilocybin produces substantial and sustained decreases in depression and anxiety in patients with life-threatening cancer: A randomized double-blind trial. J. Psychopharmacol. 30:1181-1197.

Nutt, D. 2016. Psilocybin for anxiety and depression in cancer care? Lessons from the past and prospects for the future. J. Psychopharmacol. 30:1163-1164.



Humble in appearance but punching well above their weight in psychotropic potency, the active compounds from local lawn dweller Psilocybe semilanceata *and its relatives around the world may soon appear in a pharmacist's lab near you. For more information on completed and ongoing research into the psychopharmacological potential of psychedelic substances including psilocybin, lysergic acid diethylamide (LSD), 3,4-methylenedioxymethamphetamine (MDMA), and ayahuasca, visit www.maps.org.*
Photo credit: shroomery.org

North American bats threatened by a deadly fungal scourge

By Tom Witte

BC bat lovers are holding their breath as "White Nose Syndrome" (WNS), a wasting disease caused by a fungus (pictured below) continues to empty caves across the northeastern States and Canada. First observed in New York State in 2006, the ascomycete *Pseudogymnoascus destructans* has functionally extirpated some species of bats from major hibernacula in eastern Canada and the States. The Nova Scotian Department of Natural Resources, for example, estimates 98% of bats in major hibernation sites in the province have been killed by this invader. It's not exactly clear where this virulent fungus originated from (likely somewhere in Europe), but only North American populations are suffering extreme mortality – over 6 million bats have died since 2006, according to some estimates.

Little Brown Bat displaying symptoms of WNS. Photo credit Marvin Moriarty, US FWS

WNS symptoms include frosted-white noses and wing membranes. Inflicted bats die by depleting winter fat reserves in their metabolic struggle to resist the progressive infection. If a bat can survive hibernation, it can regain its health in the summer months. This has led researchers to investigate the treatment of winter hibernacula using antifungals, probiotic bacteria, and even cave environment alterations such as increased air flow, lowering temperatures and humidity. So far there is no cost-effective, widespread treatment for WNS, however it is possible for bat colonies to survive through natural isolation from each other and through altered human behaviour.

Recently the disease was discovered at one site in Washington State – but it hasn't yet turned up in BC. Researchers and government officials are encouraging concerned folk to record strange bat behaviour, including daytime flights or dead bats out in the open, and to report this information to any of the contacts listed on the BC WNS factsheet. Additionally, caver's clothing must be decontaminated according to a specific set of criteria which can be also be found on the BC WNS factsheet. And finally, SVIMS bat-lovers can consider supporting their local flying mammal populations through the Habitat Acquisition Trust "HAT for Bats" charity campaign at http://www.hat.bc.ca/index.php/bats/about-our-program.

1. Johnson, J. S. et al. Host, pathogen, and environmental characteristics predict white-nose syndrome mortality in captive little brown myotis (Myotis lucifugus). PLoS One 9, (2014).
2. Press release - North American bat death toll exceeds 5.5 million from white-nose syndrome. USFWS web site (2012). at <https://www.whitenosesyndrome.org/sites/default/files/files/wns_mortality_2012_nr_final_0.pdf>3. Zukal, J. et al. White-nose syndrome without borders: Pseudogymnoascus destructans infection tolerated in Europe and Palearctic Asia but not in North America. Sci. Rep. 6, 19829 (2016).
3. Zukal, J. et al. White-nose syndrome without borders: Pseudogymnoascus destructans infection tolerated in Europe and Palearctic Asia but not in North America. Sci. Rep. 6, 19829 (2016).

Radioactive Boars Are Multiplying

Recent reports have revealed the bioaccumulation of radioactive cesium in boars roaming the Sumava mountain range bordering the Czech republic. According to a recent article in The Times, some Japanese boars are radioactive too. It's likely that the boars are eating contaminated truffles and so-called false truffles which have hyper-accumulated radioactive heavy metal contaminants. These dangerous contaminants escaped nuclear reactors involved in the Chernobyl and Fukushima disasters. European officials insist the contaminated meat is still safe to consume in small doses. In Japan, specialist trappers are struggling to find safe ways of incinerating carcasses from the growing population of boars in areas of Japan which were evacuated following the disaster. To make matters even worse, researchers are also struggling to come up with a plan to create super mutant turtles to combat the glowing boars in hand-to-hand ninja acrobatics*.

A Czech boar, possibly radioactive? Photo: Wikimedia commons

The Chemistry of Cort Smells

From: Chemistry of the earthy odour of basidiomata of *Cortinarius hinnuleus* (Basidiomycota, Agaricales) Norbert Arnold, Götz Palfner, Christine Kuhnt, Jürgen Schmidt, Österr. Z. Pilzk. 25 (2016) –Austrian J. Mycol. 25 (2016) -Available on-line

Excerpted by Shannon Berch from the article:

The earthy odour of *Cortinarius hinnuleus* is caused by geosmin and was previously reported as the key compound also responsible for the earthy aroma of *Cortinarius herculeus*, *Cystoderma amianthinum* and *Cy. carcharias*. Geosmin is common in nature, being produced by cyanobacteria, some vascular plants, mosses and protozoan symbionts, but mainly by terrestrial actinomycetes (genus *Streptomyces*) and some filamentous fungi such as *Penicillium* or *Aspergillus* spp., giving soil its characteristic smell.

It is not surprising that in a large genus like *Cortinarius*, several species are known to produce conspicuous and diagnostic odours, although very few of them have been chemically analysed, such as the anise-like odour of *C. odorifer* which was very recently identified as methyl p-anisate or the naphthalene-like smell of *C. lebre* from Chile which is caused by indol. Other scents like that of fruits in *C. traganus*, or of Pelargonium leaves in *C. flexipes*, among others are used as characters in species discrimination, but remain to be chemically identified.

In general, volatile organic compounds (VOCs) play an important role for fungi in their natural environments, acting as signals between fungi and plants, arthropods, bacteria, and other fungi. Such fungal VOCs could be developed for use in biotechnological applications except for the fact that, for this purpose, the fungal organism must be cultivable on artificial media, which is not the case in highly specialized ectomycorrhizal species such as *C. hinnuleus.*

For a photo of a local Cortinarius hinnuleus*, along with a note about this article from Adolf Ceska, please see the last page of this issue!*

* Fake news sentence

2017 Chinese Dinner Event

Photos by Adolf Ceska

WELCOME NEW MEMBERS

Sandy McAndrews
Ai Linh Trinh
Erin Kuerbis
Tasha & Andrew Gibbs
Melanie Hess
Elizabeth Williams
Carolin Rekar Munro
Scott Laird
Beth Page
Lindsay Pope

Cortinarius hinneulus, collected and photographed by Adolf and Oluna Ceska in the Uplands area, Victoria

Cortinarius hinnuleus is a European species that occurs, most probably introduced, in urban areas of Seattle and Victoria.

The attached photo is from Uplands street boulevards where it occurs with another fungus introduced from Europe, the highly poisonous *Amanita phalloides*.

-Adolf Ceska

For those who no longer wish to be on the SVIMS email list, please follow these steps instead of emailing the listserve:

- Click the link at the bottom of any SVIMS email : http://lists.vifa.ca/mailman/listinfo/svims
- Scroll to the bottom of the page and enter your email address into the "unsubscribe" field.

SVIMS EXECUTIVE AND VOLUNTEER POSITIONS 2017-2018

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