LONG ISLAND MYCOLOGICAL CLUB

http://limyco.org

L.I. SPOREPRINT

Happy New Year!

1973-2018

Available in full color on our website

VOLUME 26, NUMBER 4, WINTER 2018

FINDINGS AFIELD

We have no doubt collected this species before and dismissed it as another unidentifiable member of the *Boletus bicolor* complex. But the publication in 2016 of "Boletes of Eastern N. A." by Alan & Arleen Bessette and William Roody now enable us to identify this bolete as *Xerocomus sclerotiorum* nom prov.

In their guide, a short-cut is provided to classify a bolete as a member of the Xerocomideae: simply rip or slice the pore section lengthwise and examine the tubes with a loupe. All members of this section have non-divergent tube trama which results in the lubes tearing lengthwise rather than separating cleanly, so that they appear like split soda straws. (Photo page 5.)

X. sclerotiorum draws its epithet from the orange sclerotial mass it usually forms in leaf litter, visible at the base of the leftmost mushroom above. Its staining reaction and flesh coloration is reminiscent of *Boletus patrioticus,* in that the yellowish flesh has a reddish zone below the pileus and stains irregularly blue

(Continued on page 5)

THE YELLOW KNIGHT EXONERATED

Tricholoma equeatre's edibility established

Referred to for many years as *Tricholoma flavovirens* (now T.equestre again) but known familiarly as Man on Horseback or the Yellow Knight, it was considered an excellent edible until a series of poisonings were attributed to it in France and Poland in the years 1992– 2000. (See LI Sporeprint Winter 2001, and Autumn 2003.) Cautions were raised, with some foragers eliminating this species entirely from their diets and others limiting the amount consumed to no more than 3 oz., as advised by the Canadian Health Services, and refraining from ingesting several such meals in succession.

Although some animal studies (with mice) had been carried out, these were criticized as the equivalent meals for humans would have been in the tens of pounds. Now an extensive study has been carried out which has utilized toxicological, epidemiological and survey data with human subjects to establish the edibility of *Tricholoma equestre.*

Firstly, a survey of 1,545 Polish mushroom foragers was carried out to estimate the frequency of *T. equestre* consumption. Then the epidemiological database of mushroom poisonings in Poland from 2008 to the present was accessed. And lastly, 10 volunteers consumed 300 grams (10.5 oz,) and were tested for one week both hematologically and biochemically.

The authors of the instant paper[1] emphasize that the original article (*Wild-mushroom intoxication as a cause of rhabdomyolysis. N. Engl. J. Med. 2001, 343, 798–802. R.Bedry et al.*) publicizing the poisonings persuaded a number of countries (France, Italy, Spain) to classify *T. equestre* as poisonous. Despite this other European coun-

(Continued on page 3)

PRESIDENT'S MESSAGE

Here it is: the end of another year. Where did the time go? And what was it with the weather? There has been over five feet of rain this year but production was not uniform: not a lot of boletes, shaggy manes or honey mushrooms, although it was a prodigious year for Chanterelles and Black Trumpets finally! Attempting to discern natures patterns and make predictions seems an exercise in futility. I've seen many more dead oaks and pines in the woods this year so is that a factor too? As of this writing there has been a lot of rain and it is warm for December. No predictions from me this time.

At this time, I always like to thank all board members for all their efforts. They always do a great job. Thanks also go to all the great identifiers in our club, too. You all help so much. So many species….so little time!

I also am happy that our picnic and Mushroom Day was so much fun. For all of you who helped, you are my heroes.

For those who have not yet joined Maria's face book page with your photos and comments, be assured that this is a private face book page not like the public ones. Maria has done a fabulous job and I think you'll like it very much. For an invitation, email her at <msotolongo@optonline.net>

January is dues time. Our membership year runs from January through December except for those who joined after October 1st of the previous year. For all the rest of us, now is the time to renew and a form is enclosed. (I hope this clears things up for some.) If you have a question about dues, please call me at 631-744-4965.

In closing, I wish you all a happy 2019 and hope to see you along the trail.

EDITOR'S NOTE

The pursuit of mushrooming is more than a search for nutrients. It is both a quest and a challenge: a test of our ability to recognize and identify not only our target species, but as many species as possible, a task that tests our capacity for learning and remembering, exercising our cognitive ability and hopefully enhancing it. Moreover, this activity returns us to the forests, our species" birthplace, and the consequences of that has been proven time and again to benefit us emotionally and healthfully. Not only does a foray offer beneficial exercise, our mere presence in the outdoors and the woods is emotionally uplifting. Even a view of the outdoors by hospital patients has been demonstrated to lead to faster recovery.

This submersion sensitizes us to the web of life, the interconnectedness of nature, and our ultimate dependence on its persistence. We become aware of its fragility and the many ways our activities might impact delicate processes, thereby encouraging us to not be exhaustive in our collecting habits, always leaving immature fruitbodies to develop and sporulate.

Lastly, there is the satisfaction of knowing that our citizen science practices contribute to the growing database of North American fungi,

MATERIAL FOR THE SPRING 2019 EDITION SHOULD REACH THE EDITOR BY MARCH 1ST.

(Submissions may be forwarded by email in any format or typed.)

(All unsigned articles authored by editor.)

YELLOW KNIGHT EXONERATED ***(from page 1)***

tries, as well as North America and parts of Asia, continued to regard it as edible, as indeed we ourselves also did. They further point out that morphologically similar species were never ruled out and that microscopic or molecular data were absent. Moreover, no toxin has ever been identified as present in *T. equestre*. As for the mice studies, similar toxic effects have been shown after they were fed large amounts of edible mushrooms such as *Boletus edulis*.

Discussing their results, the authors recount that it is estimated that at least several hundred thousand foragers in Poland consume *T. equestre* annually, with a mean consumption of 148 g (5 oz.) per meal, and 25% admitting to consumption of consecutive meals. Only .78% (n=7) reported mild adverse G.I. effects.

The Toxicological Database maintained by the state reported five cases of poisoning attributed to the genus *Tricholoma* in the past 10 years, all characterized by G.I. symptoms such as nausea, vomiting and abdominal pain. Identification was based on the patients' self-reporting; no other I.D. was carried out. Other species, such as *Macrolepiota procera* and *Imleria (Boletus) badia (*Bolete lovers take note) resulted in more frequent complaints of G.I. distress than *T. equestre*.

For the experimental part of their study, fruitbodies were sequenced and found to be 100% identical to T. equestre sequences deposited in GenBank and UNITE; this is therefore the first toxicological study of *T. equestre* that used molecular methods for identification. Subjects consumed 300 g of fried fresh fruiting bodies, almost twice the common meal size and showed no significant hematological or biochemical changes in tests carried out 1, 4 and 7 days after consumption. In particular, creatinine kinase, a known sign of myotoxicity (mushroom poisoning) was never elevated.

In conclusion, the authors believe that this research supports the edibility of *T. equestre* when eaten by "healthy subjects in moderate amounts" and suggest that their survey results could indicate that consecutive meals, as reported by 25% of respondents, are benign. They opine that the previously reported poisonings could have been caused by misidentification, individual susceptibility, or an "unspecified reaction unrelated to a specific mushroom species that may onset at high and repeated consumption". (In this regard, it is noted that mice studies have shown toxilogical reactions to high doses of edible mushrooms including Boletus edulis, Lentinula edodes, Cantharellus cibarius, Albatrellus ovinus, Leccinium versipelle, Imleria badia, and Flammulina velutipes.) Undercooking may also cause some toxic effects.

We can agree with the authors' reasonable and cautious conclusion that "The present study cannot fully rule out the possibility of accumulative effects resulting from repeated consumption of unreasonable amounts of *T. equestre* and such consumption should therefore be avoided" and can continue to harvest the Yellow Knight with confidence.

1The Yellow Knight Fights Back: Toxicological, Epidemiological, and Survey Studies Defend Edibility of Tricholoma equestre, P. Klimaszyk & P. Rzymski, Toxins, 2018, 10, 468)

THE HUMONGOUS FUNGUS IS OLDER AND LARGER THAN WE THINK

This Michigan forest encompassing fungus– *Armillaria gallica-* was first publicized in early 1990's by several of the present authors and has enjoyed widespread notoriety since, but the story continues. A new study* reveals that its spatial extent is 75 hectares (185 acres) more than twice the size of the original estimate (37 hectares or 91 acres) and its age is now calculated as at least 2500 years, a 1000 year increase. The organisms' weight is calculated to be 882, 000 lbs.

These numbers are based on extensive meticulous measurements based on 245 soil samples and whole-genome sequences of its genetic material. Its large genome size is due to increased content of plant cell wall degrading enzymes.

All collections were linked to GPS coordinates thereby permitting exact determination of the spatial extent as well as the existence of other nearby genets (genetic individuals) of lesser size. This also established that a very low mutation rate existed, and that the fungus originated from a single geographic point. One factor contributing to the lower mutation rate may be the low ultraviolet radiation penetrating the woody substrates and soils in which *Armillaria* resides. So that while genetic evolution takes place in these long-lived fungal individuals it is "characterized by extreme genomic stability."

Interestingly, this is not the largest *Armillaria* individual, as other studies have revealed even larger clones in the forests of Washington and Oregon.

**(Clonal evolution and genome stability in a 2500-year-old fungal individual, JB Anderson et al, Proceedings of the Royal Society B, 12-19-2018)*

FORAY RESULTS SUMMARY

BETHPAGE S.P. SEPT 29:

A grand total of 84 taxa were collected, the *Russullaceae (Russula & Lactarius)* predominating with 13 species. Eleven species of the Boleteaceae included one new species, found and I.D,'d independently by Jacques*: Boletus nobillisimus.* Several collections were not identified as to species (*Ramaria, Clitopilospsis,* etc.) and will be submitted for DNA sequencing.

Boletus nobilissimus

Cantharellus appalachiensis

BROOKHAVEN S.P. OCT. 6:

85 species collected, with good amounts of *Craterellus fallax* (Black Trumpet) and *C. ignicolor*, as well as the locally infrequently collected *Cantharellus appalachiensis,* now considered a choice edible. Other edibles *were Hydnum repandum, Laetiporus cincinattus, Sparrasis americana*, and various Russulas. One new species, *Tricholoma subluteum*, was collected by Maria Saffioti.

Tricholoma subluteum

PECONIC HILLS C.P. & CRANBERRY BOG OCT. 14

These are very different habitats, the first a pine barrens and the second a boggy former cranberry farm site, so that out of a total 101 species, only 13 were in common. It was an excellent foray with the target species, *Cortinarius caperata*, present in such plenitude that many went unharvested. *Boletus projectellus* was also present in good amounts. One new species, *Hydnellum aurantium*, was found at Peconic Hills, and another three at Cranberry Bog: *Hygrocybe auratocephala, H. flavescens*, and *Inocephalus luteus.*

Hydnellum aurantium

EDGEWOOD PRESERVE OCT. 20:

Agaricus floridanus

The list is incomplete due to recording failure, but it was somewhat below par despite ample rainfall, with the expected *Coprinus comatus* and *Agaricus crocodilinus* being absent. Collecting concentrated on the next day's display at Planting Fields. The only notable observation was the presence of *Agaricus floridanus*, not previously collected here..

SARNOFF PRESERVE, OCT. 27; Cancelled, few fungi.

ROCKY PT. WEST NOV. 4:

Tricholoma equestre en situ

The 40 species collected was about average, although quantities were below par, an unexpected result considering the above average rainfall. Tricholomas predominated, with *T. niveipes* most numerous, followed by *T. equeste* and *T. portentosum*. Suillus were not much in evidence, with only a small amount of *S. brevipes*.

EDGEWOOD PRESERVE NOV. 10: Cancelled.

Ossicaulis lignatilis

WELWYN PRESERVE, NOV 17:

We concluded the season at our traditional site, with good results. Brick Caps were plentiful and Autumn Oysters (*Sarcomyxa serotina*) present in adequate amounts. Four new species were found: *Chlorosplenium chlora* (by Anthony Sama); *Radulomyces copelandii*; *Postia guttulata,* and *Ossicaulis lignatilis,* (by Bill Leibhart) known as the Mealy Oyster, it is strongly farinaceous..

Chlorosplenium chlora

MUSHROOM DAY 2018 at Planting Fields Arboretum

LIMC MEMBERS ASSEMBLED

THE PUBLIC PERUSES

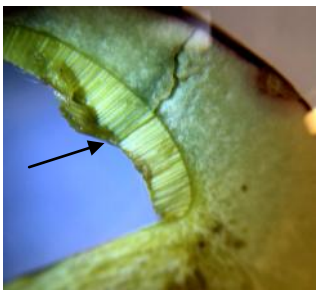
I.D.'ING SPECIMENS

CLOSE UPS & PHOTO OPS

FINDINGS AFIELD

(Continued from page 1)

throughout. The reddish cap surface stains blackish blue when bruised. It has a conspicuous yellow margin border which is usually persistent, with a narrow band of overhanging sterile tissue. Odor nil, taste acidic.



Soda straw effect.

The stipe is equal or enlarged towards the base, yellowish overlaid with reddish dots which coalesce to form longitudinal lines, staining greenish blue, as does the yellow flesh. Likewise, the pores also stain green-blue. then brown. KOH stains all parts orange. Its edibility is deemed unknown

The spore is smooth, fusiform, pale yellowish brown and measuring (12) 14-16 (18) X 4-6 µm as per the authors, essentially agreeing with my measurements.

Spores X. sclerotiorum

It occurs in sandy soil among mixed oak habitat, from New England south to Florida, according to the authors. However, only a dozen records exist in Mycoportal, and only half of these are voucher specimens, five in the University of Florida Herbarium and one (of seven) Mushroom Observer records vouchered in the observer's private collection in New Jersey.

It should be noted that this species has been accorded only a provisional name (nom prov) and has not yet been accepted by either Index Fungorum or Mycobank, the major repositories of new fungal names, so perhaps additional data, microscopic or molecular, is needed.

From Our Members & Others

***Phaeolepiota aurea* by Phillip Gladov**
New to Long Island

Dawn Ferguson's "Kim Kardashian" Puffball
(Calvatia gigantea)

Omphalotus olearius
by Jim Lampert

***Suillus americanus* from**
a Middle Island resident

Rubroboletus rhodosanguineus
by a L.I. resident

Spongipellis pachydon
by Hong Snyder

MUSHROOM POISONINGS IN THE U.S. A 1999-2016

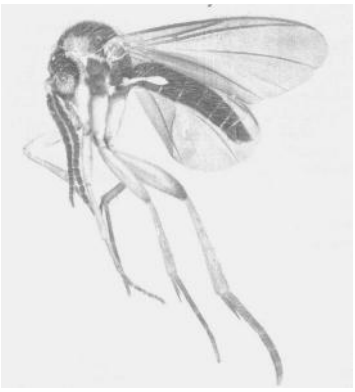
The increasing popularity of wild mushroom hunting in the past several decades has resulted, not unexpectedly, in a greater number of poisonings, which a new review compiles and analyzes. The figures are drawn from the National Poison Data System which has been recording cases of mushroom exposure from US poison centers for the past 30 years.

There were 133, 700 cases of mushroom "exposure" reported, 7,248 per year. 83% were unintentional, causing no or only minor harm, 62% occurring in children under 6 years old.. There was a total of 52 fatalities, almost 3 per year, but 8 involved co-ingestion of drugs like cocaine or opiates. Two were suicides. The exact species of mushroom was identified in only 12 of the fatalities, and eight of these were Amanitas (two *A. muscaria),* one *Lepiota josserandi,* and surprisingly one *Coprinus comatus,* regarding which no further explanation is offered. There was also one recorded fatality by consumption of hallucinogenic mushrooms, a 19 year old in 2002.

The deaths by cyclopeptide producing mushrooms (Amanitas) are mostly attributed to adults who mistake them for edible varieties, and as such are considered preventable by proper education. The percentage is much greater in countries like Italy or France where there is a widespread culture of mushrooming.

(Mushroom poisoning epidemiology in the United States, W.E. Brandenburga and K.J. Ward, Mycologia, 2018, Vol. 110, No. 4, 637-641)

THE FUNGIVORES



A fungus gnat of genus Axana

We are only one of the many creatures that dine on mushrooms. These include mammals: deer, mice, rabbits and squirrels; the latter, much to squirrel haters dismay, are immune to Amanita toxins. And deer are quite discriminating, apparently able to identify undesirable species (*Tricholoma estuans* and others) by odor, spurning to exhume them from under pine duff while avidly making a meal of our best edibles (*Tricholoma equestre*, and others.) Turtles, snails and slugs have been observed by many of us consuming our fungal favorites. And of course there are the hard to observe viruses and bacteria that infect, and therefore dine upon many fungal species. But the most ubiquitous, not to say the most objectionable, are the innumerable insects who are always first at the fungal banquet table, and whose larval tunnels are enough for even the most unfastidious among us to reject prize finds. Among these are the flies, which are more varied and numerous than commonly believed, and which amazingly have their own following (known as Dipterists) among nature lovers. These fly aficionados have their own clubs and societies and take as much pleasure in finding and identifying their species as we do with fungi.

Most mycophagous flies consume fungi only during their larval stage and these can be found in 25 families of flies although the "true" fungus gnats, *Mycetophilidae*, all 2,200 species (to date) of them, mostly eat fungi. They are not only found in the forest, but some of them are observable in damp places in our homes, around sinks and houseplants. These tiny (less than 1/8" long) dark-winged gnats are recognizable by their long legs and hump-backed, mosquito-like appearance. Some dedicated fungal feeder, such as the genus *Lycoriella,* cause extensive damage by burrowing into the mushroom stipe and thereby cause problems for mushroom farmers. They are remarkably adaptable and managed to establish populations at two Antarctic research stations, one in the sewer facilities and the other in alcohol storage.

Another oddball is *Sciara militaris*, which has been observed to form mass migratory marching columns as much as 33 feet long; why they do this is unknown.

Their hunched appearance is caused by large leg and thorax muscles, which enable them to make prodigious leaps. This ability is also shown by the larvae of one species, *Mycetophila cingulum,* which are found in *Polyporus squamosus* (Dryad's Saddle), from which they leap as far as 6" to disperse, equivalent to a human jumping 1.75 miles. While most species of fungus gnats are found in Agarics (fleshy mushrooms) others, such as *Sciophila pomacea,* favor polypores, and others (*Phronia)* specialize in grazing upon slime molds. These are mostly free-living and for protection cover themselves with slime or hardened feces. Another related family, *Lauxaniidae,* graze on fungi growing on the surface of leaves, and have developed enlarged scraping mouthparts.

The 250 members of the Platypezidae or Flat-footed Flies are all fungivorous, some being very host specific, preferring Polypores while others are more attracted to the smelliest of mushrooms, the Stinkhorns or Phallaceae. But these are not destructive of spores, rather they feed upon the slime produced by these mushrooms and after ovipositing their eggs, transport the spores which become trapped on their brushy feet.

Agaricus anyone? If so, pick them hastily, as members of the genus *Linderomyia* descend upon and their larvae are frequently found alive by collectors of *Agaricus.* Females congregate on fruiting bodies to deposit their eggs and the males hang around in swarms. At the other extreme, we have some helpful flies: Luckily for knowledgeable trufflers who do not possess truffle dogs, some discerning flies come to their aid. The truffle fly, *Suillia pallida,* is attracted to the scent of mature truffles, the males guarding suitable sites for females to lay their eggs. Their swarms appear as vertical plumes which trufflers attempt to spot by lying down in the woods.

(If you are interested in learning more about these flies and their relatives, this material is drawn mostly from, " The Secret Lives of Flies" by Erica McAlister, Firefly Books, 2017, 248 pp., Illustrated.)

IN THIS ISSUE

Findings Afield	**1**
The Yellow Knight Exonerated	**1**
President's Message	**2**
Editor's Note	**2**
The Humongous Fungus	**3**
Foray Results Summary	**4**
Mushroom Day 2018	**5**
Mushroom Poisonings in the USA	**6**
The Fungivores	**7**

Mushroom hunting is not about what you are looking for….it's about what you find."

Gary Lincoff, "The Complete Mushroom Hunter", 2010

LONG ISLAND MYCOLOGICAL CLUB
11 RAMBLEWOOD RD.
RIDGE, NY 11961

IF DUE, A MEMBERSHIP RENEWAL FORM IS ENCLOSED
KINDLY RESPOND BY JAN. 31