LONG ISLAND MYCOLOGICAL CLUB **http://limyco.org**

L.I. SPOREPRINT

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Nebbish Fungi

by Bob Sommer

(*From Mycena News, May, 2005, by permission)*

In the coastal foothills where I forage, mushrooms appear by size at the start of the season. First come the tiny fungi; you need a child low to the ground to find them. After more rain, you'll see clusters of these nobodies whose technical names conclude in diminutives like –*ina*, –*tina*, and –turner. Field guides give them cursory treatment or none at all. Easily overlooked, frequently stepped on, rarely identified with precision. Mycologists do not bother changing the technical
names every few years, a sure sign of professional disdain. No one establishes a reputation discovering a new variety of mycena; no disrespect to this publication intended. Despite its modest name, *Mycena News* devotes most of its column space to large charismatic fungi. When I was introduced to the main marasmiologist on the Baltic Coast, I had to bend down to shake hands with him. He wore thick glasses, as his eyesight had deteriorated in the taxing search for tiny fungi. He established a small following when he discovered the Dust Speck Fungus.

During the prime mushroom months, nobody pays attention to nebs, which is perhaps the origin of the genus name. Others attribute the name to Johnny Neb, a confederate soldier of small stature although fierce in battle. Others trace the genus to the Egyptian pharaoh who refused to eat any mush-

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How an Aggressive Weedy Invader Displaces Native Trees

by Liza Gross April 25, 2006. PLoS Biol 4(5): e173

Humans have never been known to tread lightly on the earth, but as our global reach has expanded so have our impacts on other species. Vanishing habitat caused by human activity is the number one threat to biodiversity, but the dispersal of alien invasive species—again, caused by humans—is not far behind. Over 4,500 non-native plant and animal species have established residence in the United States since European settlement, according to a 1993 report by the US Office of Technology and Assessment. Many alien species cause little disturbance, while others radically transfigure their new habitat by displacing less competitive native species and disrupting fragile ecological relationships that evolved over millions of years.

Of a growing list of invasive plants in North America, garlic mustard *(Alliaria petiolata)* has been on the Nature Conservancy's Red Alert list since 2000. Originally found in Europe, it was planted in the late 1860s by European settlers for its medicinal and culinary properties. The weed has since spread from New York to Canada and 30 US states in the East and Midwest, with recent sightings as far west as Oregon. Many mechanisms have been proposed to explain the success of alien plant invasions, mostly related to the absence of natural predators or parasites or the disruption of long-established interactions among native organisms. Few studies, however, have directly tested these possibilities. In a new study, Kristina A. Stinson, John N. Klironomos, and colleagues do just that by investigating garlic mustard's effects on native hardwood North American trees. The weed gains a competitive advantage, they discovered, by releasing chemicals that harm a fungus the trees depend on for growth and survival.

Many forest trees and other vascular plants form mutually beneficial relationships with arbuscular mycorrhizal fungi (AMF). The fungus has long filaments that penetrate the roots of plants

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PRESIDENT'S MESSAGE

Despite all the rain in Spring, our forays for morels resulted in only middling numbers of Black Morels. A few people found Yellow Morels on Long Island, always just one or two. Bethpage was great for Oyster mushrooms. (Many thanks to Ken Gobright for creating an extendable pole to reach very high mushrooms and to Tony Mish for manning that pole.) Our BioBlitz foray to Caleb Smith was not well attended which is a shame. With more "eyes" I'm sure we could have found a lot more species than we did.

It seems rather strange that more mushrooms have not turned up, but it seems that many will not fruit until a preordained time, no matter how much it rains. We'll have to wait for the next forays to see what shows up. We may have to do away with June forays altogether if it doesn't improve.

Carol Kazdan submitted an article from the New York Times about invasive garlic mustards which prompted Joel into looking for the original article (see page 1). Many of you know my feelings about these invasive plants. I don't remember seeing them until a few years ago and now they are everywhere. They may be good to eat but the ecological price is too high to pay.

Please be aware that Planting Fields has changed its policy, and now charges LIMC members admission at our forays there. The Empire Passport is accepted, and can be obtained at a discount through the AAA website, if you belong to that group.

EDITOR'S NOTE

Responding to several requests for seasonal lists similar to the original Spring 'Shrooms that we published in Spring, 2004 (available online) we have updated our previous June list in this issue. This list includes both commonly occurring mushrooms and others which are rarer this early in the season, but which may be "deceived" by weather conditions into emerging earlier. Some, like *Suillus granulatus*, produce a few early specimens almost every year. Others are less predictable, but sometimes fruit unexpectedly, producing undersized specimens which, in the genus *Lactarius*, Hesler & Smith referred to as "nanospecies". *Leccinum aurantiacum* invariably produces a few early summer/late spring caps in the pine barrens. Early flowering of many botanical species due to the warming climate has been demonstrated both in Great Britain and the US. Perhaps meticulous examination of personal or organizational records would demonstrate a similar phenomenon for fungi, but as yet I am not aware of anything being published.

Please remember that if you misplace your Foray List or Directions, that these can be accessed on our website in the members section. The password has been emailed to everyone, but if you haven't received it, email me.

MATERIAL FOR THE AUTUMN, 2006 EDITION SHOULD REACH THE EDITOR BY AUGUST 30TH

(Submissions should preferably be typed or submitted in Rich Text Format on PC floppy disk or by e-mail)

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(forming branched structures called arbuscules) and snake through the soil in an intricate interwoven network of mycelium, which effectively extends the plant's root system. AMF depend on the plant for energy, and the plant depends on the fungus for nutrients. Many non-native plants, including garlic mustard, do not depend on native AMF and often take root in landscapes altered by development or logging, where AMF networks are disturbed. When these non-mycotrophic invasives propagate, they may diminish AMF densities even further.

Biologists are especially concerned about what might happen if a non-mycorrhizal invasive plant turns up in a mature, intact forest with an established mycelial network—which is just what garlic mustard has started to do. In the North American forests it has recently invaded, the plant inhibits the growth of understory plants, including the seedlings of canopy trees. Stinson et al. suspected the invader might somehow be thwarting the symbiotic relationship between fungus and tree.

To test this possibility, they collected soil from five forests in Ontario dominated by four species of native hardwoods. Soil was taken from infested and uncontaminated areas from each location. First, the researchers tested seedlings' ability to form mycorrhizal relationships in soil with a history of garlic mustard invasion. Three species—sugar maple, red maple, and white ash—had significantly less AMF root colonization and slower growth when grown in the infested soil. Seedlings grown in sterilized soil taken from invaded and pest-free locations showed similar reductions, suggesting that diminished microbial activity led to suppressed growth.

A second set of experiments supported this conclusion by showing that native trees grown in soils conditioned with garlic mustard (weeds were grown in soil, then removed) had lower AMF colonization and impaired growth than when grown in soil conditioned by native plants. Since adding extracts of garlic mustard impaired AMF colonization and seedling growth as effectively as the whole plants did, the researchers concluded that garlic mustard uses phytochemical poisons to disrupt native plants' mycorrhizal associations and stunt their growth.

Stinson et al. go on to show that garlic mustard's impacts vary with a native plant's AMF dependency. Plants with fewer roots to take up nutrients—like the hardwood seedlings studied here—will be most affected by garlic mustard invasions. This suggests that garlic mustard is invading the understory of mature forests because it's poisoning the lifeblood of its woody competitors. If true, the appearance of this noxious weed in an intact forest promises to have devastating impacts. First the plant will stifle the regeneration of the dominant canopy trees, and then it will pave the way for weedy plants that don't like the beneficial fungi.

Which phytochemicals are to blame and how they interact with other beneficial soil microbes is a question for future study. Determining if and how plants in garlic mustard's native European habitat peacefully coexist may suggest ways to help North American natives fend off its fungicidal attacks. With evidence that the plant can displace native species within ten years of establishing a presence, prudence suggests taking steps to eradicate the weed before all the answers are in.

Morels on my mind

Peggy & Joel Horman

It was not visions of sugarplums that danced in our heads throughout the winter, but those of the charismatic Morel, which by its near absence on Long Island, is almost a mythic figure. We made note of where Tulip trees grew, searched for Elms, and always kept in mind the hidden Morel gardens of abandoned apple orchards.

On April 27th we made a circuit encompassing several spots on Long Island, including Blydenburgh and a Smithtown Landing area, but found nothing. We continued into Westchester, where we knew of several parks with Tulips, but were again disappointed, and decided to do a bit of birding. It was midday by the time we arrived in the Palisades, so even the birding was slow, but Peggy stumbled across 3 tiny immature Black Morels while admiring some daffodils; no Elms, Apple or Tulip trees were nearby. some Tulips a little distance away produced some scattered *M. semilibra,* not a sufficient harvest to satisfy our craving.

We proceeded north to New Paltz, which has many parks, forests and orchards. We enjoyed the hikes, spotted Pileated Woodpeckers and Bald Eagles, but no Morels. Then we saw an old abandoned apple orchard which looked promising. After a half-hour of assiduous searching, we emerged muttering and bloodied by the many sticker bushes, but, alas empty-handed. It was time to go home.

Driving down a side road through a wooded area, I heard Peggy gasp and exclaim, "There they

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Nebbish Fungi

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room under two inches in diameter, which became the basis for his famous decree, "Nebbischer never." An abundance of nebs is referred to as a nebula; their absence not remarked upon. I gave up sketching these size-challenged fungi a long time ago. Drawn to scale, a single specimen was lost on the page and enlarged, looked grotesque.

Field characteristics are easy to learn, although few bother to do so. The distinguishing feature is insignificance— small stature, drab coloration, and undistinguished shape, like a tiny umbrella was the way an unremarkable child put it. Given the dimensions of birds nest fungi (*Nidulariales*), you can imagine how small the birds must be. The staining response to mixture of KOH and Melzer's Reagent is difficult to determine in such miniscule fruiting bodies. Some say it is green, others blue. Chemically, nebs are marked by the absence of the growth hormone GOH, present in better endowed fungi. For survival, they are clustered and congregate, and some, such as *Plectania nannfeldtii*, take on long names in a vain attempt to be noticed.

Of nebbish gastronomy, little need be said. You need a lot of them to make a meal, so unless they have a distinctive flavor, collecting isn't worth the effort. The FIFO rules applies here— Flavorless In, Flavorless Out. Nebs are easily lost in soups and stews but some, like *C. infundibuliformis*, the Tasteless Chanterelle, are restaurant staples in the infamous wild mushroom mélange. I'm omitting here those little dung mushrooms so avidly hunted in cow pastures. You won't find them listed on restaurant menus and nobody cares how they taste. Before the dung is scraped off, the flavor is rich and earthy.

Foray Results Summary

4-22, Wellwyn Preserve: Our first foray of the year produced about 15-20 morels total, an improvement over last year, but about half of the record amount.
4-29, Wellwyn: Again, a total of about 15 Morels, and a first for this site, *Gyromitra esculenta*.
5-13, Planting Fields: 10 species collected, with good showings of Winecaps and Spring Agrocybe.
5-20, Betpage SP: 9 species collected, with ample bags of *Pleurotus populinus,* thanks to Ken Gobright's jury-rigged extension pole harvester and Tony Mish's boarding house reach. One new species, *Peziza sylvestris.*
5-27, Muttontown Equestrian: 20 species, including 2 Marasmius, 3 Mycena, the pretty purple *Lentinus torulosus,* the smallest known polypore, *Porodisculus pendulus,* and one new species, *Tremella encephala,* a translucent, whitish jelly growing on the underside of a log.

Porodisculus pendulus, pore side up

Tremella encephala

Morels

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are- back up." Dubious, I did so, and Peggy leapt out of the car and displayed a choice Black Morel. With lightening speed, we collected a total of 31 large specimens from 3 to 5 inches. We were delirious with success and smiled all the way home. Our smiles were even wider after cooking and enjoying them in a great recipe with cognac and cream sauce.

■ **WHAT GOES AROUND…..** As if to prove the cyclic nature of fungal taxonomy, the species name *Tricholoma equestre* has been demonstrated to have historical precedence over the current epithet *Tricholoma flavovirens.* Those of us who never abandoned our outdated field guides will easily slip back to this usage…..for the time being anyway. (Deng, H. & Y.-J. Yao. *Tricholoma equestre,* the correct name for *T. flavovirens (Agaricales). Mycotaxon* 94: 325-329. 2005.)

■ **AN *AGARICUS* BY ANY OTHER NAME:** In recent years, a mushroom growing wild in Brazil has been cultivated widely internationally, and lauded both for its gastronomy and possible health-giving properties, including immunity enhancing ones. Identified as *Agaricus blazei,* and even referred to as a new species, *A. brasiliensis,* it has now been shown to be genetically identical with *Agaricus subrufescens,* and should properly be referred to by that name, as should *A. rufotegulis* Nauta from western Europe, another apparent con-specific. (*Mycologia*, 97(1), 2005, pp. 12-24..*Agaricus subrufescens,* a cultivated edible and medicinal mushroom, and its synonyms, Richard W. Kerrigan)

■ **QUICKEST GUN IN THE FUNGAL CORRAL:** *Gibberella zeae,* a grain pathogen, uses water pressure to shoot off its spores with the highest relative velocity and greatest acceleration of any biological entity. An ascomycete, its eight spores are crammed into a liquid filled pod (ascus) with a high concentration of mannitol, an alcohol which draws water from surrounding tissue, causing it to swell and elongate. Along with hundreds of other asci contained in a sac-like perithecium, it orients itself facing the perithecial pore. Internal pressure is further increased to more than 5 atmospheres by pumping in potassium and chloride ions. Suddenly, the tip of the ascus bursts, and spores shoot into the air reaching speeds of 80 miles per hour, or nearly 2 million spore lengths per second. They only travel 4-6 mm, but that is enough to launch them into the air and on their way. (*Natural History, Jan. 2006. Based on research article by S. Vogel, J.Bioscience, May, 2005)*

(*Compiled by editor from cited sources)*

Quest for Medicinal Mushrooms

Ed Meena, research chemist associated with the Univ. of Connecticut, asks our continuing help in collecting wild fungi specimens in his research. His primary group of interest includes ***Leotia lubrica, Boletus pallidus, Flammulina velutipes, Amanita frostiana, Lactarius atroviridis,*** which we find in our area, and of which even small quantities are useful. Also, most species of ***Hydnellum & Inocybe,*** and various of ***Hydnum.*** At this point, he is also interested in large collections (over ! lb.) of anything other than very common or large species. Other taxa of interest are ***Leccinum aurantiacum, Hypholoma fasciculare, Entoloma, Cortinarius, Hygrophorus*** and most ***Ascomycetes.***

If you come across these, refrigerate in a plastic bag (yes, you heard right) and let me know. Ed has provided me with FedEx labels for rapid shipping to his lab.

2006 Gary Lincoff Mid-Atlantic Mushroom Foray

This all-day event on September 16 will take place in the North Hills of Pittsburgh, PA. The activities will be centered at Parish Hill in Allegheny County's North Park. Registration is limited to about 150 club members and guests. The cost of the event is:$40/ person for non-members pre-registered before September 1, 2006, and $50 thereafter. Activities begin promptly at 8:30 AM, and include morning & afternoon guided mushroom walks, informative talks by nationally recognized mycologists, mushroom cooking demonstration, mushroom tasting, mushroom identification, mushroom cultivation information.

Featured speaker will be Gary Lincoff, author of the *"Audubon Society Field Guide to North American Mushrooms";* special guest mycologist, Rod Tulloss, expert on Amanita species; special guest mycologist, Jon Ellifritz, president of the Mycological Association of Washington, D.C.

Registration forms at wpamushroomclub.org or, Contact: **Dick Dougall** 412-486-7504 rsdme@imap.pitt.edu or **Glenn Carr** 412-369-0495 browncarrs@verizon.net

THE 'SHROOMS OF JUNE-UPDATED

The following is a partial list of mushrooms those of us who are afield in June may expect to encounter. This list is based upon LIMC foray as well as personal records. Many are common species that fruit at this time and others are autumn mushrooms that sometimes make an early appearance. About 40% of them are edible. Many persist into July. Seek and ye shall find...

Agaricus silvicola
Agaricus arvensis
Agaricus silvaticus
Agrocybe pediades
Agrocybe praecox
Amanita brunnescens v. alba
Amanita ceciliae
Amanita crenulata
Amanita flavoconia
Amanita frostiana
Amanita muscaria
Amanita rubescens
Amanita vaginata
Amanita volvata
Amanita spreta
Amanita vaginata
Bisporella citrina
Boletus/Xanthconium affinis/affine
Boletus bicolor
Boletus pulverulentus
Boletus subglabripes
Boletus subtomentosus
Bondarzewia berkeleyii
Cantharellus cibarius
Cantharellus cinnabarinus
Ceratiomyxa fruticulosa
Chalciporus pseudorubinellus
Chlorociboria aeruginescens
Clavaria cinerea
Clavicorona pyxidata
Collybia alkalivirens
Collybia acervata
Collybia dryophila
Collybia spongiosa
Collybia subnuda
Coltricia cinnamomea
Conocybe lactea
Conocybe tenera
Coprinus atramentarius
Coprinus plicatilis
Craterellus fallax
Crepidotus applanatus
Crepidotus mollis
Crucibulum leave
Entoloma verna
Favolus alveolaris
Flammulina velutipes
Galerina tibiicystis
Ganoderma applanatum
Ganoderma lucidum
Gymnopilus sapineus
Gyroporus castaneus
Helvella macropus
Hohenbuehelia petaloides
Hygrophorus pratensis
Hypholoma fasciculare
Inocybe fastigiata
Inocybe lacera
Irpex lacteus
Laccaria laccata
Lactarius camphoratus
Lactarius gerardii
Laetiporus cincinnatus
Laetiporus sulfureus
Leccinum albellum
Leccinum aurantiacum
Lentaria micheneri
Lentinus torulosus
Lycogola epidendron
Lyophyllum descastes
Lyophyllum semitale
Marasmius nigrodiscus
Marasmius oreades
Marasmius rotula
Marasmius scorodonius
Megacollybia plattyphylla
Melanoleuca melaluca
Meripilus giganteus
Mycena galericulata
Mycena haematopus
Paneolus campanulatus
Paneolus foenisecii
Phaeolus schweinitzii
Pholiota aurivella
Pholiota veris
Polyporus elegans
Polyporus squamosis
Phyllotopsis nidulans
Pisolithus tinctorius
Pleurotus ostreatus
Pleuteus longistriatus
Pluteus cervinus
Psathyrella condolleana
Psathyrella velutina
Psilocybe montanum
Rickenella fibula
Russula crustosa
Russula heterophylla
Russula laurocerasi
Russula mariae
Russula perlactea
Russula primaverna
Russula stricta
Russula vinacea
Russula virescens
Schizophyllum commune
Spongipellis pachydon
Steccherinum ochraceum
Steccherinum pulcherimum
Stemonitis splendens
Stropharia rugosoannulata
Suillus americanus
Suillus granulatus
Suillus pictus
Trametes hirsute
Tremella mesenterica
Tremelledendron pallidum
Trichaptum biformis
Tubifera ferruginosa
Tylopilus felleus
Tyromyces chioneus
Ustulina deusta
Xeromphalina campenella

THE HOFFMAN CENTER

presents a lecture by Dr. George Hudler, professor of plant pathology at Cornell University, and author of , "*Magical Mushrooms, Mischievous Molds*", on Wednesday, Sept. 7, 7:30 PM—9 PM. Fee is $8, and refreshments will be served. The Hoffman Center is located at 6000 Northern Boulevard, Muttontown. For more information or to register please call Planting Fields Foundation at 516-922-8676.

WANTED

Amanita phalloides

THE DEATH-CAP MUSHROOM

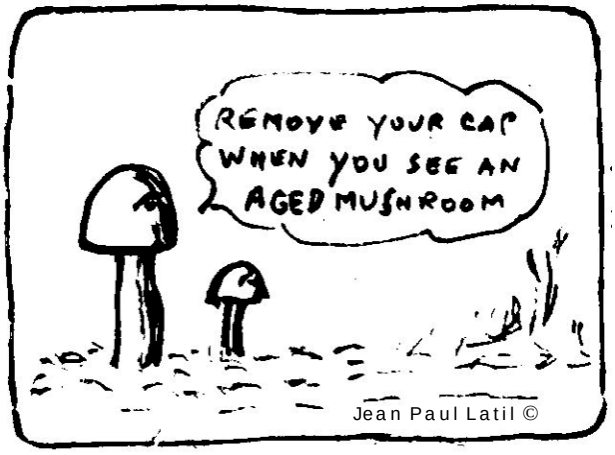
DESCRIPTION: Cap is yellow-green/olive,may be yellow-white with olive hue, typically with inate darker streaks, 3.5-15 cm wide; free cream-colored gills; pendulous annulus; thin white membranous sac-like volva. Deadly poisonous. Further descriptions may be found at www.mykoweb. com or in David Arora's *Mushrooms Demystified*, and many other field guides.

IF FOUND: Collect mushrooms and air dry or dry in a mushroom dryer at low heat. Record a detailed description of where, when, and under which tree species you found the sample. Include contact info.

SEND TO*: Benjamin Wolfe
Pringle Lab - Harvard University
16 Divinity Ave. - Biolabs 3100
Cambridge, MA 02138
*Postage will be reimbursed.

The Pringle Lab is conducting a biogeographical survey of *Amanita phalloides* to determine whether this species has been introduced to parts of North America from Europe and the potential consequences of an introduction. For more info, please see our website: www.oeb.harvard.edu/faculty/pringle OR email bewolfe@fas.harvard.edu or **pringle@oeb.harvard.edu**

(MR. Wolfe is a PhD student at Harvard in the Pringle Lab in the Department of Organismic and Evolutionary Biology, who is trying to determine whether A. phalloides is acting as an "invasive species" in N.A. West coast surveys have been completed, and known areas of introduction on the East coast are now being sampled. Please cooperate by following the above instructions, or alternatively, if you are unsure of your identification, contact the editor. Also, if you know the precise spot where A. phalloides has appeared in the past, the researchers may be willing to do a soil sampling there.)



IN THIS ISSUE

If we really saw the world, maybe we would understand it.
Jorge Luis Borges, "There are more things"

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