

# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY

Number 231

April 1987



## MYCORRHIZAE ARE HOT

Robert Sterling  
*Medford Mail Tribune*

*Medford, Ore.* -- For years they were ignored or considered a threat, but these days life is jolly for mycorrhizae.

The microscopic soil fungi have become champions of the forest, hailed by scientists and forest managers as essential to healthy woodlands. Forestry practices are being altered to accommodate the fungi, which have been shown to link tree roots in a complex interdependent web.

Without mycorrhizae, seedlings turn sick and pale, reforestation fails, and clearcuts stay bare.

"Mycorrhizae are one of the hottest topics in forestry," says Mike Amaranthus, a soil scientist for the Siskiyou National Forest in southern Oregon. Amaranthus and others at Oregon State University in Corvallis are among the leaders in mycorrhizal research, regularly presenting talks on their latest findings. They have drawn the attention of forest managers throughout the world, who have traveled to southern Oregon and Oregon State to see for themselves the latest mycorrhizal experiments.

Although the mycorrhizal association between fungi and plants has been known for the past century, for much of that time there was little research into it. Some even thought it caused disease. Only in recent years have scientists discovered its vital role in the forest.

Mycorrhizae are tiny fungal caps, 3 to 20 millimeters long, that cover the ends of roots like socks. Minuscule hyphae radiate like hair from the caps and through the soil, commonly extending up to 50 feet from a tree. Woody forests in the Pacific Northwest are particularly dependent on mycorrhizae, which help feed water and nutrients to trees and help them better resist drought and disease. In turn, the trees provide the fungi with sugars that help them survive. This important symbiotic relationship has been more fully understood in recent years, as soil has come to be viewed as a crucial element of forest ecology.

With some of their new-found knowledge, scientists have gone back to old forest clearcuts where reforestation has failed, and where "biological activity in the soil was almost nil." In one recent case in the Siskiyou National Forest, scientists combined seedlings with new soil rich in mycorrhizae. Seedling survival doubled, and growth tripled.

Mycorrhizae were the key, and the word has spread. Private timber companies and public agencies have begun including fungal spores in the water fed to greenhouse nurseries. Soon at the J. Herbert Stone Nursery near Central Point, experiments will begin with hyphae mixed into the soil to give seedlings a boost.

Logging techniques that involve machine piling (that is, scraping aside the soil in clearcut areas),

severe burning of brush, and soil compaction all have helped cut vital mycorrhizal populations. In response, the Forest Service has tried to minimize severe burning, encouraged skyline logging to avoid disturbing the earth, and placed more emphasis on mycorrhizal inoculations.

Amaranthus and others are finding that certain plant groups appear to thrive together because of their common dependence on certain types of mycorrhizae. Madrone, manzanita, and Douglas-fir, for example, seem to do well together because of their underground mycorrhizal network. White oak and Douglas-fir, on the other hand, seem incompatible.

The incredible diversity of mycorrhizal fungi is still being explored, Amaranthus says, noting that Douglas-fir connects with more than 1,000 different mycorrhizal species.

New information has been uncovered by leading mycorrhizal scientists such as Jim Trappe, David Perry, and Mike Castellano, who are conducting research at Oregon State. Their work is drawing intense interest from forest and agriculture managers in Central America, India, Africa, China, and elsewhere, where ecological systems have been destroyed and reforestation has been difficult.

No longer is mycorrhizal research considered interesting but irrelevant, and little time or money allocated for it. In recent years, the Forest Service has employed soil scientists, plant pathologists, botanists, and foresters to learn more.

"They used to put up with me," Amaranthus says. "That's all changed."

## PESTICIDE POISONING

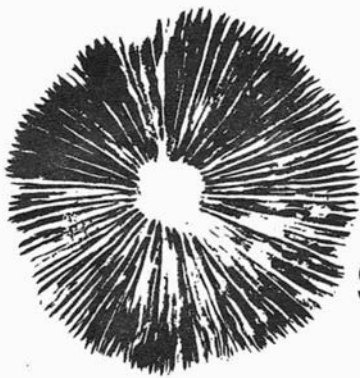
Lorelei Norvell  
*[Oregon Mycological Society Mush Rumors]*

On April 8, 1986, Glenn Walthall of the Oregon Mycological Society was consulted after a Beaverton woman suffered an intense gastrointestinal reaction to *Morchella esculenta*. She had consumed a plateful of sauteed mushrooms which she had gathered from under rose bushes where pesticide had been sprayed. REMEMBER: Do not eat mushrooms that have been gathered from sprayed areas. THOROUGHLY cook all mushrooms and EAT YOUR MORELS IN MODERATION.

## FROM THE PAGES OF JOURNALS

Marshall Deutsch  
*[Boston Mycological Club Bulletin]*

I've often wondered whether vegetarians realize that cheese making starts with the addition of rennet, made from the stomachs of calves, to milk. Now I learn from a fascinating article on cheese in the May 1985 *Scientific American* that vegetarian (or anyway, mycological) rennet can be extracted from fungi such as *Mucor miehei*, *M. pusillus*, and *Endothia parasitica*, and indeed accounts for about half the market at present.



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## Spore Prints

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**PUGET SOUND MYCOLOGICAL SOCIETY**  
Center for Urban Horticulture, Mail Stop GF-15  
University of Washington, Seattle, Washington 98195  
(206) 522-6031

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## Calendar

- Apr. 20 Mushroom identifier, 3-7:00 p.m., CUH  
Board meeting, 7:00 p.m., CUH
- Apr. 21 Beginners' class, 7:15 p.m., CUH
- Apr. 27 Mushroom identifier, 3-7:00 p.m., CUH
- Apr. 28 Membership meeting, **Tuesday**, 7:30 p.m. CUH
- May 1 *Spore Prints* deadline
- May 2 Field Trip, 29 Pines, Teanaway
- May 4 Mushroom identifier, 3-7:00 p.m., CUH
- May 5 Beginners' class, 7:15 p.m., CUH
- May 9 Field trip, Lake Wenatchee
- May 11 Mushroom identifier, 3-7:00 p.m., CUH
- May 12 Beginners' class, 7:15 p.m., CUH
- May 16 Field trip, Soda Springs

**Check your mailing label!** An "\*" after your name means you are being dropped for nonpayment of dues.

## Membership Meeting

Tuesday, April 28, 1987, at 7:30 p.m. in the Center for Urban Horticulture, 3501 N.E. 41st Street, Seattle.

**Program:** George Rafanelli will tell us about spring mushrooms. George is a charter member of PSMS and served as its president in 1967. He is frequently an identifier at meetings, field trips, and our annual exhibit, and he has directed collecting for the exhibit for many years. After many years of experimentation, George finally discovered the underlying principle for successful collecting: wear a hat and drink red, not white wine.



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### CONSERVATION AND ECOLOGY

Margaret Dilly

Thanks to everyone who made phone calls, sent cards, and wrote letters to our legislators. Most of the written responses seem to be positive. I am building a file of them, so if you want to part with yours I would welcome it.

Unfortunately, in spite of our efforts, no bill dealing with mushrooms was passed this session. But we became very visible, and this should help in our preparation for next session. Representative Sutherland called me to explain his reluctance to run the House bill this year. He also gave me advise on how to approach the issue for success next year. Plans are being mapped out now, and an outline will be forthcoming to inform you of how you can assist. We must all assume some part in future efforts if we are to protect our hobby.

In other conservation news, (1) the Olympia National Forest Plan is still unsettled but looks promising, thanks to all who made their views known both to the Forestry Department and to legislators in Washington, D.C. (2) HB 210 on the Endangered Species Act cleared the House and went on to the Senate. Things look very positive for it at this point. Somewhere along the line, mushrooms got knocked out of the description of "plants." This is unfortunate for us, but the Native Plant Society says, "Thanks to all who responded to our pleas." (3) The Oregon Legislative Assembly has introduced a bill which falls under the Department of Agriculture that requires licensing for commercial harvesting of mushrooms, with stiff penalties for violators.

So, things are happening, and it all has to do with people who care getting involved. As for PSMS, I welcome anyone who is willing to become involved with this committee. It is interesting, exciting, and history making. Just contact me if you're available.

### SURVIVOR'S BANQUET '88

Coleman Leuthy

With the spring mushroom season upon us, it's time to start collecting mushrooms for next year's banquet. Be sure of identification and label your packages. Dry those that can be dried; blanch thoroughly and freeze others. All donations may be given to me for storage (dry or frozen). Also, I have an enormous dryer which I would be glad to share. Call 322-2554; let it ring at least eight times.

**MacDONALD PARK FIELD TRIP**

**Florence Metcalf**

What a fantastically beautiful day was Saturday, March 21! The Cascades were visible in their white splendor from Mt. Rainier to Mt. Baker. Seventy-plus people attended this first, learning field trip of the new mushroom season, and the *Verpa bohemica* were waiting for us. Monte Hendrickson held his popular lecture on spring mushrooms and mushroom hunting in general, under blue sky and a giant cottonwood tree near the shelter.

After Edith Godar had served us delicious coffee with the extra goodies (provided by Jim Herndon), everyone was ready and eager to go hunting. We took off in groups lead by Monte, Hildegard Hendrickson, Kern Hendricks, and Judi and Ernie Boa, heading in different directions. Most hunters returned with enough *Verpa bohemica* for a meal or two; some baskets contained dozens, and every participant now can identify cottonwood trees.

Interesting specimens on the table included the beautifully delicate *Helvella acetabulum*, *Dacrymyces palmatus* (witches butter), *Naematoloma fasciculare*, *Nolanea sericea*, and *Discina perlata*.

As you read this field trip report of a successful and enjoyable outing, aren't you sorry you didn't get up early and join us? See you at the next field trip!!

**SURVIVOR'S BANQUET**

**Dennis Bowman**

The question was asked, "and why are we here?" And the answer was, "to eat and to enjoy." So we ate and enjoyed, and ate and enjoyed, and ate.... Our guests of honor, Professor and Mrs. Howard C. Whisler, along with 280 members and guests were treated to 14 courses of imperial cuisine especially prepared by Chef Wang. Patrice Benson introduced the courses, each of which contained a fungus prepared in a special manner to create many unique and exotic flavors.

**ANNUAL EXHIBIT**

**Dennis Bowman**

This year our society is presented with several new challenges, and it will be your contribution that will ensure success. One of these challenges will be our Annual Exhibit, to be held this year on the 17th and 18th of October at the Scottish Rite Temple. This new location necessitates many changes in form, format, and preparation.

Recently Caroline Irvin had to withdraw from the Exhibit chairmanship, and I have agreed to step in as acting chairperson for the present. We have much work to do, and for the Exhibit to be a success many of you must also become involved. Because of the present time schedule, it is critically important that the first of the "you's" out there become involved immediately; please give me a call. All totaled, about 150 volunteers will be needed -- so if you would just give me a call now, it would make things ever so much easier.

A successful Exhibit presents our society with a unique opportunity to make a significant contribution toward our building fund. So roll up your sleeves and pick up the phone. The Exhibit needs you, The society needs you, and I need you. Call 525-8399 today.

**FIELD TRIPS**

**Andy Green**

Because field trips are scheduled so far in advance, please check the PSMS answering device, 522-6031, Wednesday - Saturday preceeding each field trip to ensure there have been no last minute changes.

**Twenty-Nine Pines, Teanaway** May 2, 1987  
Take I-90 over Snoqualmie Pass to exit #85. Follow Route 10 east of Cle Elum for 2-1/2 miles; turn left on Route 970, go 4-1/2 miles, and turn left onto Teanaway River Road. Continue about 6 miles to the Bible Rock Children's Camp. Bear right on the Teanaway North Fork Road and continue on to Twenty-Nine Pines, on the left just past the Jack Creek Road.

**Lake Wenatchee State Park** May 9, 1987  
Go east on Route 2 over Stevens Pass. Twenty miles east of the summit, turn left on Route 207. Go to the shelter in the park's day use area.

**Soda Springs Forest Camp** May 16, 1987  
Go east on Route 410 over Chinook Pass. About 17 miles past the summit, turn right onto Bumping Lake Road 174. Continue about 5 miles and turn left into the camp at the Soda Springs sign.

**BUILDING FUND**

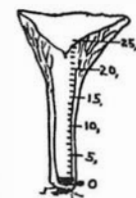
**Coleman Leuthy**

At this time, we have received contributions totaling \$1000 from these generous members:

- |                             |                     |
|-----------------------------|---------------------|
| Ben Woo                     | Fred Pittenger      |
| Coleman Leuthy              | Satoru Niimoto      |
| Andrew & Nettie Laycock     | Bill & Betty Hough  |
| Jan & Margaretha Diepenheim | Damaris Rice        |
| Gerard & Libby Barta        | Jean Nicolaysen     |
| Melvin & Helena Kirkwood    | Ken & Emma Chaplin  |
| Charles & Jo-Ann Oxner      | Marilyn Ward        |
| Ingeborg & Francis McGuire  | Margaret Holzbauer  |
| Eric & Jane Frankenfeld     | John & Navarre Orth |
| Connie & Tim Cummings       | Tatiana Warnek      |
| Gunter & Ingrid Brune       | Ann Levanavich      |
| Gilbert & Alice Austin      |                     |

You may send contributions to Edith Godar, PSMS treasurer, 11704 103rd N.E., Kirkland, WA 98034.

\$ \$1000  
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**BOARD NEWS**

**Lois Skoor**

Frank Occhiuto is completing the application to designate the Society as a not-for-profit organization so that donations can be tax exempt. Coleman Leuthy is still looking for volunteers to help with various jobs. A motion was made and approved to give a certificate of appreciation to outgoing board members. The board also wished to express thanks to the Banquet Committee for the wonderful survivors' banquet that they arranged. Margaret Dilly reported that the two bills that were being considered by the State Senate did not come out of committee. Various ideas were discussed to improve the chance of passage next time.

The next board meeting is April 20th at 7:00 p.m. All board members, alternates, and committee heads should plan to attend.

**PRESIDENT'S MESSAGE****Coleman Leuthy**

Each year, as one of the purposes of our Society, we award a grant to aid students showing good potential to become mycologists. This year, \$600 was approved and will be divided between the following three students finishing their Ph.D.s.

**Mitchell D. McGuinness** - B.S. Botany, University of Washington; M.S. Botany, University of Washington. Mitch is a candidate for the doctoral degree and will complete his dissertation this spring. He is a student with Professor Edward F. Haskins, under whom he has been studying slime molds (*Myxomycetes*), particularly the genetics and cytology of the genus *Echino-stelium*. Mitch is known to some PSMS members for his help at the annual mushroom show and in the past has assisted the Pacific Northwest Key Council. Mitch is one of the best teaching assistants in Botany and Biology at the University of Washington. He is one of the last Botany students at the University to take courses from Dr. D. E. Stuntz. On completion of his doctoral degree, he will be doing slime mold research as a post-doctoral fellow with Professor O'Neal R. Collins, University of California, Berkeley.

**George J. Mueller** - B.A. Biology, Western Washington University; M.S. Biology, Western Washington University. George, already a well known expert on small animals (invertebrates), is working on his doctoral degree with Professor Howard E. Whisler, who is an expert on water molds. George is studying the parasitic fungus *Coelomomyces*, which lives on mosquito larvae part of the time and in a small animal, called a copepod, for the remainder of its life cycle. He is making a detailed study of how *Coelomomyces* affects the copepod, that is, how it infects this host, lives in it, and then leaves to infect the mosquito larvae. There is considerable interest in *Coelomomyces* as an agent of biological control for mosquitos, so his research has application in the "real world." George is also one of the best teaching assistants in Biology at the University of Washington. In addition to everything else, he has a strong interest in the identification of mushrooms, lichens, cup fungi, and other Ascomycetes.

**Stephen A. Rehner**: B.S. Horticultural Plant Physiology and Plant Tissue Culture, Cornell University; M.S. Botany, University of Washington. Steve is well known to many mushroom hunters in the Pacific Northwest. He has given lectures at PSMS meetings and helped with the PSMS annual fall show, and has taught introductory courses in mushroom identification for amateurs at the University of Washington and, most recently, at the National NAMA Foray. He also has assisted the Pacific Northwest Key Council. Steve has been an excellent teaching assistant in the Department of Botany at the University. His excellent training in mycology stems from the fact that he took most of the courses offered by Prof. D.E. Stuntz. Currently, Steve is working on the classification of mushroom species in the brown-spored genus *Agrocybe*. He is employing classical as well as more modern studies (DNA characteristics) to produce a more precise and correct scheme for showing the relationships among *Agrocybe* species. Steve works in Dr. Joseph Ammirati's laboratory and will receive his doctoral degree in the coming autumn quarter.



**Sick Call:** Navarre Orth, wife of past PSMS President Jack Orth, has been in the hospital. We wish her a speedy and complete recovery.

**CLASSES****FORAYS****TOURS**

**Class:** On May 14, 1987, Hildegard Hendrickson will teach a class on "Stalking the Wild Mushroom" at The Herbfarm near Fall City (includes a field trip with PSMS). Call (206) 784-2222.

**Summer Field Course in Sierra Nevada:** Conducted by Dr. Harry Thiers, June 8-12, 1987. Credit or non-credit. Contact Mr. James Steele, S.N.F.C. Manager, Dept. of Biology, San Francisco State University, 1600 Holloway Ave., San Francisco, CA 94132.

**Alaska Mushroom Study Tour:** Lead by Gary Lincoff, Dr. Andrew Weil, and Emanuel Salzman, August 5-17, 1987. Contact Fungophile, Inc., Box 5503, Denver, CO 80217/5503.

**12th Annual Northeastern Mycological Foray:** Paul Smith's College (20 miles from Lake Placid, New York, in the Adirondack Mountains), August 20-23, 1987. Call (516) 867-0826.

**7th Annual Telluride Mushroom Conference:** Telluride, Colorado, August 27-30, 1987. Contact Fungophile, P.O. Box #5503, Denver, CO 80217-5503, phone (303) 296-9359.

**PSMS-Lewis County Foray:** Cispus Environmental Center off U.S. Hwy 12 near Randle, WA, October 2-4, 1987. Reserve time now. Details available in late May. Members of other mycological societies welcome.

**SUMMER SOCIAL****Dennis Bowman**

With so many people expressing interest in having a picnic or other social get-together this summer, probably in July, I am looking for a small group of assistants to help make it happen. (Without assistance, it won't happen.) Please call me at 525-8399 and help plan a fun day for the Society.

**THE GILLED MOREL****Dick Sieger**

*Morchella pseudoserious*, a new and unusual morel, was recently discovered in north King County. It is described by Caveat Gustator in the *Journal of Provisional Mycology*, April 1, 1987.

*Phylloporus rhodoxanthus* is called the gilled bolete because, except for its gills, it has all the characteristics of *Boletus*. Likewise, *Morchella pseudoserious* is the gilled morel because, except for its decurrent gills, it has all the characteristics of *Morchella*.

The microscope reveals some interesting features of gilled morels. Asci are borne on robust basidia. Operculi are displaced toward the center of the asci which are shaped like little Trident submarines. The operculi fly open like tiny hatch covers and ascobasidiospores are blown out in a mushroom cloud.

*M. pseudoserious* and some other Discomycetes hiss when their spores are released in a puff. Spore discharge from *M. pseudoserious* is stimulated by a weak solution of uric acid. A loud whistle, caused by application of uric acid solution, led to the discovery of *M. pseudoserious* behind a large tree. After you take a long coffee break in the forest, step behind a tree and listen. You may find one too!

**UPDATE ON THE BUILDING FUND DRIVE**

**APRIL 1987**

We now have about \$1000 in our building fund. We need \$25,000 to provide a permanent home for the Puget Sound Mycological Society at the University of Washington's Center for Urban Horticulture.

These businesses have offered to help us reach our goal:

Frank Occhiuto, associated with Richard James Realtors, will donate \$100 for each home listing referral received from a PSMS member that results in a sale or for each purchase of a home involving members or referrals by a member. Call Frank at 487-1072 (home) or 771-6444 (office).

David Hawkinson, associated with the firm Federal Properties, pledged 10% of his commissions for similar referrals. Call David at 632-8833 (office) or 632-7335 (home).

VIP Travel of Bellevue has arranged with Lori Knox to donate part of its commissions on travel by PSMS members. Call Joyce Glazier at VIP Travel, 646-3003 or Lori, 789-8156.

Paul and Grace Jones have arranged for a \$25 donation for a tour of a membership campground by a PSMS member. \$50 will be given for a sale to a PSMS member. Call Paul or Grace at 772-5024 for a recommendation form.

Many fund raising ideas have been suggested, and we are looking for more ways to achieve our \$25,000 goal. Contact Ernie Boa, 868-5857, or Frank Occhiuto, 487-1072, with your ideas. Also, their committee needs help.

Some ideas suggested to date include

- Having members in each area arrange a combined garage sale
- Making a mushroom quilt and raffle it away at the Exhibit
- Making other items to sell at a bazaar or boutique at the Exhibit
- Selling tickets to the public for a 14-course Chinese banquet
- Holding family-size mushroom dinners with volunteer help
- Holding an educational mushroom foray, perhaps at Cispus
- Having a tablecloth-signing party (like Pike Place Market tiles)
- Printing note paper with six designs from our 1984 Exhibit poster
- Asking Kit Scates to give another mushroom identification seminar

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Puget Sound Mycological Society  
c/o Center for Urban Horticulture  
University of Washington GF-15  
Seattle, WA 98195



\_\_\_\_\_ I AM ENCLOSING A DONATION OF \_\_\_\_\_

\_\_\_\_\_ I WOULD LIKE TO HELP THE BUILDING FUND COMMITTEE

\_\_\_\_\_ I WROTE A FUND RAISING IDEA ON THE BACK OF THIS SLIP

NAME \_\_\_\_\_ PHONE \_\_\_\_\_