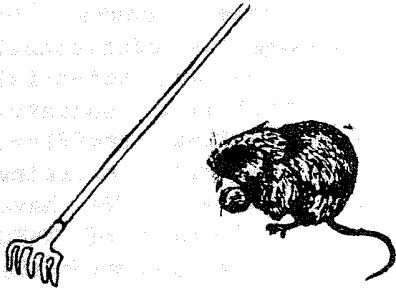


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NATS CURRENT NEWS

Monthly publication for  
THE NORTH AMERICAN TRUFFLING SOCIETY, INC.  
P. O. Box 296  
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April 1988

Editor: Pat Rawlinson

Vol. 6 No. 4

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President, Portland Chapter: Dan Wheeler, 7714 SE Stephens, Portland, OR. 97215; 774-0223  
Newsletter Ed: Pat Rawlinson, 34197 NE Colorado Lk Dr, Corvallis, OR. 97333; 752-2243.

FORAY, Saturday, April 2, 1988, to Cascade Head, Lincoln County, Oregon. Meet at Benton Center, 630 NW 7th, Corvallis, OR., at 8:00 A. M. Dress for the weather(that means rain gear for the coast!) and bring a lunch.

We will meet at the junction of Hwy 101 and Cascade Head Road, about 12 miles north of Lincoln City, OR., at 10:00 A. M. Look for the cars with NATS signs in the windows.

We hope to see many of our coastal members at this foray. There will be plenty of truffles to find, the view is terrific, and we always have a good time!

For more information, call Steve Morgan, Brownsville 466-5206.

Steve Morgan  
Trufflemaster

MEETING, Monday, April 4, 1988, 7:30 P. M., Large Conference Room, Forest Sciences Lab(FSL), 3200 Jefferson Way, Corvallis, OR.

Dr. William C. Denison, Botany Dept. at OSU, will speak on "Lichens in Air Quality Monitoring."

A tutorial session on use of the microscope will precede the meeting

at 6:30 P. M., conducted by Dr. Steven Miller. This will be a good opportunity to learn to use the microscope, and to identify your truffle finds. Bring fresh truffle samples if possible.

For more information, call Thom O'Dell, 757-4379.

Thom O'Dell  
Vice President

PORTLAND CHAPTER NATS

For information about the foray and meeting, contact President Dan Wheeler, 774-0223.

PRESIDENT'S COMMENTS

In the interest of maintaining an active, cohesive society, and to plan for the expansion in interest and new members that has already overtaken us(thank you, thank you!), we are announcing the creation of special interest groups in the truffling society(please note that some of the committees are already in existence, but are being handled by only one or two individuals). Suggestions that have been passed along to me include committees on:

**CULINARY USE:** this would include the collection, verification, and possible improvement of new or recently uncovered truffle recipes. In the future this might also involve work on revisions of The Cookbook of North American Truffles edited by Karan and Frank Evans.

**NON-CULINARY USE:** (Thanks to Thom O'Dell for this information) Any use of truffles except as food qualifies. Taxonomy, photography, and poetry are three examples which give an idea of the range of possibilities. Mike Castellano told us of another, enhancing plant growth, at the last meeting. Two more intriguing potential uses for truffles are as medicine and in arts and crafts. No medicinal uses exist yet but, since many other fungi have been shown to have potent immune-stimulating and anti-cancer properties, it's certainly worth investigating. The one truffle that I know has been tested for a craft purpose, Rhizopogon parksii Smith for dying wool, worked admirably; Noreen Wedam may have tried some others of which I'm unaware. Lots of epigeous fungi make great dyes and I think that systematically testing more truffles is a worthwhile project. Fungi have also been used to make paper. I'm curious as to whether or not this would work with truffles. As you can see, this special interest area has unlimited possibilities. If you have other ideas or want to try some of these, let's arrange a time to meet for discussion.

**LIBRARY:** NATS has accumulated an impressive collection of scientific articles, recipes, newspaper articles, reference books and much more on truffles. To properly maintain this library, obtain additional information, and interact with individuals who would like to utilize the material requires a concerted effort. John Rawlinson is currently acting librarian.

**CONSERVATION AND COMMERCIAL USE:** this committee would be responsible for keeping up to date on legislation, techniques, sale, possible overpicking and conservation of truffles and wild edible mushrooms.

**EDUCATION:** this committee would be responsible for creating new educational material that informs new and potential members about the truffling society, good techniques for finding truffles, and to continue to provide exciting displays at mushroom shows. We have decided to produce a videotape of NATS to loan to interested groups, much the same as our slide presentation is handled now.

**IDENTIFICATION:** this committee would work closely with scientific advisors to focus on identification of truffles, and possibly constructing keys to common species that occur in our area. The committee would also work closely with the education committee.

**DATA BASE:** the NATS data base of all finds is one unique feature that no other society has, but because of its size it requires considerable attention.

**MEMBERSHIP:** this committee is responsible for handling dues collection, and for sending out the packet of introductory information. This is being handled by Vern and Verba Moore, who do a marvelous job!

**NEWSLETTER:** this committee is responsible for collecting and editing information for insertion into, typing, printing and distributing the NATS CURRENT NEWS. Distribution constitutes folding, stapling and labeling for bulk mailing. We are proud to say that we have well over 300 members now, so this is no small task. Pat Rawlinson has served faithfully and flawlessly as editor for several years now, and aside from many welcome contributions in the form of articles, poems and cartoons, has performed all of the work alone!

I am asking for volunteers to spearhead a committee that you are interested in, or to participate in one or more of the committees. Of course, these committees are informal, and not meant to segregate the society, but rather to provide a means of sharing interests and responsibilities that we can all benefit from. So come on out and enjoy the fun of NATS-I guarantee that it will be worth it!!!

Steve Miller  
NATS President

TRUFFLE OF THE MONTH

Melanogaster spp.

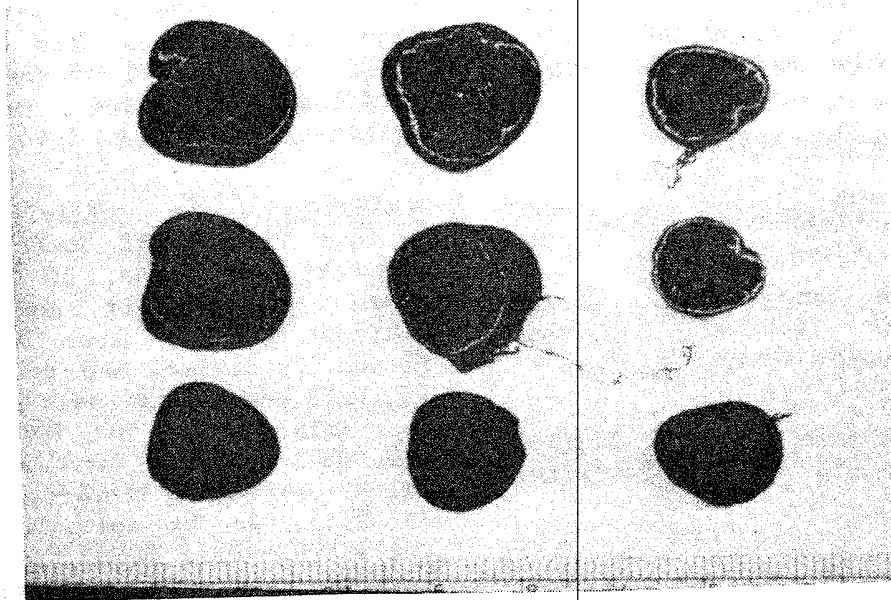


Photo by Dr. James Trappe

ORDER: Gasteromycetes

DESCRIPTION

By Dr. Steven Miller

ETYMOLOGY: "Melano", referring to the black coloration of the mature gleba.

BASIDIOCARPS: 1-3 cm in diameter, subglobose or ovoid.

PERIDIUM: surface dry, felted to velutinous when young, in age smooth or unpolished; pale yellow, pale orange-yellow brown when young, then brown to dark brown or reddish brown; in cross-section 0.7-1.5 mm thick, concolorous with the surface or with an inner layer of white or pale yellow.

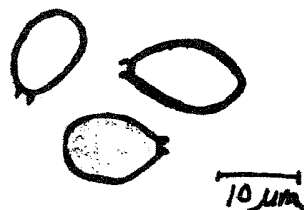
GLEBA: pitted to subloculate in youth, then appearing solid, but with large chambers filled with sticky, gel-like material surrounded by well demarkated veins of sterile tissue; firm, rubbery when young, gelatinous in age; white to pale yellow at first then locules becoming dark brown, reddish brown and finally black; sterile veins usually white to dull yellow.

ODOR: strong, reminiscent of latex paint.

HABITAT AND DISTRIBUTION: species in this genus occur in a variety of habitats from high elevation true fir stands, to montane pine stands or coastal areas in association with live-oak.

COMMENTS: the genus is usually easily recognized by the black, gel-filled locules in the gleba and strong odor, but it is more difficult to identify the species. Further research is needed on fresh specimens and host distribution to be able to confidently distinguish the species.

Melanogaster intermedius Spores:  
Smooth with thick walls



**EDIBILITY:** Edible, excellent to choice. It is quite strong, so a little goes a long way. Always clean the truffle thoroughly, and peel carefully before using. The peridium is bitter. This truffle is especially desirable grated over pasta, scrambled eggs, or used in truffle butter and cream cheese.

Melanogaster intermedius Butter  
Anna Marin

One medium truffle, cleaned and peeled  
1/4 pound softened butter

Grate the truffle very fine. Blend well with butter. Let sit at room temperature for several hours for flavors to blend.

Use on baked potatoes with a little cheddar cheese, or try on your favorite vegetable.

MUSHROOMS AND TRUFFLES OF THE PACIFIC NORTHWEST. Dr. Steven L. Miller will be offering a course on "Mushrooms and Truffles of the Pacific Northwest," through Linn-Benton Community college, this spring. The class will meet for 10 weeks, 7-10:00 P. M., Tuesday evening starting March 29, 1988, room 219, Takeena Hall on the Albany, OR. campus. Cost is \$30.00. Register early or come to the first meeting and register there. At least one field trip is planned, and depending on the weather, there may be more.

MEET YOUR OFFICERS

NATS Secretary, Betty Smith, first became interested in the out of doors by collecting, identifying and pressing wild flowers in the country lanes of England where she was born. Over the next few years she traveled extensively until she settled in the Willamette Valley in 1970.

An interest in collecting mushrooms led to Betty's becoming a NATS member. Her position as an investment executive with a bank in Eugene keeps her very busy, but she still makes attending forays and participating in the educational aspects of NATS a priority in her life.

Other interests are a son and two daughters who are often amused at Betty's varied interests but always supportive of her "idiosyncrasies." And the apples of her eye are two granddaughters, Jennifer and Sarah, who live in Redlands and think Grandma Betty is wonderful whether she's raking truffles, attending jazz festivals, or giving seminars on investments.

MYCOLOGIA, the official publication of the Mycological Society of America, Jan-Feb 1988 issue, is a very special issue in that it contains articles written by Dr. James M. Trappe, Dr. Steven L. Miller, and Dr. E. J. Trione, all NATS members in their spare time!

This issue of MYCOLOGIA is in the NATS library and may be checked out by contacting librarian John Rawlinson 752-2243, or by mail, P. O. Box 296, Corvallis, OR. 97333. Borrowers by mail are asked to pay postage.

NATS WELCOMES the following new members: from Oregon, Charles Fluharty, Dr. Robert E. Weimer, Gary Angelo, Corvallis; George and Harriet Schoppert, Stayton; Paul Kevin Collins, Philomath; Marge Steinmetz, Eugene. Dee Ann DeAvilla, Weed, CA.; Paul M. Brown, Pittsburgh, PA.; Brenda E. Lines, Lansing, NY.

TRUFFLING WEEK-END on Vancouver Island, Vancouver, B. C., Canada. Dates are April 22-23-24, 1988. Fee: \$57.00 (Canadian funds). Accomodations are at a camp with cabins, in a scenic setting on the island.

A deposit of \$10.00 is requested by April 10, 1988. Mail to: Dr. Shannon Berch, Dept. of Soil Sciences, University of British Columbia, Vancouver, B. C., Canada V6T 2A2.

For complete details, write to Dr. Berch at the above address, or telephone (604)228-3716.

The following article appeared in MUSHROOM, The Journal of Wild Mushrooming, Spring, 1988, and is reprinted here with permission of MUSHROOM, The Journal of Wild Mushrooming and Mike Amaranthus.

# The Fir and the Filament

Several thousand miles  
of filaments begin to radiate—

By Mike Amaranthus

**Editor's Note:** New research is redefining the relationship between forest plants and other organisms. In the process, as is made clear in this article, the fungi are coming to be seen as key players in maintaining the health of the ecosystem.

It's not much of a mountain range. It's more a seemingly endless series of ridge systems, but it's called the Klamath Mountains of Southwest Oregon.

The vegetation, too, isn't much: shrubby, dense manzanita and madrone interspersed with scattered Douglas-fir and sugar pine. Yet on this rather unremarkable piece of ground, one of nature's most spectacular biological scenarios is about to be played out.

Several times a year, when conditions are right, several thousand miles of variously colored fungal filaments begin to radiate beneath the mountain's soil surface on a journey first taken some 400 million years ago, perhaps by a marine fungus moving toward a photosynthetic alga on an ancient landscape.

When, on our mountain, the advancing filaments penetrate the outer root of a fir tree, a startling transformation takes place: A new organism — called a mycorrhiza (literally, "fungus-root") — is created from the filament and the root. It is a marriage of convenience that has shaped our modern forest environment.

The vast majority of today's forest plants form mycorrhizae with symbiotic fungi. The fruiting bodies of mycorrhizal fungi form an extensive variety of our most distinctive terrestrial mushrooms. In addition, nearly all of the below-ground fungi, the truffles, are the

fruits of mycorrhizal fungi.

Mycorrhizal fungal filaments in the soil are truly extensions of root systems and more effective in nutrient and water absorption than roots themselves. Soil materials absorbed by the filament are transported back within the root where they are translocated to the plant. In return the mycorrhizal fungus receives sugars from the plant to fuel its activities.

It is time to revise our concepts of the relationship between forest plants, fungi, and the environment. Conventional biologic theory would have us believe that evolution of land plants was driven by fortuitous and random changes in the genes of these organisms, but this explanation appears far too simplistic.

"Marriage" between fungus and plant must have played an essential role in the evolutionary step which brought aquatic plants to terrestrial surfaces. At some point in the evolutionary process, a filament penetrated into the outer cells of a primitive plant root. Once there, it accommodated itself so nicely that a new, more complex entity emerged, the mycorrhiza. The increased absorbing area provided by an elaborate system of fungal filament allowed the plant to leave the marine environment and exploit a relatively harsh soil environment.

The latest findings of mycorrhizal researchers in England indicate that fungal filaments can link up roots of neighboring trees and certain other plants. This has led to a startling discovery about plant cooperation: Different forest tree species interconnected by a lattice structure of filaments were shown to be exchanging water and nutrients via

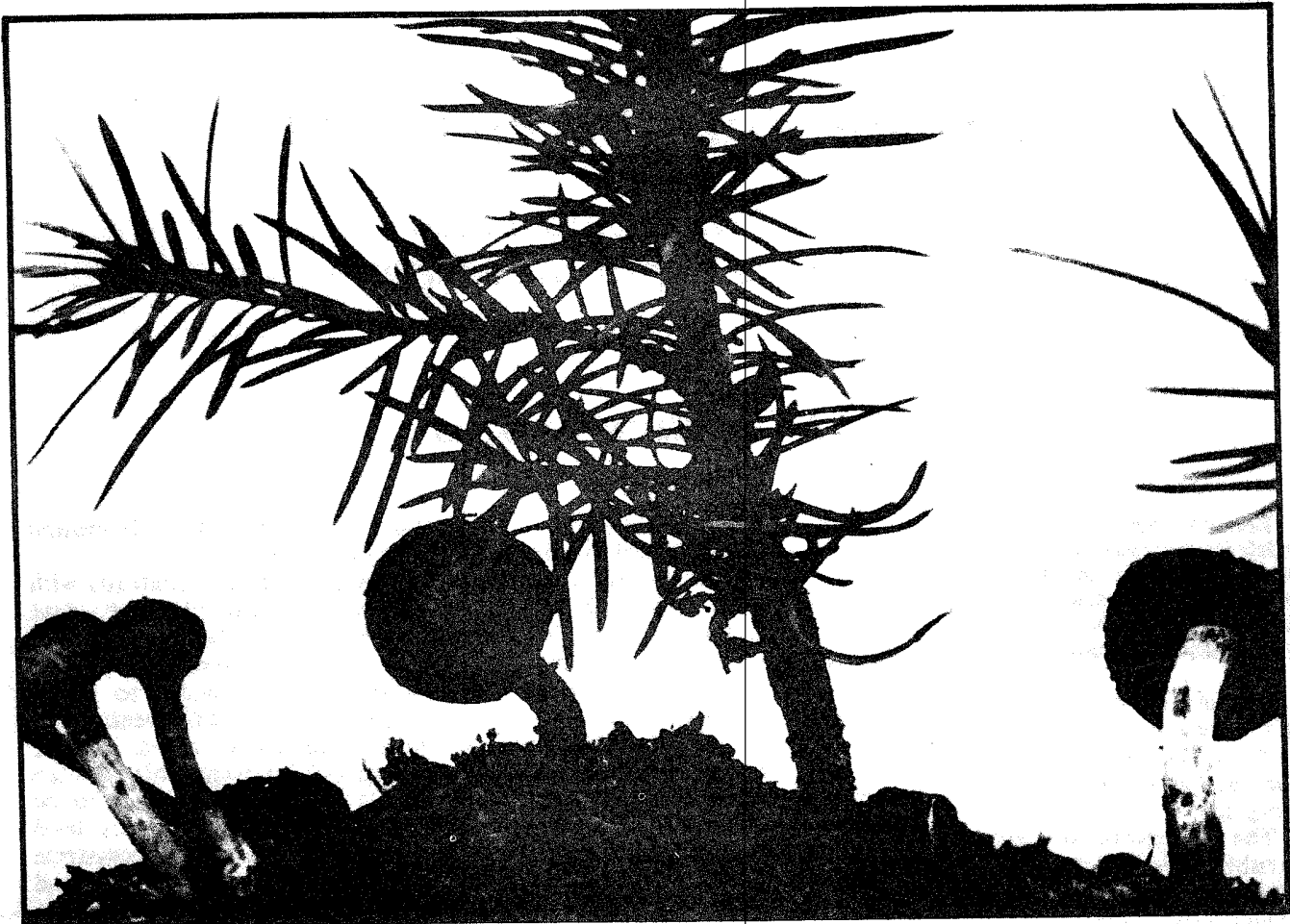
this "pipeline" of underground filaments.

This phenomenon contrasts with our conventional view of plant competition as "survival of the fittest." Tree species sent carbon, phosphorus and water to needy neighboring trees via filaments which linked the trees' roots. Simple concepts of the partnership between fungus and tree may have to be expanded to the community level where entire cooperating ecosystems of above-ground and below-ground species may have evolved together rather than as individuals.

Estimates of amounts of fungal filaments present in soil are astonishing. Several miles of fungal filaments can be present in less than a thimbleful of forest soil. Trees direct tremendous amounts of energy below-ground to support a rich assortment of fungi that benefit tree growth by decomposition, capture and uptake of nutrients, by protection against pathogens, by buffering against moisture stress and by maintaining soil structure.

The yield-enhancing attributes of mycorrhizal fungi are the product of diverse and complex interactions within natural systems whose relationships have co-evolved over millenia. Their activity is strongly interdependent. As mycorrhizae and their filaments maneuver through the soil they release many organic compounds that stimulate the growth of soil microflora such as bacteria, actinomycetes, and fungi which produce organic compounds that stimulate or repel other organisms.

Microflora also are a prime food source for "grazer" herbivores such as mites, nematodes, and springtails, which in turn fall prey to carnivorous



Certain mushrooms tend to grow near certain trees, and for good reason. Only recently have forest managers realized that the health and productivity of such large things as conifers and mammals may depend on such small things as mycorrhizal fungi. (Photos courtesy of Mike Amaranthus)

soil fauna such as centipedes and spiders. Many organisms feed on the dead remains of plants and animals that are accumulating in the soil and break down these materials into their basic components. Nutrients released by this decomposition process are absorbed by the mycorrhizal fungi and transported back to forest plants to complete the cycle.

We are, as human beings, quite impressed by the size of things. Nowhere is this more evident than in forest ecosystems. Who among us could view the centipede as being as magnificent as the bull elk? The fungal filament as being as awe-inspiring as the towering fir? Although we may never see things in this manner, certainly those small things get far less attention than they deserve.

The sizable conifer growth in managed forest stands inspires great admiration, yet the activities of

mycorrhizal fungi upon which this forest growth depends are largely unrecognized. Forest managers are beginning to realize that the health and productivity of those things large, i.e. conifers and mammals, are greatly determined by the activities and interactions of those little things, i.e. the mycorrhizal fungus. Unfortunately, their workings go largely unnoticed until the balance of the system is altered and large organisms are impacted.

In forestry we take great pride in our recent technological advances. Large sophisticated towers are used to harvest timber from our forests. Helicopters, fitted out with ignition apparatus, help in the burning of forest slash. Computers are used to determine potential outputs of forest products. Yet a fungal filament is as complex as any machine ever produced by man.

The fungi have been "engineered"

over millions of years of evolution and are constantly interacting with the fluctuating chemical, environmental, and biotic factors which surround them. These organisms contain enough genetic information to fill a university library. Each is programmed for specific activities which inevitably affect the function of those "large" forest inhabitants.

The interactions of smaller soil organisms and their forest environment were once viewed as interesting but somewhat irrelevant phenomena. Their importance in the healthy functioning of the forest ecosystem now is undeniable.

Mike Amaranthus is completing his doctorate at Oregon State University with a dissertation on "The Effect of Forest Management Activities on Mycorrhizal Fungi." He lives at Grants Pass, Ore., and is the soil scientist for the Siskiyou National Forest.

FEBRUARY 1988 FINDS

2/06/88 Michael and Elizabeth Enright's Property, Lebanon, OR.

Gautieria monticola Harkn.....	Frank Evans
Hysterangium coriaceum Hesse.....	Frank Evans
Leucogaster, immature.....	Dennis Wedam
Martellia sp., immature.....	Fred Radabaugh
Rhizopogon parksii Smith.....	Liz Enright
	Frank Evans
Tuber gibbosum Harkn.....	Vern Moore
	Dennis Wedam

2/10/88 Grande Ronde, OR.

Helvella lacunosa parasitized by Clitocybe sclerotoidea.....	Welles Bushnell
Hymenogaster parksii Zeller & Dodge.....	SAA
Rhizopogon parksii Smith.....	SAA

MARCH 1988 FINDS

3/04/88 Marks Ridge Road, Linn County, OR.

Hysterangium crassirhachis Zeller & Dodge.....	Vern Moore
--	------------

3/05/88 McDonald Forest, south slopes, Corvallis, OR.

Hymenogaster parksii Zeller & Dodge.....	Vern Moore
	Steve Morgan, Pat Rawlinson, Betty Smith
Hysterangium crassirhachis Zeller & Dodge.....	Steve Morgan

FIELD NOTES FROM WELLES BUSHNELL

One of my favorite types of truffling areas is that of mixed flora of deciduous and evergreen trees and shrubs, especially when Hazel brush and Service berry are present, although I am not sure of the significance of the latter.

This type of habitat is productive for me in early spring through summer (March-August). I have found a good number of interesting specimens in this type of area. During the fall season of the year I do not have as much success although there is Rhizopogon present at that time.

There is a special area within one of these spots where I start finding interesting specimens during the hot and dry season (July-August). This area is characterized by very thick moss on the ground and hanging on the willows and other trees and bushes in the vicinity. Wild ginger is also present, an indicator of moisture.

I have found the following species in these types of habitat:

- Barssia oregonensis Gilkey
- Choirmyces sp.

- Gautieria monticola Harkn.
- Genabia cerebriformis(Harkn.)Trappe
- Genea intermedia Gilkey
- Geopora cooperi Harkn.
- Hydnotra tulasnii(Bk.)Bk. & Br.
- Hymenogaster gilkeyae Zeller & Dodge
- Hymenogaster parksii Zeller
- Hymenogaster sp.
- Hysterangium coriaceum Hesse
- Hysterangium crassirhachis Zell.& Dodge
- Hysterangium occidentale Harkn.
- Hysterangium setchellii c. f.
- Hysterangium setchellii Fischer
- Macowanites sp.
- Martellia sp.
- Martellia brunnescens Sing. & Smith
- Melanogaster euryspermus(Z & D)Zeller
- Melanogaster natsii Wang
- Melanogaster tuberiformis Corda & Sturm
- Melanogaster sp., intermediate between  
M. ambiguous and trappei
- Radiigera sp. novum
- Rhizopogon vinicolor Smith
- Tuber murinum Hesse
- Tuber rufum Fr.
- Tuber sp., 1" grey-white
- Zelleromyces gilkeyae Sing. & Smith

NATS PHOTO PACKS

35 color photographs of commonly found hypogeous fungi. Excellent field guide.

\$15.00 ppd

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35 slides of hypogeous fungi, plus five(5) assorted slides pertaining to hypogeous fungi.

\$30.00 ppd

THE COOKBOOK OF NORTH AMERICAN TRUFFLES

This unique book is the first cookbook of North American truffles. All recipes are favorites of NATS members. Edited by Frank and Karan Evans.

\$7.00 a copy

\$1.00 postage per book

To order any of the above, mail to:

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NATS SLIDE SHOW

Complete with script, the slide show may be checked out by NATS members or mycological societies who wish to present a program on NATS and truffles. Borrower must pay postage both ways. Write to: NATS, P. O. Box 296, Corvallis, OR. 97339. Attention: John Rawlinson.

APRIL CALENDAR

April 2, 1988 - Foray to Cascade Head, Lincoln County, OR. Meet at Benton Center, 8:00 A. M. or at Cascade Head, 10:00 A. M.

April 4, 1988 - Meeting, Forest Sciences Lab, 7:30 P. M. Dr. William Denison, speaker.

April 4, 1988 - Microscope Study Course, 6:30 P. M., Large Conference Room, Forest Sciences Lab.

April 22-23-24, 1988. Truffling week-end on Vancouver Island, B. C., Canada.

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