

Newsletter of the Mycological Society of America

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— Important Dates —

June 15 Deadline:

Inoculum 57(4)

July 29-August 2, 2006:

MSA/CPS/APS Meeting,
Québec City, Québec,
Canada

August 21-26, 2006:

8th International
Mycological Congress,
Cairns, Australia

Please send the editor notices about upcoming important events.

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Myxomycetes (True Slime Molds): Educational Sources for Students and Teachers — Part I

Myxomycetes (true or plasmodial slime molds) are an ideal group of organisms for use in educational settings. The life cycle consists of animal-like, plant-like, and fungal-like phases, posing a taxonomic puzzle for more than 250 years. Consequently, myxomycetes have been classified in the Kingdoms Animalia, Plantae, Fungi, and Protista, with recent molecular evidence favoring Protista. Many myxomycete species produce colorful fruiting bodies that are seen with the naked eye in natural or man-made habitats such as decaying wood, leaf litter, garden or bark mulching, lawns, and the bark of living trees and vines. Students, teachers, and the general public quickly learn where and how to collect myxomycetes and recognize up to 50 species using picture-key field guides.

Elementary and Middle School: Slime Sleuths uses a “who done it” approach to solving the mystery of slime trails. The instructional materials are prepared for children entering 1st and 2nd grades. Children are given clues to solve a mystery of what has “slimed” the dog’s food bowl and has left a trail of evidence on the patio. The students explore the form and functions of mucous and slime based on the evidence at the crime scene. The culprits are an earthworm, a slime mold, a slug, or a snail. Some of the questions explored in relation to slime molds are: What do you know about molds and fungi? What do scientists know about slime molds? Do we have slime molds in our parks? Does a slime mold move? Does a slime mold leave a slime trail? Does a slime mold eat dog food? Could slime mold have slimed the dog food bowl? How can we use the scientific method to find out? The students use the live yellow plasmodium of *Physarum polycephalum* on agar cultures. Observations are recorded of the slime mold plasmodium, noting the feeding edge and the trailing veins that leave behind tracks or trails. The observation phase is followed by an outdoor nature hunt for slime mold plasmodia and tracks. This science learning activity is held at the River Legacy Living Science Center at Arlington, Texas. Contact information is available on the web site at www.riverlegacy.org.

Instructional materials are available at the 5th to 8th grade level (Carson 2003; de Haan 2005; Pascoe 1999; Sanderson 2006). A book entitled “Fungi” introduces a new series of Ranger Rick books that explores key earth, life and physical science, and geography concepts under the rubric of Exploring Our World (Carson 2003). They are beautiful books filled with photographs and printed in a magazine size, as well as big book size, which can be shared at the front of a classroom. Topical highlights include “Exploring for Fungi” that features the discovery of a new tree canopy species of myxomycete, *Diachea arboricola*, by Melissa Skrabal using the double rope climbing technique. Another book emphasizing the Protists highlights myxomycetes under a topical heading of Slime After Slime (Sanderson 2006). The rationale is discussed for using slime molds as experimental guinea pigs to study Alzheimer’s disease because the plasmodium has protein Hirano bodies also found in the brain of dead people. A comic strip (de

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Hann 2005) uses a humorous cartoon character “Mike the Myxo” to illustrate the myxomycete life cycle and diversity of forms and colors as instructional aids in Nature Education Centers in Belgium. These teaching materials prepared for the elementary and middle school students will pique the curiosity and interest of younger children in the myxomycetes.

High School, college, and university: A wide variety of instructional materials are available at the high school and college level. Carolina Biological Supply Company has published three educational laboratory guides for the myxomycetes in *Carolina Tips* (Bozzone 2001; Braun 1975; Register and West 1974). Different stages of the *Physarum polycephalum* life cycle are available for study from Carolina Biological Supply Company, such as the plasmodium, sclerotium, and examples of different fruiting bodies. This enables teachers and students to study live myxomycete cultures and perform simple experiments in the course of one laboratory class period. The sclerotium (resting stage) is revived by simply adding water to a Petri dish with filter paper and food such as old fashioned oat flakes. The bright yellow plasmodial stage that moves about the culture dish covering the surface in several days is easy to grow and observe. The plasmodial stage has special properties that make it an ideal experimental organism for students of all ages: after feeding on old fashioned oat flakes it can reach up to 4 to 6 centimeters in 24 hours. The plasmodium is a single cell surrounded by a membrane. The advancing anterior edge and trailing posterior veins move several millimeters in an hour so movements can be observed with the naked eye. Plasmodia exhibit reversible cytoplasmic streaming that can be timed, tracked, and tests can be performed with different chemicals or pH values. Furthermore, experiments demonstrating chemotaxis, phototaxis, and gravity are also outlined in laboratory guides (Bozzone 2001).

Myxomycetes have colorful developmental fruiting body stages that can be observed in the field over a period of 24 to 48 hours or compressed into a short time span by time lapse photography. A teacher’s guide and series of three films on slime molds prepared by J.L. Koevenig under the direction of C.J. Alexopoulos, G.W. Martin, and T.R. Porter (1961) have been used in college classes. The three films feature live action and time lapse photography, photomicrography and animation, and teach about the fascinating world of myxomycetes. Slime Mold Films I, II and III have been collected on one video (now also on one DVD), with a running time of 65 minutes. The North American Mycological Association (NAMA) Education Committee provided financial support to convert the original 16 mm films to videotape and DVD so all profits go to develop NAMA educational programs. Slime Mold tapes or DVDs will be prepared as individual orders are received, so allow extra time. Currently in stock are two tapes and two DVDs with the “official” University of Iowa label. Cost per tape is \$29.95 or \$24.95 for DVD. The regular VHS tape is in NTSC format for North America, but is available in SECAM (France and others) or PAL (Spain, Germany and others) by special order for \$46.45. All prices include shipping and a copy of the teaching guide that accompanied the original films. To order, send check or money order, payable to NAMA, to: Dean Abel, Biological Sciences 143 BB, University of Iowa, Iowa City, IA 52245.



A new tree canopy myxomycete species, *Diachea arboricola*, only known from the Great Smoky Mountains National Park.

Films on plasmodial development of *Echinostelium minutum* and *Stemonitis flavogenita* and the amoebal phase of *E. minutum* were developed by E.F. Haskins for use in research and university education (Haskins 1973a; 1973b; 1974). These films are silent and originally published in 16 mm format, now also available in VHS and DVD format by special request sent to vertrieb@iwf.de. DVD’s from the Institut für den Wissenschaftlichen Film (IWF) typically cost 37 Euro, about \$45. The film on plasmodial development of *E. minutum* is in black and white and compresses about 29 hours into 11 minutes through time lapse photography. The film of the amoebal phase of *E. minutum* compresses about 14 hours into a 12 minute black and white film. Finally, the only film in color, featuring the plasmodial phase of *Stemonitis flavogenita*, compresses almost 56 hours into 14 minutes. The content of each film is comprehensive. For example, the film of *S. flavogenita* shows mitosis in uninucleate, binucleate, four-nucleate, and multinucleate plasmodia, the growth, streaming, and coalescence of plasmodia, encystment and excystment, coralloid phase, capillitial formation, spore formation and sporulation.

Questions or comments should be sent to Harold W. Keller and Sydney E. Everhart, Central Missouri State University, Warrensburg, Missouri 64093. Email: keller@cmsu.edu and everhart@cmsu.edu.

Part II will be published in issue 57(4). All references and resource materials discussed in Part I will be included in Part II.

A Message from the Presidents

It is our pleasure to invite you to the 2006 Joint Meeting of APS/CPS/MSA in Québec City, Canada. This will be a terrific meeting venue. The planning committee, led by APS president-elect Jan Leach, has put together an excellent program with enhanced opportunities for networking with your colleagues from around the world. Jan worked closely with Tom Bruns (MSA Program chair), Jim Menzies (CPS symposium chair) and Russell Tweddell (CPS contributed papers) to integrate the program among the three societies.

Following the theme *Biological Interactions and Biological Crossroads*, the Joint Plenary Session on Sunday morning will explore the many levels on which organisms function and interact, and the richness of mycology and plant pathology as integrative disciplines. The Welcome Reception, hosted in the exhibit hall, will include desserts and coffee. The APS business meeting will be reinstated but in abbreviated format over the lunch hour. CPS will have its business meeting with a lunch like last year and MSA will host a morning business breakfast meeting. The APS Presidential Ceremony will include the awards presentation and the passing of the gavel to the incoming president, and will be followed by a party. MSA and CPS will also offer dinner and socials on Tuesday evening. Please keep your eye on the schedule so that you don't miss any of these important gatherings and opportunities for networking.

This year's expanded technical program includes symposia, discussions, and contributed paper sessions covering all areas of plant pathology and mycology. Attendees are encouraged to register in advance for pre-meeting field trips and workshops. In addition to learning and networking, be sure to include a little fun and recreation. The meeting website (meeting.apsnet.org) describes some of the cultural, historical, and natural wonders in and around Québec.

Exciting opportunities await you at the 2006 Joint Meeting. Mark your calendar now for July 29 – August 2 and plan to join colleagues from around the world as we discuss the most recent advances in the science and practice of plant pathology. This is a meeting you won't want to miss!

John Andrews, APS President
André Lévesque, CPS President
James Anderson, MSA President

*This message appeared in *Phytopathology News* and *Canadian Phytopathological Society Newsletter*.*



Scenes from Québec City, site of the 2006 joint meeting.



MYCOLOGICAL NEWS

A Mycological Expedition to the Subantarctic Auckland Islands

The Auckland Islands are located in the Southern Ocean some 350 miles south of mainland New Zealand. Discovered in 1806, the islands have a total land area of approximately 220 square miles. The main island in the group is Auckland Island, some 24 miles long and 3 to 25 miles wide. The two largest of the other islands are Adams Island to the south and Enderby Island located off the northeast tip of Auckland Island. All of the islands are of volcanic origin, and the southern and western coasts are characterized by high precipitous cliffs that make landing virtually impossible. In contrast, deep fjords that provide sheltered anchorages occur along the eastern coast. An effort made to settle the Aucklands in the mid-19th century failed because of the extreme weather conditions, and the islands have no human inhabitants except for scientists on short-term visits and occasional groups of tourists attracted by the abundant wildlife, including sea lions (Fig. 1), penguins and various other types of seabirds.

Although there are a number of fungi known from the Aucklands, no detailed study of the mycoflora has ever been carried out. During the period of March 20 to April 2, three mycologists—**Steve Stephenson** (University of Arkansas), **Gary Laursen** (University of Alaska, Fairbanks) and **Peter Johnston** (Landcare Research, New Zealand)—along with entomologists **Rich Leschen** (Landcare Research, New Zealand)



Fig. 1. Sea lions on Enderby Islands, the northernmost of the Auckland Islands.

and **Eric Edwards** (Department of Conservation, New Zealand) collected fungi, slime molds and insects on the Aucklands as the result of an expedition funded by a grant from the National Geographic Society. The visit to the island was made aboard the vessel *Tiama*, which departed from and then returned to Bluff, the southernmost port in mainland New Zealand. The *Tiama* is a 50-foot New Zealand registered expedition charter vessel constructed to operate in the Antarctic and Subantarctic (Fig. 2). **Henk Haazen**, owner and skipper of the *Tiama*, and crewman **Rob Morton** handled the logistics of the expedition and participated in some aspects of the research carried out (Fig. 3).

Collecting was carried out at 14 different landing sites that encompassed all three of the main islands along with Ewing Island, one of the smaller islands in the Auckland Island group. These collecting sites included all of the major vegetation types found on the islands, but most specimens were obtained from the *Metrosideros umbellata*-dominated forests that occur at lower elevations along the eastern coast of the main Auckland Island (Fig. 4).

More than 160 specimens of microfungi were collected during the expedition. Included among these were previously unknown



Fig. 2. The expedition charter vessel *Tiama* that served as the base of operations on the expedition. The zodiac used for landings is in the foreground.

Continued on following page

MYCOLOGICAL NEWS

pathogens of the Auckland Island endemic vascular plant *Hebe elliptica*. One of these, *Damnamenia vernicosa* (which causes a leaf spot), is the first fungus to have been reported from this plant. Most of the other microfungi collected are likely to be species also present on mainland New Zealand. Several collections were made of each of two discomycetes (*Bisporella citrina* and *Rutstroemia macrospora*) that are common on both the Auckland Islands and mainland New Zealand. These will be used for future genetic studies, to provide an initial indication of the levels of gene flow between fungal populations on mainland New Zealand and the subantarctic islands.

At least 125 specimens of myxomycetes that had fruited under natural conditions in the field were obtained at the various collecting sites, and samples of soil/humus, bark and litter were obtained for isolation of myxomycetes, dictyostelids and protostelids in the laboratory.

Macrofungi collected included 328 specimens of fleshy gilled, coral and poroid fungi (ca 95 species in 58 genera), lichenized fungi (20 species), resupinate wood-rotting fungi (ca 19 species), pyrenomycetes (ca 12 species) and a number of inoperculate discomycetes. Many of these are likely to be new records for the Auckland Islands if not for the entire subantarctic.

Approximately 1000 specimens of beetles were collected from 15 localities by hand collecting, sifting leaf litter, and beating vegetation. Several specimens of a new species of a fungus-feeding member of the Cryptophagidae (Cryptosomatulini: *Thortus* sp.) were collected. This species was known previously from just two specimens. Several specimens of a new species of *Leptusa* (Aleocharinae, Boli-tocharinae) were hand collected directly from resupinate polypores, which suggests that this species may be partly associated with fungi. Large flightless weevils were collected only on the two islands (Ewing and Adams) that are free from introduced predators (pigs, mice and rats).

All members of the expedition agreed that it was an extraordinary experience. The data represented by material collected on the Auckland Islands will be added to that already available for two other subantarctic islands (Macquarie and Campbell). Stephenson and Laursen collected on Macquarie Island in 1995, and all five of the participants in the recent expedition to the Aucklands had an opportunity to collect on Campbell Island in 2000. They hope to carry out an expedition to another region of the subantarctic (a select group of islands off the southeastern tip of South America) at some point during the next two or three years.

—**Steven L. Stephenson**
slsteph@uark.edu
and **Gary A. Laursen**
ffgal@aurora.alaska.edu



Fig. 3. Participants in the expedition to the Auckland Islands. L to R: Steve Stephenson, Rob Morton, Eric Edwards, Rich Leschen, Henk Haazen, Peter Johnston and Gary Laursen.

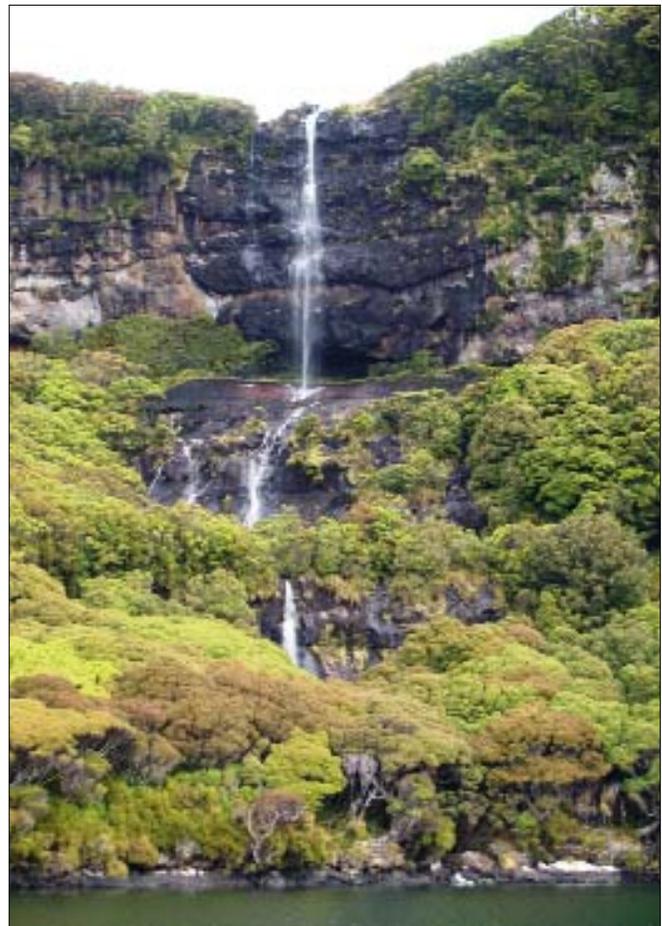


Fig. 4. Waterfall Inlet on the eastern coast of Auckland Island. *Metrosideros umbellata*-dominated forests are the predominant vegetation.

MYCOLOGICAL NEWS

Symposia, Workshop at Quebec Meeting

As the American Phytopathological Society's affiliate representative to MSA, I am truly looking forward to the interactions among mycologists and plant pathologists at the joint annual meeting in Quebec City, July 29 – Aug. 2, 2006.

The Mycology Committee of the American Phytopathological Society is co-sponsoring several sessions at the meeting, and I would like to pass along brief descriptions of two of the many interesting symposia:

"Culture Collections in the Genomics Age." This symposium will bring experts from different culture collection organizations to provide perspectives and prospects on how to benefit from recent technological advances in modernizing and strengthening culture collections.

"The Role of Fungi in Science and Human Affairs." This session presents historical perspectives on mycology and plant pathology. Amy Rossman is one of the invited speakers, and her topic will be: "A brief history of systematic mycology in the United States with emphasis on invasive fungi."

I would also like to invite you to participate in a work-

shop organized by the APS Teaching Committee: *"Syllabi: What Are Needed in Them and How Can I Improve Mine."* This free workshop / discussion is designed to help current and potential faculty to develop, evaluate, and improve course syllabi. Please bring your syllabi with you – experienced faculty are encouraged to share their expertise during the discussion session, and graduate students and new faculty are invited to participate. **(NOTE: This workshop is now scheduled for Monday morning, July 31. Early meeting publicity materials from APS may indicate this is a Saturday workshop – this has been corrected in the online schedule, and there is no fee for this workshop).**

Please confirm times of all sessions in the final meeting schedule, which is available online at meeting.apsnet.org/ and in the meeting packet you will receive at registration. See you in Quebec City!

—Carol Stiles

APS Affiliate Representative to MSA
cstiles@ufl.edu

Two Websites Providing Access to Mycological Literature

Two long-standing MSA members, Dave Minter and Paul Kirk, are working together to provide mycologists with on-line access to important literature. Two websites, Cyberliber (www.cybertruffle.org.uk/cyberliber/index.htm) and Libri Fungorum (194.203.77.76/LibriFungorum/Index.htm) collectively already make freely available on-line over 50,000 pages from mycological publications, including the first 17 volumes of Saccardo's *Sylloge Fungorum*, all of Petrak's Lists, substantial amounts of the *Index of Fungi*, all of Zahlbruckner's *Index Lichenum Universalis*, Lindau &

Sydow's *Thesaurus*, all of the sanctioning works by Persoon and Fries, and the first 27 volumes of *Mycotaxon*. In addition, Cyberliber provides a searchable and browsable bibliographic database containing about 50,000 records of mycological works. New material is continuously being added: it is hoped that, before the end of 2006, several more volumes of Saccardo and *Mycotaxon*, several volumes of Sydowia, all of Grevillea and all of Ciferri's supplement to Lindau & Sydow's *Thesaurus* will have been added.

Jack Rogers Receives Award

Professor Jack D. Rogers was awarded the Eminent Faculty Award from Washington State University at a special ceremony on March 24, 2006. Dr. Rogers is the sixth recipi-

ent of the award, the most prestigious given by the University. Dr. Rogers is a past president of MSA.

MSA Foray Information for the Quebec Meeting

This year's foray will be hosted by the local mushroom club (CMAQ). The selected sites are near Beauport, a site recognized for its diversity of mushrooms and fungi, and the Domaine Maizeret, where lunch will be served. The sites are mixed forests with young and mature forest stands. Registration is now open at meeting.apsnet.org. Both the online and paper registration is available. Registrations made online receive a \$25 discount. For questions, contact **Paula M. Trenda** at 651.994.3848 direct. The foray will be held on Saturday, July 29 from 8:00 a.m. - 4:30 p.m and is sponsored by Mycological Society of America. There be a \$50 registration fee for attending. (**Donald G. Ruch**, Foray Coordinator, druch@bsu.edu)

MYCOLOGICAL NEWS

Minter Elected to the Cuban National Academy of Sciences

David Minter, an MSA member of more than 25 years standing and one of the senior mycologists at CABI (formerly the International Mycological Institute), was admitted to the Cuban National Academy of Sciences as a Corresponding Member in December 2005. Like the USA's National Academy of Sciences, this Academy also serves as the national advisory group on matters of science, and membership is a high honour very rarely accorded to foreign nationals. Dr Minter is believed to be the only mycologist member of this academy, and perhaps the only UK citizen to be admitted in its 150 year history. The honour recognized a decade of scientific results by a Cuban-British team working on fungal biodiversity studies in the Caribbean, and formed an expression of appreciation for the close collaboration with Cuban mycologists and continued support of Cuban mycology which that work entailed. As one of only a very small number of MSA members active in this biologically phenomenally wealthy country, Dr Minter wishes to emphasize that he is happy to assist in the promotion of good science, goodwill and stronger connections between mycologists in Cuba and their counterparts on the North American continent. The accompanying photo-



Dr. Pastrana presents membership certificate to Dr. Minter.

graph shows Dr. Sergio Pastrana, Foreign Secretary of the Cuban National Academy of Sciences, presenting Dr Minter with his certificate of membership.

—*Mayra Camino Vilaró*
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Undergraduate Receives ASB Awards

The Association of Southeastern Biologists (ASB) held their 67th Annual Meeting at Gatlinburg, Tennessee March 29-April 1, 2006 hosted by The University of Tennessee, Knoxville. Research presented as oral platform presentations were represented by 272 abstracts organized into two symposia and 26 paper sessions. Poster and poster abstracts (171) were published in Southeastern Biology Volume 53, Number 2.

Angela R. Scarborough, undergraduate student in the Department of Biology, Central Missouri State University received the Quarterman/Keever Award. The "official" name for this award is the **Elsie Quarterman-Catherine Keever Award**. It is given by the Southeastern (SE) Chapter of the Ecological Society of America (ESA) for the best ecological poster presented by a student at the annual meeting of the Association of Southeastern Biologists (ASB). This award was given for the first time in 2005. Both undergraduate and graduate students are eligible; the student must be the sole or senior author. The poster must deal with a clearly ecological topic and should represent substantially completed work. It is to be presented in a regular contributed poster session. The award carries with it a cash prize of \$300 and an engraved

plaque, which comes from voluntary contributions from members of the SE Chapter of the ESA, as well as any other interested supporters.

Scarborough, A.R. 2006. Tree Canopy myxomycetes: patterns of distribution. Southeastern Biology 53 (2): 299-300. (Poster Presentation).

The Association of Southeastern Biologists Award in Microbiology is sponsored by the Thomson Learning Brooks/Cole Publishing Company, Belmont, California. This award recognizes an undergraduate or graduate student for an especially meritorious oral presentation of research results in the broad area of Microbiology. The recipient (Angela R. Scarborough) received a check for \$500 and a plaque with her name engraved on it.

Scarborough, A.R. 2006. Species assemblages of tree canopy myxomycetes related to bark pH. Southeastern Biology 53 (2): 79-80. (Oral Platform Presentation).

Harold W. Keller served as the research mentor. More information about this tree canopy project is available at this web site address faculty.cmsu.edu/myxo/.

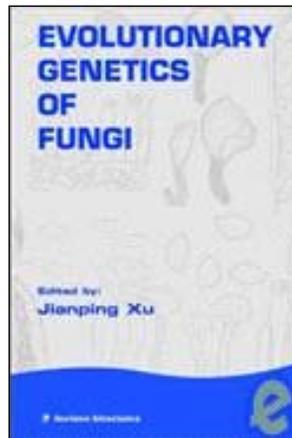
MYCOLOGIST'S BOOKSHELF

Three books are reviewed below. Two new books and two CD publications have been received since the last Mycologist's Bookshelf. Many previously published books are listed with a note at the end indicating their availability for review. If a review is needed and you would like to review it, just send an email. I will send you the book, you write the review, and then you can keep the book. All requests for books to review should be sent to Dr. Amy Rossman at arossman@nt.ars-grin.gov.

Evolutionary Genetics of Fungi

Evolutionary Genetics of Fungi. 2005. J. Xu (ed) Horizon Scientific Press, 270 Madison Ave. New York, NY 10016, email: spoor-nam@taylorandfrancis.com. ISBN 1-904933-15-7. 345 pp. Price: \$173.00.

This edited volume covers a range of current topics under the general subject of the evolutionary genetics. The overview chapter on molecular systematics by Jean-Marc Moncalvo is a useful review of the latest development in knowledge about the phylogenetics of all groups of fungi. This chapter will help specialized workers update their knowledge on this subject. While he also touches on species concept, this topic is not dealt with in depth. Several of the chapters in this volume are concerned with medical mycology dealing with fungi such as *Candida albicans* and *Cryptococcus neoformans* and subjects such as antifungal resistance. These chapters will appeal primarily to medical mycologists. Tim James chapter concerns the phycomycetes in a very broad sense including the Oomycota, now known to be unrelated to the true Fungi,



and the Chytridiomycota, Zygomycota and Glomeromycota. Although these organisms studied by mycologists are phylogenetically unrelated, James provides an excellent review of these diverse fungi previously classified as one group. One chapter by Jianping Xu examines the various approaches that are used to understand molecular population genetic analyses including methods for genotyping fungi to population genetic analyses. This review will be useful to those just starting to undertake research in this field. While valuable and interesting, Zhu L. Yang's chapter of diversity and biogeography of higher fungi in China seems out of place in this book in which most of the fungi considered have been dealt with in the laboratory. Additional chapters address fungal mitochondrial inheritance and evolution, spontaneous mutations in fungi, and signal transduction in *Cryptococcus neoformans*. Each of the chapters in this volume is well referenced and thus will provide the means to seek additional knowledge in the subjects addressed in each chapter. While it is difficult to determine the target audience for this publication, one can appreciate the range of research considered under the evolutionary genetics of fungi.

— Amy Y. Rossman

Book Review Editor

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Biodiversity of Fungi: Inventory and Monitoring Methods

Biodiversity of Fungi: Inventory and Monitoring Methods. 2004. G.S. Mueller, G.F. Bills, & M.S. Foster (eds). Elsevier Academic Press, Burlington, MA, www.elsevier.com, ISBN 0-12-509551-1. 777 pp. Price: \$99.95.

Fungi seem to be the last unknown frontier among the different living kingdoms, yet they play important roles both in ecosystems and human societies. Some fungi function as decomposers cycling nutrients, while others act as pathogens or serve in symbiotic relationships. Many are used in industrial, agricultural and pharmaceutical fields. So why is it that such an important taxonomic group is not as well known as other groups? Of the estimated 1.5 million fungi, less than 5% have been described. It could be because fungal species comprise some of the most complex life histories yet only a

small proportion of species, most of which are directly linked to humans, have been well studied. Given the importance of the fungi and our lack of knowledge, the first tasks of those who study fungi are to collect, identify, and discover their natural histories so that we can apply this information to ecological, agricultural, evolutionary, and physiological studies.

Fortunately, about ten years ago, a group of scientists recognized this problem and set about creating a compendium of methodologies for studying fungal diversity. Two years ago, the final product appeared as a heavy volume with contributions from 88 authors collaborating on 26 chapters with four appendices.

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MYCOLOGIST'S BOOKSHELF

Biodiversity of Fungi is divided into three major sections. The first presents an overview of fungal biology: overall taxonomy, general collection, preservation and culturing methods, database management, and a basic primer on diversity metrics as well as a chapter addressing molecular techniques that can help in the identification of fungal species. These chapters present very general information and seem to be designed as a starting point into the different areas they address. The second section is cleverly divided. Instead of presenting chapters addressing specific taxonomic groups, the editors group sampling methods based on either the natural history of the fungi or the habitat on which the fungi are found. The sampling protocols are divided into four general groups: (1) macro- and microfungi from different substrates, (2) culturable microfungi associated with plants, (3) fungi associated with animals, and (4) aquatic fungi and prototistsans.

Each chapter contains information on collecting and preserving methods, although the organization varies among chapters. The depth and detail of each chapter seems to vary with the amount of information available for each group. For example, the chapter on terrestrial and lignicolous fungi (Chapter 8) addresses those species that produce large fruiting bodies considered the most conspicuous and charismatic species, combining ascomycetes and basidiomycetes, which would be dealt with separately in other textbooks. This chapter focuses on identification methods of the fruiting bodies, and provides great detail. Alternatively, the chapter on yeasts (Chapter 16) seems to be limited, and it is unclear whether it is because of little information available on naturally occurring yeasts or because there is not much known about them. One of my favorite chapters deals with fungal predators (Chapter 19) where small invertebrates such as nematodes and rotifers are prey. This chapter presents information for culturing the bait with the fungi allowing for staged encounters.

The third and last section consists of the appendices, which are highly detailed sources of information divided into

four parts: (1) moist chamber designs; (2) a list of formulae for agar and other mediums used to isolate fungi; (3) a list of institutions with large fungi collections and fungus-related websites; and (4) a list of companies that manufacture equipment useful for the mycologist. These appendices complement the methods presented by offering links to other resources (although I question the relative longevity and permanence of vendors and some websites). Finally, an illustrated glossary is available in order to identify the different morphological features used in describing and identifying fungi.

In order to fully understand biodiversity, we first need to understand the biology of the organisms in question; the first step is learning how to collect, identify and preserve specimens in collections. Mycological studies in ecology, biodiversity and evolution are underrepresented in the literature because of the problems associated in collecting and identifying fungi. Even though *Biodiversity of Fungi* is filled with technical information, its language is simple and the content easy to read, therefore, both amateur and academic mycologists can use this book. Each chapter serves as a reference or starting point, making the book useful for field or laboratory courses. The text is complemented by good illustrations and photographs, which aid in the identification of specimens. The content seems well researched; therefore the gaps in missing knowledge could be used as goals for future studies. This book provides the tools necessary to address fundamental questions about biodiversity of fungi and will have a large impact on the scientific community. Therein lies a challenge. I can easily envision a second volume in five or ten years that addresses evolutionary, ecological and other physiological processes of fungi.

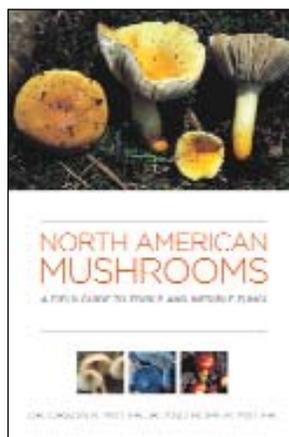
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North American Mushrooms: A Field Guide . . .

North American Mushrooms: A Field Guide to Edible and Inedible Fungi. 2006. OK Miller, Jr., HH Miller. Falcon Guide, Globe Pequot Press, Guilford, CT and Helena, MT. www.falcon.com. 592 pages. Price: \$25.95 US / \$35.95 Canada.

When published in 1973, Orson Miller's *Mushrooms of North America* was one of the first "modern" field guides to macrofungi. It became an in-



stant hit due to the quality and number of color illustrations, keys, and concise diagnostic descriptions. This classic book has now been revised and greatly expanded by Dr. Miller and his wife Hope Miller as *North American Mushrooms: A Field Guide to Edible and Inedible Fungi*. They used the same formula that made the original a success, but expanded the number of species covered, updated nomenclature, enhanced the discussion after each species, improved the illustrations, and updated the sections on ecology and toxicology. In short, they made a great book even better.

The book's nearly 700 color illustrations and descriptions (increased from 292 in *Mushrooms of North America*) treat a broad range of commonly encountered macrofungi,

Continued on following page

MYCOLOGIST'S BOOKSHELF

including some not normally included in field guides. A number of additional species are included in the keys and under the comment sections of illustrated taxa, e.g., 16 *Mycena* species are covered in the key with ten of them illustrated and fully described. Keys to major groups, genera, and included species work well and are a terrific feature of the book. There are 12 plates of beautiful line drawings that illustrate the major groups of fungi covered making it easy for the reader to know the differences between fleshy mushrooms with lamellae and tooth fungi. The illustrated glossary focuses on gross morphological characters and it will prove useful for novices. The "traditional" glossary covers most of the terms used in the descriptions, but I wonder if some of the jargon in the descriptions could have been toned down, making such a complete glossary less necessary. The sections on ecology, toxicology, and the detailed bibliography provide the information needed for novice mushroom hunters to confidently begin searching for wild mushrooms. Most of the photos are fantastic and highly informative. This book does not have the diagnostic features prominently highlighted at the top of the description as was done in the original version. Unfortunately, it uses the same headings for the major taxonomic groups as in the original book: Basidiomycetes, Gas-

teromycetes, Heterobasidiomycetes, and Ascomycetes. Why the gasteromycetes and jelly fungi are separated from the Basidiomycetes I do not know, but I predict that more than one reader will be confused by this treatment. I found a few misspellings plus capitalization and punctuation errors, and occasionally questioned the choice of words or terminology, e.g., using saprophytic rather than the currently accepted saprotrophic, treating the Hartig net and mantle as one structure in ectomycorrhizas, stating that plants make "carbon" through photosynthesis, saying that spores are developed in sacs in puffballs (I always think of spores in sacs as asci), etc. The vast majority of readers will not even notice these items, yet these inconsistencies from typical usage of terms could cause confusion in users that refer to other literature. But these are all minor issues, and they do not detract from the overall quality and utility of the book.

North American Mushrooms is destined to join its predecessor as a "must-have" field guide; one that is essential to have as part of the book collection of everyone interested in collecting, photographing, or simply learning about mushrooms.

— **Gregory M. Mueller**
Department of Botany
The Field Museum
Chicago, IL

BASIDIOMYCETES



Omphalotus illudens (Schwein.) H. E. Bigelow
POISONOUS

Pileus 7–11 cm broad, convex to plane, depressed in center, often with a shallow umbo, bright orange to orange-yellow, smooth, streaked with flat fibrils, margin inrolled, nearly even in age, dry. Flesh thin, firm, white, tinted orange. Lamellae decurrent, close, yellow-orange, luminescent in the dark. Stipe 5–18 cm long, 0.5–2.3 cm wide, tapering to a narrow base, light orange, minutely downy or somewhat scaly in age, even, dry. Odor unpleasantly sweet. Taste not recorded.

Spores 3–5 µm globose, smooth, entire, thin-walled, nonamyloid. Spore print creamy white.

Habit and distribution: Large dense caespitose clusters at the base of hardwood stumps or on the ground from buried roots (very often oak). Found in central and eastern North America. Fruiting in the fall.

Comments: The luminescent lamellae give rise to the name "Jack-O'-Lantern Fungus." The old name

in most books is *Clitocybe illudens* Schwein. The luminescence of the lamellae will often last 40–50 hours after collecting. It may be seen after sitting in the dark, facing the lamellae for about 2–4 minutes, sometimes 5 if the fruiting body is old. It is usually bright enough to enable one to see the lamellae clearly. *Omphalotus subilludens* (Murrill) H. E. Bigelow is found in the southeastern and southern United States but is distinguished only by using microscopic characters. The orange color and distribution in the eastern North America distinguishes this fungus from *Omphalotus olivascens* H. E. Bigelow, O. K. Mill, & Thiers, which has a brownish orange pileus and is found only in western North America. The three species are all poisonous and contain Type 8 toxins (atromentin, illudin M and S) (Kirchmair, et al., 2002). *Omphalotus olearius* (DC.:Fr.) Singer is distributed in Europe, and very closely related to our species. Is also poisonous.

AGARICS-TRICHOLOMATACEAE, GROUP V



Rhodotus palmatus (Bull.:Fr.) Maire
EDIBILITY UNKNOWN

Pileus 2–5 cm broad, broadly convex, covered with ridges and pits, pink, salmon-orange, brick-red to flesh color, margin smooth, dry. Flesh firm, pinkish buff. Lamellae adnate, close, broad, veined, pink. Stipe 1.5–3.0 cm long, 0.4–0.6 cm wide, off-center, enlarging slightly toward base, light pinkish, dry. Partial veil absent. Odorless. Taste unknown.

Spores 5–7 x 4.5–6.5 µm globose, tuberculate, entire, thin-walled, nonamyloid. Spore print cream color.

Habit and distribution: Single or several on logs and branches of hardwoods (on elm, basswood, and maple) during cool, wet weather. Found in eastern North America, rare in the southern Appalachians and southeastern United States. Fruiting in spring, summer, and fall.

Comments: We personally have never collected *R. palmatus* from Virginia, North Carolina, Tennessee, on south to Texas, but have in Kansas and Maryland. Pomerleau (1980) records it from southern Quebec, and Huffman et al. (1989) from the central United States. Since it is rare, there is no information on the edibility.



Pleurotus levis (Berk. & M.A.Curtis) Singer
EDIBLE

Pileus 10–40 cm broad, broadly convex, depressed in center, white, cream to buff, turning mustard-yellow when dry, covered with dense, short, stiff hairs (0.1–0.2 cm long), margin inrolled with fine, dense hairs, dry. Flesh tough, thick, yellowish. Lamellae decurrent, subdistant, thick, broad, white to lilac-brown with tints of gray or yellow when dried; edges smooth, not serrate. Stipe 2–15 cm long, 2–4 cm wide, enlarging toward base, eccentric to lateral, similar to the pileus. Veil absent. Odorless. Taste mild and pleasant.

Spores 10–13 x 3–4 µm nearly oblong (Fig. 4), smooth, entire, thin-walled, nonamyloid. Spore print white. Cheilo- and pleurocystidia, narrowly cylindrical to club-shaped, thin-walled.

Habit and distribution: Solitary or several together from wounds on various living hardwoods, often up in the tree. Found in eastern North America as far north as southern Quebec but also on Arizona walnut in Cochise Co., Arizona. Fruiting in the late summer and fall.

Comments: It is also known as *Panus strigosus* (Berk. & M.A.Curtis). *Pleurotus dryinus* is also white; has dense hairs on the pileus; but has a partial veil which leaves a weak annulus on the stipe. The spores are similar in size, but there are no cystidia. It is also found on the wounds of living hardwoods and conifers. Both species are infrequently found and edible only when young and soft. See comments under *Pleurotus ostreatus* in Group III.

MYCOLOGIST'S BOOKSHELF

Recently Received Books

- **Aflatoxin and Food Safety.** 2005. H.K. Abbas (ed). CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, orders@crcpress.com. ISBN 10: 0-8247-2303-1 (Hardcover). 587 pp. Price: \$178.95. *Review needed.*
- **British Fungal Flora 9 / Russulaceae: *Lactarius*.** 2005. R.W. Rayner, assisted by R. Watling and E. Turnbull. Print and Publications Section, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR, United Kingdom, paps@rbge.org.uk. ISBN 1 872291 34 1 (Softcover). 203 pp. Price: British pounds 12.50 (excluding postage). *Review needed.*
- **Fungal Flora of Taiwan, 1st Edition.** 2005. S.S. Tzean, W.H. Hsieh, T.T. Chang, S.H. Wu (eds). National Science Council, Department of Plant Pathology and Microbiology, National Taiwan University. One CD. For availability, contact the author.
- **MycAlbum CD Introductory Mycology Laboratory Review.** 2006. G. Barron. For availability, contact the author: www.uoguelph.ca/~gbarron/. Over 1,000 illustrations. 2 CDs. US \$25 plus shipping and handling for professional biologists, US \$15 plus S & H for students. An Instructor's Version US \$35 plus S & H includes an image folder with over 600 downloadable images at 800 x 600 pixels for power point presentations. *Review needed.*

Previously Listed Books

- **Biodiversity of Fungi: Inventory and Monitoring Methods.** 2004. G.S. Mueller, G.F. Bills, & M.S. Foster (eds). Elsevier Academic Press, Burlington, MA, www.elsevier.com. ISBN 0-12-509551-1. 777 pp. Price: \$99.95. *Reviewed in this issue.*
- **Common Mushrooms of the Talamanca Mountain, Costa Rica.** 2005. R.E. Halling & G.M. Mueller. The New York Botanical Garden, 200th St. & Kazimiroff Blvd., Bronx, New York 10458-5126 USA. www.nybg.org/bcsi/spub. ISBN 0-89327-460-7. 195 pp. Price: \$19.95. *Review in progress.*
- **Diseases of Trees and Shrubs, Second Edition.** 2005. W.A. Sinclair & H.H. Lyon. Cornell University Press, P.O. Box 6525, Ithaca, NY 14851, www.cupserv.org. ISBN-13: 978-0-8014-4371-8. 660 pp. plus CD. Price: \$85.00. *Review in progress.*
- **Evolutionary Genetics of Fungi.** 2005. J. Xu (ed) Horizon Scientific Press, 270 Madison Ave. New York, NY 10016, email: spoomam@taylorandfrancis.com. ISBN 1-904933-15-7. 345 pp. Price: \$173.00. *Reviewed in this issue.*
- **Flora Agaricina Neerlandica. Volume 6.** 2005. M.E. Noordeloos, Th. W. Kuyper, & E.C. Vellinga. CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, orders@crcpress.com. ISBN 9-0541-0496-1, 310 pp. Price: \$59.95. *Requested from publisher.*
- **Forest Canopies (Second Edition).** 2004. M.E. Lowman & H.B. Rinker. Elsevier Academic Press, Burlington, MA 01803, www.elsevier.com. ISBN: 0-12-457553-6. 517 pp. Price: \$79.95. *Review in progress.*
- **The Fungal Community: Its Organization and Role in the Ecosystem, Third Edition.** 2005. J. Dighton, J.F. White, Jr. & P. Oudemans. CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, USA, email: orders@crcpress.com. ISBN 0-8247-2355-4, 936 pp. Price: \$139.95. *Requested from publisher.*
- **Fungi: Experimental Methods in Biology.** 2005. R. Maheshwari. CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, orders@crcpress.com. ISBN 1-57444-468-9. 350 pp. Price: \$149.95. *Review in progress.*
- **Fusarium Mycotoxins: Chemistry, Genetics and Biology.** 2006. A.E. Desjardins. APS Press, 3340 Pilot Knob Road, St. Paul, MN 55121, aps@scisoc.org, www.shopapress.org. ISBN: 09-89054-335-6. 268 pp. Price: \$89.00. *Review needed.*
- **The Genus *Gymnopilus* (Fungi, Agaricales) in the Czech Republic with Respect to Collections from Other European Countries.** 2005. J. Holec. Acta Musei Nationalis Pragae, Series B., Historia Naturalis 61: 1-52. Available from the author (jan.holic@nm.cz) or Myriss Trade Company (myriss.myriss.cz).
- **Growing Gourmet and Medicinal Mushrooms, Third Edition.** 2000. P. Stamets. Ten Speed Press, Box 7123, Berkeley, CA 94797, www.tenspeed.com. ISBN-10: 1-58008-175-4, 574 pp. Price: \$45.00. *Review needed.*
- **Handbook of Industrial Mycology.** 2005. Z. An. CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, orders@crcpress.com. ISBN 0-8247-5655-X, 784 p. Price: \$169.95. *Requested from publisher.*
- **Hypocreales of the Southeastern United States: An Identification Guide.** 2006. G.J. Samuels, A.Y. Rossman, P. Chaverri, B.E. Overton & K. Poldmaa. CBS Biodiversity Series 4. Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands. www.cbs.knaw.nl/publications/index.htm. ISBN-10: 90-70351-59-5, 144 pp including 102 color plates. Price: €70.00. *Review needed.*
- **The Identification of Fungi: An Illustrated Introduction with Keys, Glossary, and Guide to Literature.** 2006. F. Dugan. APS Press, 3340 Pilot Knob Road, St. Paul, MN 55121, aps@scisoc.org, www.shopapress.org. ISBN 0-89054-336-4, 182 pp. Price: \$65.00. *Review needed.*
- **An Illustrated Guide to the Coprophilous Ascomycetes of Australia.** 2005. Ann Bell. CBS Biodiversity Series 3. Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands. www.cbs.knaw.nl/publications/index.htm. ISBN: 90-70351-580, 172 pp. including 32 black & white plates and 66 color plates. Price: €55.00. *Review in progress.*
- **Insect-Fungal Associations: Ecology and Evolution.** 2005. F.E. Vega & M. Blackwell (eds). Oxford University, Oxford, United Kingdom, www.oup.com/us, ISBN 0-19-516652-3, 333 pp. Price: \$49.50 (hardbound). *Review in progress.*
- **Introduction of Biodeterioration, Second Edition.** 2004. D. Allsopp, K. Seal & C. Gaylarde. Cambridge University Press, New York, NY, uk.cambridge.org/, 237 pp. Price: \$75.00 hardback, \$34.99 paperback. *Review in progress.*
- **The Missing Lineages. Phylogeny and Ecology of Endophytic and Other Enigmatic Root-associated Fungi.** 2005. Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands. www.cbs.knaw.nl/publications/index.htm. Studies in Mycology 53: 1-262. Price: €55.00. *Review in progress.*
- **Monograph of the Genus *Hemileia* (Uredinales).** 2005. A. Ritschel. Bibliotheca Mycologica 200: 1-132. www.schweizerbart.de/pubs/series/bibliotheca-mycologica-59.html. ISBN 3-443-59102-7. Price: €55.00. *Review in progress.*
- **Mushrooms: Cultivation, Nutritional Value, Medicinal Effect, and Environmental Impact, second Edition.** 2004. S.-T. Chang & P.G. Miles. CRC Press, 6000 Broken Sound Parkway, NW, Suite 300, Boca Raton, FL 33487, orders@crcpress.com. ISBN 0-8493-1043-1. 480 p. Price: \$159.95. *Requested from publisher.*
- **Mycelium Running. How Mushrooms Can Help Save the World.** 2005. P. Stamets. Ten Speed Press, Box 7123, Berkeley, CA 94797, www.tenspeed.com. ISBN-13: 978-1-58008579-3 (Paperback). 339 pp. Price: \$35.00. *Review in progress.*
- **Mycobacterium Molecular Microbiology.** 2005. T. Parish (ed.). Horizon Scientific Press, 270 Madison Ave. New York, NY 10016, spoomam@taylorandfrancis.com. ISBN: 1-904933-14-9, 351 pp. Price: \$173.00. *Review needed.*
- **Phylogenetic Relationships and Morphology of *Cytospora* Species and Related Teleomorphs (*Ascomycota*, *Diaporthales*, *Valsaceae*) from *Eucalyptus*.** 2005. G.C. Adams, M.J. Wingfield, R. Common & J. Roux. Centraalbureau voor Schimmelcultures, P.O. Box 85167, Utrecht, The Netherlands. www.cbs.knaw.nl/publications/index.htm. Studies in Mycology 52: 1-147. Price: €55.00. *Review in progress.*
- **Revised Synopsis of the Hyaloscyphaceae.** 2004. A. Raitviir. Estonian Agricultural University Institute of Zoology and Botany. Scripta mycologica 20. ISBN 9985-9293-3-0. 133 p. Available from the author (ain@zbi.ee) or from Edizione Candusso di Candusso Massimo (maxcandusso@libero.it).
- **Systematic Botany of Flowering Plants. A New Phylogenetic Approach to Angiosperms of the Temperate and Tropical Regions.** 2004. R.-E. Spichiger, V. Savolainen, M. Figeat, & D. Jeanmonod. Science Publishers, Inc. Enfield, NH 03748, www.scipub.net. ISBN 1-57808-315-X (Hardback), ISBN 1-57808-373-7 (Paperback). 413 pp plus CD. Price: \$58.00. *Review in progress.*

MYCOLOGICAL CLASSIFIEDS

Postdoctoral Positions Available in Molecular Mycology and Pathogenesis

Postdoctoral research training positions are available in multiple areas of fungal research. These positions are supported by an NIH training grant involving 25 faculty mentors at three neighboring universities: Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill. The collective faculty offer the opportunity to acquire experience in several areas of mycological research, including molecular mechanisms of human or plant fungal pathogenesis, fungi as model system organisms, fungal genomics, molecular systematics, population genetics, antifungal chemotherapy, and clinical mycology. Potential applicants may review the participating faculty and their research programs at mgm.duke.edu/microbial/training/mmptp.htm

Postdoctoral Fellows receive NIH-level stipends commensurate with their years of postdoctoral experience, funds for annual travel to scientific meetings, the opportunity to mentor an undergraduate laboratory assistant in the summer, and eligibility to apply for an NIH K22 Award. Only US citizens or permanent residents are eligible. **Application process:** Prospective applicants should contact one or more of the participating faculty members to explore the training options and develop a research plan. The completed application should include (1) a cover letter and the applicant's CV, (2) a letter from the prospective mentor(s), (3) two letters of recommendation, and (4) a one-page synopsis of the proposed research project. Submit inquiries and applications to T.G. Mitchell, Box 3803, Department of Molecular Genetics and Microbiology, Duke University Medical Center, Durham, NC 27710, or email tom.mitchell@duke.edu.

Mold Testing and Identification Services Available

Identification and contamination control for buildings, food technology, animal and plant diseases. ASTM & Mil-Spec testing for fungal resistance of materials. 10% discount for regular and sustaining MSA members. Please contact Steve Carpenter at microbe@pioneer.net or voice mail at 541.929.5984. Surface mail send to Abbey Lane Laboratory, LLC, PO Box 1665, Philomath, OR 97370 USA. For more information see www.pioneer.net/~microbe/abbeylab.html

Seminar on Myxomycetes

A week-long (July 23-29) seminar entitled "Taxonomy and Ecology of Myxomycetes" will be offered at the Humboldt Field Research Institute near Steuben, Maine, this coming summer. The seminar will be taught by Steve Stephenson from the University of Arkansas. Additional information on the seminar is available at the Humboldt Field Research Station web site (www.eaglehill.us).

Myxo Blitz 2006

During the weekend of July 15-16, an intensive collecting/educational event ("Myxo Blitz 2006") will be held in the Great Smoky Mountains National Park. This event, to be based at Purchase Knob, will bring together a group of researchers, educators, students and volunteers who will spend two days carrying out field surveys for myxomycetes in a number of localities on the south side of the Park. This portion of the Park has been understudied in previous efforts to document the distribution and occurrence of this group of organisms. Anyone who would like to have more information should contact Steve Stephenson (slsteph@uark.edu).

Free Issues of Mycologia

I have issues of Mycologia from 1964 to 1990 that I will give to anyone that will pay the shipping charges. If there is a college or university that could use them, I will pay for the shipping. Contact: Don Prusso <puffball@gbis.com>; 1130 Mesa Dr., Fernley, NV 89408

Books For Sale

- Wardlaw, C. W. 1935. Diseases of the Banana. 618 pp. (A classic)
- Wardlaw, C. W. 1961. Diseases of the Banana. Longman. 648 pp.
- Stover, R. H. 1972. Banana, Plantain and Abaca Diseases. CMI, Kew, 316 pp.
- Stover, R. H. 1962. Fusarial wilt of banana and other Musa species. CMI, Kew, 117 pp.
- Simmons, N. W. 1959. Bananas. 466 pp.. Longmans Press.
- Reynolds, P. K. 1927. The Banana. 181 pp. Houtho/Mifflin Co.

For additional information please contact R. D.Goos, Dept. of Biological Sciences, University of RI, , BISC, Kingsston, RI, 02881.

MYCOLOGICAL CLASSIFIEDS

Postdoctoral Fellowships: Evolutionary Genomics, Molecular Evolution

The Center for Evolutionary Genomics at Duke University's Institute for Genome Sciences & Policy is pleased to announce the continuation of its Post-doctoral Fellowships in Evolutionary Genomics and Molecular Evolution. This Fellowship provides an annual salary of \$37,000 plus benefits and \$11,000 in research funds per year for a two-year period. The program allows Fellows to pursue research in the laboratory of a sponsoring faculty member affiliated with the Institute for Genome Sciences & Policy. Two Fellowships will be awarded this year.

We invite innovative proposals from scientists of any nationality to carry out research at Duke University for a two-year appointment beginning in the fall of 2006. We are particularly interested in proposals that address mechanisms of molecular evolution, comparative genomics, and the evolution of development. Proposals focused exclusively on building phylogenies will not be considered, although the application of phylogenetic approaches

to analyzing the evolution of genes and genomes is certainly appropriate. Faculty sponsors can be located within any department or school at Duke University; the only stipulation is that the project fall within the areas of research listed above.

Please submit curriculum vitae, a three-page research proposal (not counting literature cited), and a one-page summary of past research, and arrange for two letters of recommendation to be sent to: Evolutionary Genomics, c/o Greg Wray, Department of Biology, Box 90338, Duke University, Durham, NC 27708-0338, USA. Applications received by 1 May 2006 will be guaranteed full consideration.

Questions can be directed to Greg Wray by email (gwwray@duke.edu). For information about the Institute for Genome Sciences & Policy and the Center for Evolutionary Genomics at Duke University, visit www.genome.duke.edu. *Duke University is an Equal Opportunity/Affirmative Action Employer. Female and minority candidates are encouraged to apply.*

Bayer Graduate Assistantship: Mycology, General Plant Pathology

The Department of Plant Pathology at NC State University is seeking applicants for a Ph.D. assistantship beginning Fall 2006 or Spring 2007. The incumbents' research will focus on the biology, ecology, and management of basidiomycetes causing fairy ring in turfgrass systems. Many different genera and species of basidiomycetes are known to cause fairy ring, but the distribution of species and their response to management practices is poorly understood. The objectives of this research are to develop methods for isolating fairy ring fungi from turfgrass soils, determine the distribution of species in the southeastern United States and their sensitivity to fungicides, and evaluate potential cultural and chemical control practices. Stipend, tuition, fees, and health insurance are provided. This assistantship is funded by Bayer Environmental Science and the incumbent will interact regularly with scientists from Bayer and other specialists within the turfgrass industry. This is an excellent opportunity for stu-

dents considering a career in private industry or academia.

A B.S. or M.S. in biology, mycology, plant pathology, or related field is required. Research experience with basidiomycetes or other fungal groups is desirable. Training or experience in turfgrass management is not required. The successful candidate must meet the admission requirements of the Department of Plant Pathology and the NC State Graduate School. Please refer to the department (www.cals.ncsu.edu/plantpath/academics/prospective-students.html) and graduate school (www2.acs.ncsu.edu/grad/prospect.htm) websites for more information. Interested candidates should submit a letter of application, curriculum vitae, and a copy of academic transcripts to Lane Tredway, Department of Plant Pathology, Campus Box 7616, Raleigh, NC 27695, Phone: 919-513-4820, and email: lane_tredway@ncsu.edu

CALENDAR OF EVENTS

Event dates and descriptions (**bold**) precede event locations (*italic*), contacts (plain font), and Email/Websites (**bold**, no brackets). Those wishing to list upcoming mycological courses, workshops, conventions, symposia, and forays in the Calendar should submit material formatted as shown below and include complete postal/electronic addresses.

2006 (August 21-26)

8th International Mycological Congress

Cairns, Australia

Wieland Meyer, Chair

Ceri Pearce, Vice-Chair

www.sapmea.asn.au/imc8

2006 (July 29 - August 2)

MSA/CPS/APS Meeting

Québec City, Québec, Canada

Centre des Congrès de Québec

NOTE TO MEMBERS:

If you have events to announce, please notify *Inoculum* editor Richard Baird so they can be listed in the *Calendar of Events*.

rbaird@plantpath.msstate.edu

Change of Address

Send all corrections of directory information, including email addresses, directly to Allen Press

Mycological Society of America
Attn: Kay Rose, Association Manager
P.O. Box 1897 [810 E 10th St]
Lawrence, KS 66044-8897

Vox (800) 627-0629 (US and Canada)
or (785) 843-1221
Fax (785) 843-1274
Email krose@allenpress.com

Note: Members may also submit directory corrections via the form included in the MSA directory via the MSA Home Page: www.msafungi.org

Mycological Society of America – Gift Membership Form

Sponsoring a gift membership in MSA offers tangible support both for the recipient of the membership as well as for mycology in general. Providing both *Mycologia* and *Inoculum*, a gift membership is an excellent way to further the efforts of our mycological colleagues, especially those who cannot afford an MSA membership. In addition to a feeling of great satisfaction, you also will receive a convenient reminder for renewal of the gift membership the following year.

I want to provide an **MSA Gift Membership** to the following individual:

Name _____

Institution _____

Complete Address _____

Phone _____ FAX _____ Email _____

Please send renewal notices to:

(YOUR name) _____

(YOUR address) _____

Phone _____ FAX _____ Email _____

I agree to pay \$98* for this membership by check (payable to MSA, drawn on US bank) VISA Mastercard

Acct. # _____ Name (as it appears on card) _____ Exp. date _____

Send this form to: MSA Business Office, PO Box 1897, Lawrence KS 66044
or FAX to (785) 843-1274, Attn: Processing Department

*If this membership is given after June 1, please add \$10 to cover postage for past issues.

MYCOLOGY ON-LINE

Below is an alphabetical list of websites featured in *Inoculum* during the past 12 months. Those wishing to add sites to this directory or to edit addresses should email <rbaird@plantpath.msstate.edu>. **Unless otherwise notified**, listings will be automatically deleted after one year (at the editors discretion). * = New or Updated info (most recent *Inoculum* Volume-Number citation)

Ascomycota of Sweden
www.umu.se/myconet/asco/indexASCO.html

Australasian Mycological Society Website
for Introductory Fungal Biology (53-4)
bugs.bio.usyd.edu.au/mycology/default.htm

Authors of Fungal Names (54-2)
www.indexfungorum.org/AuthorsOfFungalNames.htm

Bibliography of Systematic Mycology
www.speciesfungorum.org/BSM/bsm.htm

British Mycological Society (54-1)
britmycolsoc.org.uk

Collection of 800 Pictures of Macro- and Micro-fungi
www.mycolog.com

Cordyceps Website
www.mushtech.org

Corticoid Nomenclatural Database (56-2)
phyloinformatics.org

Coverage in Ukraine of Higher Fungal Ranks (56-2)
www.cybertruffle.org.uk/lists/index.htm

Cyberliber Mycological Publications (57-4)
www.cybertruffle.org.uk/cyberliber/index.htm

Cybertruffle's Fungal Valhalla (56-2)
www.cybertruffle.org.uk/valhalla/index.htm

Dictionary of The Fungi Classification
www.indexfungorum.org/names/fundic.asp

Distribution Maps of Caribbean Fungi (56-2)
www.biodiversity.ac.psiweb.com/carimaps/index.htm

Distribution Maps of Georgian Fungi (56-2)
www.cybertruffle.org.uk/gruzmaps/index.htm

Distribution Maps of Ukrainian Fungi (56-2)
www.cybertruffle.org.uk/ukramaps/index.htm

Electronic Library for Mycology (56-2)
www.cybertruffle.org.uk/cyberliber/index.htm

Fun Facts About Fungi (55-1)
www.herbarium.usu.edu/fungi/funfacts/factindx.htm

Funga Veracruzana (53-6)
www.uv.mx/institutos/forest/hongos/fungavera/index.html

Index of Fungi
www.indexfungorum.org/names/names.asp

ING (Index Nominum Genericorum) Database (52-5)
ravenel.si.edu/botany/ing/ingForm.cfm

Interactive Key, Descriptions & Illustrations
for *Hypomyces* (52-6)
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inoculum

The Newsletter
of the
Mycological
Society of America
Supplement to Mycologia
Volume 57, No. 3
June 2006

Inoculum is published six times a year and mailed with *Mycologia*, the Society's journal. Submit copy to the Editor as email (in the body, MS Word or WordPerfect attachment in 10pt Times font), on disk (MS Word 6.0, WordPerfect, *.tif, *.jpg), or hard copy. Line drawings and sharp glossy photos are welcome. The Editor reserves the right to edit copy submitted in accordance with the policies of *Inoculum* and the Council of the Mycological Society of America.

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