Collecting Trip to the Andes of Peru

During the period of late September to mid-October of 2012, the first phase of a three-year project (entitled “A biosystematic study of myxomycetes from the arid areas of Peru”) was carried out. The overall purpose of the project, funded by a grant of $215,000 awarded to the Real Jardín Botánico, CSIC, in Madrid by the Ministry of the Economy and Competitiveness of the government of Spain, is to obtain the first body of data on the myxomycetes (plasmodial slime molds) associated with plant communities in western and southern Peru.

The first collecting trip involved traveling approximately 2,700 miles on often winding roads throughout the portion of Peru that falls between 11°54’ and 18°00’ south latitude. Field surveys were carried out in 70 different collecting sites located over a range of elevations that extended from sea level to more than 16,000 feet (Fig. 1). These collecting sites were situated along a total of six east to west transects as well as a coastal north to south transect. All of the vegetation types encountered were xerophytic, and these included examples near the coast that receive moisture only from the coastal fog or “garua”. Many of the plants making up these vegetation types are endemic, including species of cacti in such genera as Neoraimondia, Browningia, Cleistocactus, and Haageocereus.

Fig. 1. High-elevation collecting site in the Andes of Peru.
These surveys yielded at least 675 collections of myxomycetes that had fruited under natural conditions in the field (Fig. 2) and more than 330 samples of substrate material that will be used to prepare moist chamber cultures for isolation of myxomycetes in the laboratory. The samples are currently being processed, but a surprising result obtained thus far is that moist chamber cultures prepared with dead portions of terrestrial bromeliads (*Tillandsia* spp.), collected partially buried in sand and growing under hyper-arid conditions, have been 100% positive for myxomycetes after only two months in culture.

Participants (Fig. 3) in this first collecting trip were Carlos Lado (Real Jardín Botánico), Arturo Estrada-Torres (Universidad Autonoma de Tlaxcala, Mexico), Diana Wrigley de Basanta (Real Jardín Botánico), Gloria Vasquez (Universidad Nacional Mayor de San Marcos in Lima, Perú), Italo Treviño (Grupo DIBIOS, Universidad Nacional San Agustín in Arequipa, Perú), Adam Rollins (Lincoln Memorial University in Tennessee) and Steve Stephenson (University of Arkansas). Logistical support was provided by Asunción Cano and Blanca León (Museo de Historia Natural, UNMSM, Lima).

—Steve Stephenson
University of Arkansas

**Fig. 2.** Looking for specimens of myxomycetes that have fruited under natural conditions in the field.

**Fig. 3.** Members of the group at 15,000 feet in the Andes (left to right): Adam Rollins, Carlos Lado, Gloria Vasquez, Diana Wrigley de Basanta, Arturo Estrada-Torres and Steve Stephenson.

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I ran across this word (meaning a slip in writing) in the article by Holm and Nannfeldt (Friesia 7: 42) where they explained that in the first edition of Fries’s *Scleromycetes suecicae* Number 119 the material was labelled *Sphaeria incrustans* by mistake (“*incrustans* is sphalma for *obducens*”). Fries (Systema Mycologicum 2, p. 456) had corrected what he termed a “lapsus calami” to *Sphaeria obducens*.

—Robert Shoemaker
Robert.Shoemaker@agr.gc.ca
Executive Vice President’s Report

Greetings! As 2012 draws to an end, I want to wish all my colleagues and friends in the mycological community a peaceful and productive new year.

Council Business: There were two official email polls conducted by Council since my last column. One poll in October confirmed the Karling Annual Lecture Committee’s nomination of Dr. Barbara Howlett (University of Melbourne) as the 2013 speaker. A second poll in December approved the recommendation of a request for Emeritus status (see Emeritus Members, below). In other Council business, February 24 was selected as the date for the midyear Executive Council meeting, which will be held via teleconference.

2013 Membership Renewal: A big thanks to all of you who have already renewed your MSA membership. Your support and participation are critical to the future of our socie-
ty. If you have not yet done so, renewing your membership is easy—just go the MSA website at http://www.msafungi.org and click on <Membership> in the upper left hand corner of the page. When you reach the MSA Business site, there is now an email reminder system for those of us who forget our MSA user ID or password.

**New MSA Business Site:** You may have noticed a new look for the MSA Business site. The new website was launched in December to coincide with the 2013 Membership Renewal Campaign. The site is designed to provide better access and security for our members. Unfortunately, some members encountered problems in accessing or navigating the site, for which we apologize. Your patience as we worked through these glitches with the helpful folks at Allen Press was greatly appreciated. I encourage you to contact me with suggestions or feedback on the new site.

**MSA Donations:** Some members encountered problems when attempting to include a donation with their membership renewal. If you were unable to make a donation, you can still do so through the MSA Business site. After login, select DONATIONS from the main menu options, and this will take you to a page with the various donations options. After selecting the fund you wish to support, you can specify the amount of your donation from a drop-down menu. As with all MSA transactions, Visa, MasterCard and Discover cards are accepted. We depend on these donations to fund many of the society’s important activities including Mentor Travel Awards and Research Awards for graduate students, and thank you for your generous support.

**New Members:** I would like to extend a warm welcome to the following new and returning members. Their membership will be formally approved at the 2013 Annual Business Meeting in Austin, TX.

Argentina – Marta Noemi Cabello  
Brazil – Meiriele Silva  
France – Pierre Bonnet  
Germany – Christian Wurzbacher  
Hungary – Levente Kiss  

**Emeritus Members:** Joost A. Stalpers, Centraalbureau voor Schimmelcultures, The Netherlands, a member of MSA for more than 40 years, has requested Emeritus status for 2013. Council has recommended by ballot to put this request before the membership for vote at the 2013 Annual Business Meeting.

**Call for Nominations for Council:** MSA is accepting nominations to fill Council positions for Vice President, Treasurer, and four Councilors. These nominations are important to the Society, and I encourage everyone to consider nominating a colleague. Nominations will be accepted through February 15, and can be submitted online (http://www.surveymonkey.com/s/MSAcallfornominations). You also can submit nominations to Vice President Jean Lodge by email (djlodge@caribe.net) or by regular mail (USDA-Forest Service PO Box 1377 Luquillo, PR 00773-1377). A list of past and present officers and councilors is available on the MSA website.

**Important Announcement:** As we prepare for the Spring 2013 elections, I want to remind everyone that balloting will be done electronically. As in the past, paper ballots will be sent out by regular mail to those without valid email addresses, so please check your information in the MSA directory to make sure it is correct. MSA By-Laws mandate that hard copy ballots be made available to members who do not have valid email addresses, and we remain committed to providing this service to members. However, this represents a substantial cost to the Society, and relatively few paper ballots are returned. Council will consider a proposed change in the By-laws for the 2013 spring ballot to have Society business, including voting, conducted electronically. If this is change is approved, paper ballots will be sent out only upon request by contacting me by phone (509-335-3733), email (carris@wsu.edu) or mail (P.O. Box 646430, Washington State University, Pullman WA 99164-6430).

**REMEMBER: MSA Directory Update:** Have you checked your information in the MSA directory recently? Now is a good time to make sure your address, phone and email are up-to-date. The Society relies almost entirely on email to bring you timely information on MSA news, awards, elections, meetings and other activities. To ensure that you receive Society blast emails and Inoculum, and so your colleagues can keep in touch, please check the accuracy of your contact information in the online directory. This can be accessed via our website (www.msa.org)—look for the “Member Services” box in the bottom left corner of the page. If you need assistance with updating your membership information, please contact our Association Manager at Allen Press, Kay Rose (krose@allenpress.com).

Please feel free to contact me about MSA business, or any other questions you have about the Society. And don’t forget to recommend MSA to your amateur and professional colleagues, and particularly to students and postdoctoral associates who are interested in fungi. Remember, there is now a postdoctoral member rate!

—Lori Carris  
carris@wsu.edu  
MSA Executive Vice President
Charles E. Bracker, 1938-2012

Professor Emeritus Dr. Charles E. Bracker, Purdue University, passed away November 4th, 2012, after a long illness. Charles earned his B.S. and Ph.D. in plant pathology at the University of California, Davis. He came to Purdue in 1964 as an assistant professor in the Department of Botany and Plant Pathology, progressed through the ranks, and was named the George B. Cummins Distinguished Professor of Plant Sciences in 1993. He was inducted into Purdue’s Book of Great Teachers in 1999, and he received the Distinguished Mycologist Award from the Mycological Society of America in 1993.

Charles Bracker worked for more than 40 years in cell biological research and light and electron microscopy, discovering and documenting new mechanisms of mycelial growth and the ‘chitosome,’ a transport body for delivery of chitin synthase to the cell wall.

In mid-life, Charles was afflicted by a degenerative arthritic condition that, over time, made walking and standing precarious, but this never hampered his curiosity or ingenuity and his research, usually in collaboration with other workers, continued.

Post-retirement, Charles was probably best known for his extensive collection of orchids, which he expanded exponentially in honor of his wife, Anri, who passed away in 2001. His living collection and photographs (http://libx.bsu.edu/cdm4/browse.php?CISOROOT=BrckrOrchd) have become well-known in the international orchid community and were donated to Ball State University where the living collection doubled the size of Ball State’s already large holdings.

A memorial tribute-symposium at Purdue is envisioned for early 2013.

5th International Symposium on Rhizoctonia

The 5th International Symposium on Rhizoctonia will be held at Henan Agricultural University (HAU) in Zhengzhou, Henan, China, from 22 to 24 August 2013. We look forward to welcoming you to an exciting meeting that only occurs every 5 years and has been timed to take place immediately before the International Society of Plant Pathology Congress in Beijing.

As in past years, we will bring together a spectrum of scientists working on innovative and recent research related to disease ecology and management, genomics, host/parasite interactions and pathogenesis, pathogen detection and disease diagnosis, population biology and genetics, symbiosis, and taxonomy of Rhizoctonia. These topics will be presented in lectures and poster sessions, with adequate time reserved to share knowledge, exchange ideas, and foster collaborations. The symposium will provide an opportunity for academic, government, extension, and private industry researchers to interact with growers and students that share a common interest in Rhizoctonia. The conference would also provide a forum to sit together and create a roadmap for future research of Rhizoctonia species complex.

Contact Information
For scientific information: Suha Jabaji. Email: suha.jabaji@mccgill.ca
For registration, hotel reservation, payment: Honglian Lee. Email: honglianli@sina.com

Deadlines
Early bird registration April 15, 2013
Hotel reservation April 30, 2013
Abstract submission May 1, 2013
Acceptance Notification June 1, 2013

Conference Website

Cubeta Fulbright Report

Marc A. Cubeta, Professor at North Carolina State University, spent the past academic year as a Fulbright Scholar teaching and conducting research at the Swedish University of Agricultural Sciences (Sveriges LantbruksUniversitet, SLU) in Uppsala Sweden. Dr. Jan Stenlid, Professor and Head of the Department of Forest Mycology and Plant Pathology, served as host for Marc’s sabbatical at SLU. Jan is an internationally recognized expert on the disease ecology of plant pathogenic soil fungi and genomics of the forest tree pathogen Heterobasidion annosum sensu lato. During his sabbatical, Marc co-taught Diseases and Pest of Forest Trees; and Plant Pathology to undergraduate and graduate students. He investigated the disease ecology and population dynamics of Rhizoctonia fungi on forest tree seedlings and closely related non-pathogenic species that associate with orchids. In addition he interacted with colleagues and presented seminars at SLU-Uppsala, SLU-Umea, CBS Fungal Biodiversity Centre-Utrecht, University of Copenhagen, and the INRA Ecogenomics of Interactions Laboratory. Cubeta was one of approximately 1,100 U.S. faculty and professionals who travel abroad each year through the Fulbright US Scholar Program.
Call for MSA Award Nominations 2012-2013

For over 20 years the Mycological Society of America has been celebrating excellence in research, teaching and service among its membership by recognizing outstanding students, distinguished teachers and accomplished researchers. This is a call for nominations and applications for MSA Awards and Fellowships for 2012-2013.

Be part of our celebration of mycology and mycologists!

Apply or nominate a student, researcher or teacher by February 15th 2013

To find detailed, updated information on the awards offered by the Society, eligibility requirements, application procedures and administering committees, please visit our web site (http://msafungi.org/msa-awards).

A full announcement will also be published in the upcoming issue of Inoculum.

The MSA looks forward to receiving your nominations and applications for the following awards:

**MSA AWARDS**
- Distinguished Mycologist
- Alexopoulos Prize
- William H. Weston Award for Excellence in Teaching
- MSA Fellows
- MSA Honorary Members
- MSA Graduate Fellowships
- NAMA Memorial Fellowship
- Backus Award
- Salomon-Bartnicki-Garcia Award
- Forest Fungal Ecology Research Award
- Martin-Baker Award
- John W. Rippon Research Award
- Clark T. Rogerson Student Research Award
- Alexander H. & Helen V. Smith Research Award
- Mentor Student Travel Awards for Student travel to the Annual Meeting
- Best Oral Presentation by a Student at the Annual Meeting
- Best Poster Presentation by a Student at the Annual Meeting

**Mold and Fungus Testing and Identification Services**
Biochallenge tests for ink, microfluidic materials; testing for resistance of materials to fungal invasion. Identification of fungal contaminants in manufactured products. Epifluorescent microbial detection in deionized water systems, microfluidic devices, medical fluids, manufactured goods.

Identification of fungi from buildings, animal and plant diseases. 10% discount for regular and sustaining MSA members. Email info@pacificanalytical.com. For more information see www.pacificanalytical.com

**Biological Control, Biotechnology and Regulatory Services**
Center for Regulatory Research, LLC specializes in regulatory permit application services for biological control and biotechnology organisms/products. Let us evaluate your research discoveries for commercial potential and environmental impacts. We also offer assistance with writing proposals for SBIR grant programs (Small Business Innovation Research) that fund new commercial ventures. Contact Dr. Sue Cohen by email (scohen@regresearch.com) or by phone (612-246-3838). For more information about our company, visit our website at www.regresearch.com.

**REMINDER: MSA Directory Update**
Is your information up-to-date in the MSA directory? The Society is relying more and more on email to bring you the latest MSA news, awards announcements and other timely information, and our newsletter. To ensure that you receive Society blast emails and the Inoculum as soon as it comes out, and so that your colleagues can keep in touch, please check the accuracy of your email address and contact information in the online directory. This can be accessed via our web site at www.msafungi.org. If you need assistance with updating your membership information, or help with your membership log-in ID and password, please contact Kay Rose, Association Manager at Allen Press, at krose@allenpress.com.
MYCOLOGIST’S BOOKSHELF

We have four reviews for this issue, and I’ve added some new titles to the list below, which has been updated indicating which books are already in the process of being reviewed, and which still need reviewers. Just as a reminder, I’ve adopted a new process for getting books to you, whereby books will be “drop-shipped” directly from publisher to reviewer; this will streamline the process at my end and will save the Society the shipping expense. Also of note, and perhaps a trend: one of the publishers whose books we frequently review is adopting a new policy that currently only applies to some of their books: the review will have to be done using an online version (though not a pdf or something for a Kindle or e-reader); once they receive a copy of the published review, they’ll ship the reviewer the hard copy. This will be the case with the Springer “Laboratory Protocols in Fungal Biology” by Gupta et al.

If you would like to review a book or CD, please contact me (robert.marra@ct.gov). A book goes to the first person requesting it, and I ask that you get your reviews to me in a reasonably timely manner. Also, if you know of a newly published book that might be of interest to mycologists, please let me know so I can request it from the publisher.

—Bob Marra

Books in Need of Reviewers


**New this issue.**
Indoor fungi have attracted a great deal of attention from the public, media, and scientists due to human health risks and a resulting flood of litigations (including some high profile cases) filed in the United States since 1994. As a result, research on indoor fungi, from aspects of mycology, industry hygiene, public health, and medicine. It also led insurance companies to change or even exclude indoor molds from their policies. In the meantime, Stachybotrys chartarum (Ehrenb.) S. Hughes has gained notorious fame. A number of books on indoor molds were published during this period. “Fundamentals of Mold Growth in Indoor Environments and Strategies for Healthy Living” is the latest one with a comprehensive and updated coverage on this topic.


The book was well written and organized. It clearly differentiates itself from other books on this topic in several areas. As the authors pointed out, confusion has often been caused by the misapplication of fungal names and misidentification of indoor fungi. The authors advocate that professionals working on indoor molds follow the Nomenclature (currently, International Code of Nomenclature for algae, fungi, and plants) to use correct fungal names, not outdated or old names based on the latest development of polyphasic taxonomic research on several genera, such as Aspergillus, Penicillium, and Verticillium. The application of correct names is a reflection of not only the current status of fungal taxonomy, but also species concept and delineation. More importantly, health effects of indoor fungi are species specific. The authors clearly and unquestionably showed that it only took 69 h for Penicillium chrysogenum Thom to develop from spore germination to sporulation and 73 h to develop mycelial mass on pure glycerol at 21°C and 97% RH with cryo-SEM photos (see page 45). How much time do we have to respond to water damage or dampness problem to prevent molds? Wood decaying basidiomycetes are either barely or not covered in other indoor mold books. This book devoted three chapters to covering the characteristics and identification of wood decaying fungi and the protection of wood with in-depth information and good quality of color photos. Common wood decaying fungi were covered to species level whenever possible. There is an excellent coverage on aerosolized fungal fragments in this book. The authors introduced the new terms: “gonomorph” and “non-gonomorph” for reproductively differentiated and non-differentiated forms, respectively.

The risk posed by airborne fungal fragments to human health, especially non-gonomorphic form, has often been underestimated in indoor mold studies. Readers who are interested in this area will not be disappointed with the information on the process of fungal fragmentation, contributions of hyphal fragments and particulates to the environment, and their implications for human health. “Mycotoxins on building materials” were well reviewed. The authors brought six hurdles to the attentions of researchers who are studying mycotoxins in buildings (pages 246-247). These hurdles revealed how difficult it can be to study mycotoxins indoors. The authors reinforced their opinion with detailed discussion on a number of studies with false positive results or invalid conclusions due to deficiency in analytical methods. The authors indicated that exposure to fungi derived not only from spores and large hyphal fragments, but also from fragments much smaller than the spores (0.3µm) and toxins detected in fine particle matter and fine dust. The information in this chapter and the chapter “Aerosolized fungal fragments” suggested that current strategies for air sampling for fungi need to be further studied. The people who are interested in mycotoxins in buildings should read this chapter thoroughly. The authors of “Detection of indoor fungi bioaerosols” had good discussions on the recovery losses associated with jet-to-plate distance and biological recovery efficiency. How many people thought that the recovery loss of air sampling may derive from how much medium we pour into plates? If that did not ring a bell, please read this chapter. Two chapters (14 and 15) on mold remediation in North America and West Europe revealed the differences in guidelines and approaches in the two continents. However, the principles are similar.

I really enjoyed reading this book. While reading, I spotted several places where improvements can be made. For example, Figures 2.9 and 3.4 are produced from the same set of data and Figure 3.4 is redundant. Table 10.1 is irrelevant to indoor mold and can be removed. Table 1 on page 398 should be Table 14.1.

Continued on following page
These minor issues will not negate the fact that this book is an excellent reference book for all professionals who work on indoor fungi. It is also a very informative reference book for mycologists who are not working on indoor fungi. In my personal opinion, the information you obtain from this book (not covered in the other books) well surpasses the moderate price you pay for the book. You will not regret it.

—De-Wei Li

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The Mycota, Vol. 14: Evolution of Fungi and Fungal-Like Organisms


As were the previous volumes of Springer’s giant series “The Mycota,” volume XIV (“Evolution of Fungi and Fungal Like organisms”) is not a book in the traditional sense. Rather, as the preface emphasizes, it is a gathering of reviews dealing with various aspects of fungal evolution. The reviews are diverse and heterogeneous in regard to not only their topics but also their concepts, details, actualities and even text formatting.

The first section, “Evolutionary Roots of Fungi,” contains three reviews. “The Protistan Origins of Animals and Fungi” massively overviews the main groups of the Ophistoconta and the position of Kingdom Fungi. It includes results published in 2011, quite refreshing for a book printed in the same year. However, the authors began writing the chapter much earlier, judging from the text, when Deep Hypha was running. The next chapter reviews the main features of the Microsporidia and the problems of its phylogenetic position. The last section covers DNA-based methods in studies of fungal diversity. The traditional clone-library technique and its limitations are discussed.Clone-library-based fungal diversity studies of aquatic environments are presented, and results from soil and in planta environments are briefly mentioned. The 454 technique of the “next-generation” sequencing methods and fluorescent in-situ hybridization (FISH) are discussed as alternative methods for environmental study of fungal communities.

Three reviews appear in the second section, “Evolution of Signaling in Fungi and Fungal-Like Organisms.” The first review concerns the “fungal-like” dictyostellids. Only an outdated tradition retains these social amoebae in mycological books, but the chapter is really worth reading. It comprehensively overviews evolutionary aspects of signaling, and the regulation of morphogenesis in the group, in particular the unusual method of cellular organization whereby multicellular-ty originates by cell aggregation rather than cell division. The second review gives a detailed overview of pheromones and pheromone receptors of ascomycetes. Although the title focuses on filamentous fungi, it briefly discusses baker’s yeast as well. The review deals with structure and function of pheromones, their receptors and, because of their functions, mating types and thallisms. However it is not the review one should read if particularly interested in the evolution or evolutionary function of those systems. The third review of the section concerns mating types and uni-, bi- and tetrapolar patterns of sexuality of basidiomycetes. This is a heavyweight review: its 64 pages, including more than 400 references, are really challenging to read in one sitting. After a general overview of mating type genes it discusses the three subphyla of the Basidiomycota (Pucciniomycotina, Ustilaginomycotina including the incertae sedis Malasseziales, and Agaricomycotina) in separate chapters, closing each chapter with evolutionary considerations.

The next section, “Evolution of Mutualistic Systems and Metabolism in Fungi,” contains five reviews. The first, on Glomeromycota, discusses historical aspects of its taxonomy and systematics. Phylogenetic evolution, especially the possible coevolution with plants and evolutionary aspects of asexuality are also discussed. The second review is about ascomatal evolution in the Ascomycota. It is the only chapter in the book emphasizing that phylogenies might be frameworks for tracing evolution of different characters; i.e. there is much more to evolutionary studies “beyond building the tree.” The importance and use of ascomatal characters in the “pre-molecular” era and then the early molecular studies of the main groups (classes) of Pezizomycotina are overviewed. After a discussion of patterns of morphological evolution, in the part “Beyond Building the Tree: Statistical Tests of Character Evolution” the readers are given a short introduction to comparative methods illustrated by a case study of fruiting body evolution in Lecanoromycetes. The next review concerns comparative genomics illustrated with genomic analyses from Dothideomycetes. It then gives a short introduction to comparative genomics, especially syntenies, and discusses different genetic mechanisms of genome evolution that may affect e.g. pathogenicity. The review is up to date: data from 2010 and 2011 are cited and discussed. The fourth review focuses on secondary metabolites of fungi, describes polyketids, nonribosomal peptides, alkaloids, terpenes and melamins. The reader can gain an overview of those metabolites, their genes and synthesis: polyketides and polyketide syntheses and melamins are the most detailed. The fifth review in this section covers carbonic

Continued on following page
The Tangled Bank: An Introduction to Evolution


With the news of the last few weeks that much of ‘junk’ DNA is, in fact, functionally important, this text is already out of date. As with evolution, the textbook writer faces the Red Queen’s Dilemma. However, it is an excellent survey and a well-produced volume on evolution for the non-biologist. Well written, clearly presented and concise, it could well serve as either a primary or secondary text for university level courses for non-majors. Zimmer, a science writer and author of several books (I highly recommend his Parasite Rex) and many articles, clearly explicates most of the central issues in evolutionary biology. It’s difficult from the perspective of a research scientist to evaluate the rigor of his exposition for non-biologists, but he seems to approach the Goldilocks optimum of neither too much nor too little. Most important, he emphasizes hypothesis testing and clearly shows how much of modern evolutionary biology is testable and has been tested. This is important in the face of the public’s lack of understanding and confusion about the subject, promoted by the creationist and intelligent design projects. As I’m sure every member of the procrastinating authors, quixotic publishers, etc. Some reviews in The Mycota XIV were evidently written a few years ago; some of them were updated by adding results of recent literature; others were not updated. The reviews of the book are diverse but over-represent the signaling, mating, and metabolite-related topics; several factors (e.g. finding authors willing to contribute) may affect such an unbalanced selection. Some chapters lack a discussion of evolutionary aspects; some others deal with it by “simply” listing features according to different taxonomic/phylogenetic groups. Nevertheless, most of the reviews are comprehensive, detailed presentations of the topics that can be useful in teaching or as an overview of that field.

Even though missing concepts and the sometimes neglected evolutionary aspects may annoy you, ignore the chapter titles and you will have a massive, albeit rather expensive, selection of strong reviews. And a practical advice: don’t read it as a book; do not even try…unless you agreed to review it!

—Gábor M. Kovács
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Parasites in Ecological Communities


Where in a food web do parasites lie? How much do they affect community structure, biodiversity and ecosystem health? These are questions that were largely ignored in the development of community ecology; however, despite observations of their importance to interspecific interactions dating back to the 1940s, research into their importance did not really develop until the early 1990s when Robert May and others published seminal models for the requirements for parasites to establish and be maintained in populations. Since then, both theoretical and empirical research on the effects of parasites on host populations and communities have accelerated. These researches have revealed different outcomes in terms of epidemic development dependent on mode of transmission (i.e. vertical or horizontal, density or frequency dependence) as well as other factors including differential parasite virulence expressed among hosts. The first four chapters of the present volume present various mathematical models for detailing epidemiological and community ecological approaches for one host-one parasite systems, ‘apparent competition’, parasite-mediated competition (both for specialist and generalist parasites), effects of parasites on predation, and parasites and intraguild predation. An awareness of two parameters, the basic reproductive number for the parasite, called $R_0$, and the threshold population size of the host for parasite establishment, $N_T$, is implicit in all models. Generally, the authors present their models using a trophic module approach. While there is little information presented on fungal parasites (chytridiomycoses in amphibians, cryptosporidial infections of many arthropods) in these chapters, they are thought-provoking. In Chapter 5, the authors (both are actively involved in research on amphipods) examine the effects of plant pathogens and parasitic plants. They observe that the assumptions of ‘standard’ epidemiological models are abrogated when discussing plants and their pathogens, due to a variety of causes including the fixed position of plants (which affects assumptions of randomness built into $N_T$) and the tissue specificity of many plant pathogens. However, plant pathogens are implicated in several cases of observed trophic cascades, chestnut blight being a prime example. This chapter includes brief comments on fungal endophytes (and mycorrhiza) and their effects on communities. However, these discussions, while thought-provoking, are phytopathologically naive. Several cases come to mind that the authors neglect: South American leaf blight of rubber, which explicitly maintains the low density of rubber trees in their native habit and for which strategies for prevention of establishment in southeast Asian plantations were developed in the 1950s; the emergent moderately wide-host range *Phytophthora ramorum* and *P. kernoviae*; and the major consequences of *P. cinnamomi* on Australian landscape. Understanding the biology of the several components of a pathosystem is essential; indeed, it underlies the formulation of descriptive and predictive models. As the authors repeatedly demonstrate, generalization is always elusive.

The next three chapters of the book examine parasites in invasions, ecosystem parasitology and emerging diseases in humans in wildlife. These aspects are supported by several case studies, but have generally defied theoretical modelling, due in part to the plethora of variables rendering them mathematically intractable. Still, general principles can be derived and parameters of importance can be identified. A final brief chapter (“Where do we go from here?”) suggests areas of future research that should be addressed in order to better understand and predict the importance of parasites in ecological communities.

The paucity of information related to fungi may limit the readership among mycologists to those involved or interested in broader community issues. Of these, only those with an affinity for ecological modelling will find the book edifying. Not that the information is not interesting or well-presented—it is—but the text is designed for graduate students and specialist researchers and is heavily biased towards animal-para-site systems; not for lay readers nor for those without the requisite background.

—David Yohalem
Myological Innovations
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Books with Reviewers Assigned


Below is an alphabetical list of websites featured in Inoculum. Those wishing to add sites to this directory or to edit addresses should email dnvig@gmail.com. Unless otherwise notified, listings will be automatically deleted after one year (at the editors discretion).

A New Web Page About Tropical Fungi, Hongos Del Parque “El Haya” (58-5) hongosdelhaya.blogspot.com/
ASC0France.com, a very useful site for illustrations of ascomycetes including anamorphs (accessible in both French and English) ascofrance.com/?lang=us
Ascomycota of Sweden www.umu.se/myconet/asco/indexASCO.html
Basidiomycete Research Group (University of Helsinki, Finland) studies systematics, ecology and evolution of fungi in forest environment. www.basidiio.fi
Bibliography of Systematic Mycology www.speciesfungorum.org/BSM/bsm.htm
Cold Spring Harbor Laboratory; Meetings & Courses Programs (58-2) meetings.cshl.edu
Collection of 800 Pictures of Macro- and Micro-fungi www.mycolog.com
Cordyceps Website www.mushtech.org
Cornell Mushroom Blog (58-1) http://blog.mycology.cornell.edu/
Cortbase (58-2) andromeda.botany.gu.se/cortbase.html
Corticoid Nomenclatural Database (56-2) www.phytoformatics.org/
The Cybertruffle internet server for mycology seeks to provide information about fungi from a global standpoint (59-3). www.cybertruffle.org.uk
Cyberliber, a digital library for mycology (59-3). www.cybertruffle.org.uk/cyberliber
Cybernome provides nomenclatural and taxonomic information about fungi and their associated organisms, with access to over 548,000 records of scientific names (59-3). www.cybertruffle.org.uk/cybernome
Dictionary of The Fungi Classification www.indexfungorum.org/names/fundic.asp
Distribution Maps of Caribbean Fungi (56-2) www.biodiversity.ac.psisweb.com/carimaps/index.htm
Entomopathogenic Fungal Culture Collection (EFCC) www.mushtech.org
Fungal Environmental Sampling and Informatics Network (58-2) www.bio.utk.edu/fesin/
Fungi of Ecuador www.mycokey.com/Ecuador.html
German Mycological Society DGfM www.dgfm.ev.de
Glomeromyctota PHYLLOGENY amf-phylogeny.com
MYCO-LICH facilitates mycology and lichenology studies in Iran. www.myco-lich.com
Mycologia mycologia.org
Humboldt Institute — Located on the eastern coast of Maine, the institute is known for the extensive series of advanced and professional-level natural history seminars it has offered in Maine since 1987, along with ecological restoration seminars and expeditions to the neotropics. It publishes the Northeastern Naturalist and Southeastern Naturalist, two scholarly, peer-reviewed, natural history science journals. www.eaglehill.us
Website relating to the taxonomy of the Hysteriaceae & Mytilinidiaceae (Pleosporomycetidae, Dothideomycetes, Ascomycota) to facilitate species identification using a set of updated and revised keys based on those first published by Hans Zogg in 1962. 59(4) www.eboehm.com/
Index of Fungi www.indexfungorum.org/names/names.asp
Interactive Key to Hypocreales of Southeastern United States (57-2) nt.ars-grin.gov/sbmiweb/fungi/keydata.cfm
JSTOR (58-3) jstor.org
Libri Fungorum Mycological Publications (58-3) 194.203.77.76/LibriFungorum/
Mold Testing and Identification Services (58-2) www.pioner.net/~microbe/abbeylab.html
McCrone Research Institute is an internationally recognized not-for-profit institute specializing primarily in teaching applied microscopy. 59(4) www.mcri.org
Mountain Justice Summer (58-3) www.MountainJusticeSummer.org
Mycology Education Mart where all relevant mycology courses can be posted. www2.bio.ku.dk/mycology/courses/
MycoKey www.mycokey.com
The Myconet Classification of the Ascomycota www.fieldmuseum.org/myconet
New Electronic Journal about mushrooms from Southeast Mexico (61-4) http://fungavera.blogspot.com
Northeast Mycological Federation (NEMF) foray database (58-2) www.nemfd.org
Pleurotus spp. www.oyster mushrooms.net
Rare, Endangered or Under-recorded Fungi in Ukraine (56-2) www.cybertruffle.org.uk/valhalla
Registry of Mushrooms in Art members.cox.net/mushroomsinart/
Robigalia provides information about field observations, published records and reference collection specimens of fungi and their associated organisms, with access to over 685,000 records (59-3). www.cybertruffle.org.uk/robigalia
Searchable database of culture collection of wood decay fungi (56-6) www.cybertruffle.org.uk/robigalia
Small Things Considered — A microbe blog on microbes in general, but carries occasional pieces specifically on fungi. schaechter.asmblog.org/schaechter/
Tree canopy biodiversity project University of Central Missouri (58-4) faculty.cmsu.edu/myxo/
Trichomycete site includes monograph, interactive keys, a complete database, world literature, etc. (61-4) www.nhm.ku.edu/~fungi
The TRTC Fungarium (58-1) bbc.botany.utoronto.ca/ROM/TRTCFungarium/home.php
U.S. National Fungus Collections (BPI) Complete Mushroom Specimen Database (57-1) www.ars.usda.gov/ba/psi/sbml
Valhalla provides information about past mycologists, with names, dates of birth and death and, in some cases, biographies and/or portraits (59-3). www.cybertruffle.org.uk/valhalla
Website for the mycological journal Mycena (56-2) www.mycena.org/index.htm
Wild Mushrooms From Tokyo www.ne.jp/asahi/mushroom/tokyo/
NOTE TO MEMBERS:
Those wishing to list upcoming mycological courses, workshops, conventions, symposia, and forays in the Calendar of Events should include complete postal/electronic addresses and submit to *Inoculum* editor Don Natvig at dnatvig@gmail.com.

**March 12-17, 2013**
The 27th Fungal Genetics Conference
Asilomar Conference Center
Pacific Grove, CA
http://www.fungalgenetics.org/2013/pages/program.shtml

**May 14-19, 2013**
31st New Phytologist Symposium
on Orchid symbioses: models for evolutionary ecology
(14-16 May 2013)
http://www.newphytologist.org/orchid/default.htm

5th International Orchid Workshop
on Orchid population dynamics
(17-19 May 2013)
http://www.iow2013.it/

**Aug. 10-14, 2013**
Mycological Society of America with the American Phytopathological Society
Austin, TX

**Aug. 14-19, 2013**
International Marine and Freshwater Mycology Symposium (IMFMS)
Beijing International Convention Center
People Republic of China

**Aug. 25-31, 2013**
10th International Congress of Plant Pathology
Beijing, China

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