Whether you’re deciding if a foraging find qualifies as gathering food, identifying mushrooms for a foray, compiling a species list for a foray or survey, studying mycorrhizal ecology, building evolutionary trees or diagnosing an animal or plant disease, your conclusions, course of action, or even your life may depend upon the names that you give to the fungi before you. Given the fundamental importance of identification to all walks of mycology, it may seem that determining the “correct” name for a fungus would be a straightforward task. Ironically, this activity which clarifies so many others is itself rife with puzzles and mystery.

Putting a proper name on that mushroom in your hand requires that a name exists to which your mushroom can be assigned and depends upon the process that you use in order to assign it. Your identification process – using field observations, visual examination, and possibly microscopy and taxonomic keys – is critical. However, this article will focus on the other side of the process, i.e., how mycologists determine the “correct” or “best” name for a given species.

Determining the best name for a species is somewhat akin to putting mushrooms into bins. A mycologist has to make two types of decisions: what to call the bin, and what to put into it. The first of these decisions is formally known as Nomenclature, and the second as Taxonomy. Although these activities both serve the ultimate goal of determining one correct name per species, they are quite distinct, with different methods, governing principles, and proximal goals.

Nomenclature deals with the names of species and higher-order taxa (genera, families, etc.). It has a very specific set of rules, governed by the International Botanical Congress and formalized in the International Code of Nomenclature for algae, fungi, and plants (ICN) [1]. My first Biosystematics instructor remarked that “The ICN is a legal document, not a scientific one,” and I think he’s absolutely right. The goal of the ICN — and nomenclature in general — is to assure that each species or higher-order bin has a single correct name. The way that the ICN fosters this goal is to define what constitutes valid publication of a species name. In a nutshell, the correct name for a given bin is the first name published in an accepted source that meets the following criteria: (1) follows correct rules of botanical Latin as defined in the ICN; (2) is properly designated as a taxonomic novelty upon original publication; (3) is attached to a “nomenclatural type.”

Nomenclature is dedicated to the scientific review of mycological information.
President’s Post

Greetings MSSF Members!

MSSF is on YouTube! That’s right, our social media chairperson, Pascal Pelous, put the speaker’s talk from our March general meeting on line! We plan to continue this trend into the future so members who are unable to attend the meetings can still enjoy the speakers.

The April general meeting should be very educational and entertaining. At 7 p.m. in the Buckley room, there will be a giant used book sale along with appetizers and beverages hosted by our hospitality committee. New books, previous fungus fair t-shirts, and MSSF water bottles will be available at discount prices to members in good standing.

At 8 p.m., our own Norm Andresen will facilitate a round table discussion on morels—just in time for the upcoming morel season. He will be followed by Scott Koch, the director of the Telluride Mushroom Festival. Scott will give a presentation on the annual “Shroomfest”, held each August in Telluride, Colorado.

I will announce the new slate of council members nominated for the election which to be held at the official annual meeting of the society in May.

In addition to this, the librarian will be available to check books in and out of our newly rededicated library. This will be the grand re-opening of the newly named MSSF “Bill & Louise Freedman” Mycological Library.

I want to welcome several new co-chairs to next year’s MSSF council. Enrique Sanchez has volunteered to be a co-chair with Paul Koski on the education committee. Paul Lufkin and Lisa Bacon stepped forward to co-chair the culinary group, and I am looking for a co-chair to be co-librarian with Jessica Ahmadia. I look forward to announcing other members who have volunteered to become more active in the society in the coming months.

We may be losing our current Mycena News editor, Brother Mark Folger. Brother Mark has been recently summoned to Rome to serve his Order for the next several years. He hopes to continue his service for us by e-mail, but assistance from a local co-editor for the Mycena News would be very helpful. If you are interested in assisting in this position, or as the co-chair for the library, please contact me.

The spring morel camp-out forays are tentatively scheduled for the last weekend in April and possibly the first weekend in May—near Yosemite, depending on moisture levels and weather conditions. More information will be available at the April general meeting and on the website calendar.

I hope to see many of you in the forest soon, getting more involved with the society as a volunteer, or at a future MSSF event!

--Curt Haney, President@MSSF.org

Culinary Corner

Mega Trend—Foraging: The New “In” Thing to Do

Spring is here. Books about foraging for wild food along with pricey classes and walks to find it seem more prolific than the food itself. Miner’s lettuce, wild sorrel, wild onions—the list goes on and on for wild edible plants that grow here in the Bay Area. Just be sure you know what you’re doing. Wild fennel, for example, looks an awful lot like hemlock and you certainly don’t want to steam that up for dinner. And don’t step on everything, please.

Spring, however, in the mushroom world, means MORELS, SPRING BOLETES, and, for the well-trained eye and adventurous spirit only, Amanita velosa or whatever it is called now. With the ephemeral nature of our rainfall this year, though, there may be a dearth of these delights. Just keep a positive thought and join the forays. You never know for sure what you'll find if you are persistent and use good mushrooming sense when you go out. There will be forays coming up for MSSF members. Even if the mushrooms are scarce, you’ll have a great time and learn a lot from our experts. Come to the general meetings (3rd Tuesday) and the forays will be announced. They are also posted on the website.

Bowing to the foraging-happy, this month’s recipe pairs fungi with nettles (Urtica dioica), a delicious if rather ungracious weed that can be found in great abundance in our area. To gather it you must wear gloves, as the plant is covered with tiny little needles with a substance that stings and stings, hence: “stinging nettles”. Often used as a remedy, nettles are a counter-irritant to help offset the pain of childbirth or rheumatism. The tormenting chemical in the plant disappears in cooking. The resulting cooked green has a unique flavor that is rich in vitamins A and C, high in protein and has calcium and magnesium amongst other things healthful. Euell Gibbons, the granddaddy of foraging, writing in the 60’s in his Stalking the Healthful Herbs, credits nettles with improving health of animals as well as humans.

We all know about the magnificent morel. Mushrooms, of course, are not bereft of health benefits, especially oysters and shiitake.

By the way, Louise Freedman’s Wild About Mushrooms, the Mycological Society of San Francisco Cookbook contains a chapter on morels with many excellent recipes. If you don’t have a copy, you can access it online on the MSSF website, thanks to Mike Wood’s Mykoweb. The cookbook, one of the best, if not the best for mushroom cooking, is, unfortunately, out of print.

Accolades keep coming in about March’s Culinary Group dinner. Open to MSSF members who join the Culinary Group and volunteer to cook or do set up or take down, the dinners are held once a month from September through May except for December. The food is amazing and the price very reasonable. Check www.mssf.org for more information.

Team Captain Lisa Bacon both helped with the cooking and coordinated the group effort. The fabulous dinner included ap-
A nomenclatural type anchors the original author's concept of a name to a definable entity. For species, this entity is a physical specimen; either a preserved collection or an illustration is allowable under the ICN. A so-called "type specimen" (a.k.a., Type) should be stored in a location such as a museum or herbarium that is accessible to other researchers, so that the Type material can be examined during further research. For genera, the Type is the name of the species that the original author considers most representative of that genus – for example, Amanita muscaria is the Type species of the genus Amanita. Similarly, the Type for a family is the name of the genus that the original author considers most representative of that family – for example, Amanita is the Type genus of the family Amanitaceae. According to the ICN, an accepted source for publication includes printed matter distributed "to the general public or at least to scientific institutions with generally accessible libraries" or, as of January 1, 2012, electronic material in Portable Document Format (PDF) "in an online publication with an International Standard Serial Number (ISSN) or an International Standard Book Number (ISBN)" (ICN Article 29, Section 1).

Although the ICN seems like an objective – and, let's face it, rather dry – document, finding the right name for a given taxonomic bin can involve a significant amount of detective work. An interesting recent example involves a medicinal polypore from Taiwan, niu-chang-chih (Taiwanofungus camphoratus) [2]. The original description of this species (as Ganoderma camphoratum) included a spore description that turns out to have been based on contaminant spores from another fungus. As the collection was therefore mixed, a problem ensued as to which component (the contaminant spores or the rest of the basidiome) should be designated as the proper type collection for T. camphoratus. The ICN (Article 9.14) states that "When a type contains parts belonging to more than one taxon, the name must remain attached to the part that corresponds most nearly with the original description or diagnosis." That dictum is ambiguous, however: should emphasis be placed on the physical proportion of the specimen covered (thus favoring the basidiome in the case of T. camphoratus), or the weight of a particular character in identifying the species (possibly favoring the contaminant spores in the case of T. camphoratus)? Although a previous paper favored the spores, the more recent paper by S.H. Wu and colleagues established the basidiome material as the nomenclatural type [2]. Although this may at first seem like a taxonomic issue, it is not: the question is not "which part of the mixed specimen corresponds to Ganoderma," but rather, "which part of the specimen best fits the original species description?"

So, nomenclature governs the name itself; if a published name follows the ICN rules, then it is validly published. Taxonomy, on the other hand, is concerned with the biological end of things; i.e., given all available data, what bin do things go in? These data may be of many types, including morphological, ecological, chemical, or genetic. The complexity of the above question is illustrated by the bolete originally named Boletus chromapes by Charles Frost in 1874. This is an odd little bolete, with pinkish pores as in Tylopilus, but scabers on the stipe similar to those in Leccinum. Accordingly, Smith and Thiers called it Tylopilus chromapes based on the pores, and Singer called it Leccinum chromapes based on the scabers. Note that both Tylopilus chromapes and Leccinum chromapes are validly published – both follow the ICN rules. But which one is right? To a taxonomist, the answer to this question is "the one best supported by the available evidence." When the evidence is ambiguous, multiple names coexist, and the "right" name seems little more than a matter of opinion. In the case of T. chromapes / L. chromapes, different mycologists used one or the other name, based on their personal judgment of whether pore color or scabers were a better indicator of the underlying genetic relationships that determine which genus this species belongs to. Here, differing viewpoints were all based on evidence; it’s just that different mycologists interpreted the same body of evidence in different ways. DNA sequencing is not required in the taxonomic process but, since it allows a more direct look at the genetic code, it is a good way to examine the genetic relationships ("family tree") that taxonomy is trying to reflect [3]. As it turns out, according to DNA evidence, Tylopilus / Leccinum chromapes is related to neither Tylopilus nor Leccinum, so a new genus (Harryia, named after Harry Thiers) was described. Furthermore, the Australian "T. chromapes" species are more closely related to the false truffle genus Royoungia than to the North American Harryia, so a second new genus, Austraipilus, was described [4].

Two types of web-based tools often used by mycologists include nomenclatural databases and DNA sequence databases. The two major nomenclatural databases for fungi are Index Fungorum (www.indexfungorum.org) and MycoBank (www.mycobank.org). Both databases include bibliographic and taxonomic information, including any taxonomic and nomenclatural changes.
tural changes to each name. MycoBank assigns a unique identification number to each taxon name. As of January 1, 2013, the ICN requires that new taxonomic names be submitted to MycoBank and the description of a new taxon must include a MycoBank registration number in order to be considered validly published. Similarly, most scientific journals require that DNA sequences generated for a scientific study must be submitted to a public DNA sequence repository (e.g., GenBank: [www.ncbi.nlm.nih.gov/genbank](http://www.ncbi.nlm.nih.gov/genbank)), and the sequence’s database accession number included in the publication. While registration of a new name in a nomenclatural database is required for valid publication, registration does not in itself constitute valid publication; validly published names must also meet the criteria specified in the ICN. Similarly, just because a particular name is attached to a DNA sequence in GenBank doesn’t mean that the name is validly published. 

So, how do we know what the “correct” name is for a given fungus? Simply put, it’s the validly published name for the specific taxonomic bin that your fungus belongs in. As you’ve probably gathered after reading this far, finding either part of that equation can be complicated. The variability inherent in most fungal species at both the morphological and molecular levels can make it difficult to decide where one species-bin ends and another begins. Hybridization and the movement of genetic material (horizontal gene transfer [5]) between species causes mixing between bins. New taxonomic information (e.g., DNA sequences, ecology, or even characters yet to be discovered) can change our perceptions. We would all like for there to be a single “correct” name for every species. However, the state of the science doesn’t always allow it. Hopefully, as more evidence accumulates, the majority of the evidence will converge on a single interpretation that we can all agree upon.

Overall, a few good ground rules for the use of a name are: (1) Avoid propagating names that aren’t validly published (from talks, pre-print articles, etc.), as has happened several times recently on mushroom club listserves and mushroomobserver.org. Today, the transfer of information can take a second, while the scientific publishing process still takes months; there is no guarantee of when, or even if, an unpublished name will actually be validly published. (2) Use nomenclatural databases as a guide for what the professional mycological community considers to be the current name for a taxon, but keep in mind that disagreement exists: for example, Figure 1 shows a disagreement between MycoBank and Index Fungorum regarding the current name for Boletinus porosus. (3) Don’t accept a new name just because it’s new—weigh the evidence behind a particular recommendation. Keep a careful eye on why a new name is being accepted. (4) Don’t cling to an old name just to avoid having to learn a new one – our understanding of the genetic relationships within Fungi is constantly increasing, and ultimately this is good!

Acknowledgements:  
The seed for this article was planted during a discussion on the Bay Area Mushrooms Yahoo! Group. Thank you to the other participants in the discussion thread, including Irene Anderson, David Luberztozi, Scott Redhead, Debbie Veiss, Else Vellinga, Peter Werner, and Bill Yule (with apologies to anyone I neglected to include). However, please note that the viewpoints presented in this article may not represent those of the thread participants.

References:  
petizers brought by diners accompanied by mojitos made by Robin Tafel. Al Carvajal then proudly carried in a huge paella pan brimming with zarzuela de mariscos, a stew with clams, shrimp, crayfish, mussels and scallops in a rich, pleasantly piquant broth. Al prepared it with help from Lisa Bacon and Toni Kiely. This was ladled over intensely yellow saffron rice perfectly cooked by Sean Sevilla and Marissa Turner. At the side was a beautiful green salad created by Sandy Waks featuring fennel, almonds and other goodies all bathed in a citrusy dressing. Timothy and Rose Yee rounded out the feast with their own home-made candy cap ice cream which was incredibly rich and tasty and served with a lovely, crunchy, candy cap biscotti. Good, strong coffee (yes, decaf) was provided by Curt Haney.

April's dinner promises to be very special also. Tom Sasaki will be the Team Captain. Mussels will be the central attraction but everything else will be memorable as usual. The MSSF has a culinary history with mussels. Years and years ago a team of members would go out for a weekend and gather mussels from the Sonoma Coast for our big annual Mussel Feed. The hardy types would don backpacks and thread their way down cliffs or out onto reefs to collect those luscious bivalves and bring them back to the cleaning crew which usually included people like me willing to scrub and trim for hours at a time. The mussels would be taken back to the kitchen, cooked up with butter, leeks, wine, etc., and served with salad and SF sourdough bread, salad and dessert. Times have changed and gathering wild mussels for a large group can't be done like we used to do. Tom will find the best available for us.

See you at dinner or out somewhere beautiful and quiet checking out the fungi. --Pat

MORELS AND NETTLES WITH PASTA (Serves 4)

2 cups of fresh, young, budding upper stalks of nettles
½ stick of butter
1 big shallot, minced
½ pound of fresh morels (dried are OK, too; use about 1 to 2 ounces that you have reconstituted in hot water for 5 minutes. Keep the soaking liquid and add it to your recipe)
1 tablespoon of olive oil
2 tablespoons of lemon juice or to taste
½ pound of fettucine
Fresh ground pepper

Cook the pasta. Blanch the nettles in boiling salted water for about 8 minutes or until stems are tender. Drain but save that water to drink or use in soups. Plunge the nettles into cold water to stop the cooking. Drain.

Saute the mushrooms and shallots in butter until the morels are cooked through and softened. Add olive oil and lemon juice to taste. Add the nettles just to reheat them. Add the mushroom-soaking water, strained. Toss with the hot pasta and add pepper as desired.

MSSF LIBRARY TO BE NAMED & RE-DEDICATED

The MSSF council recently voted to give the MSSF library an actual name! Forever, our wonderful library has been known only as the MSSF library. At the March 12th council meeting, MSSF President Curt Haney proposed a name for the library. JR Blair made a motion which was seconded by acclamation, and 100% of the council members who were in attendance approved the new name for the library. From this point forward our library will be known as the MSSF Bill & Louise Freedman Mycological Library.

Bill & Louise have been life-long active contributors to the MSSF. Bill is an ex-president and currently the toxicology chairperson on the MSSF council. Louise and Bill are also co-authors of the cookbook Wild About Mushrooms, the cookbook of the Mycological Society of San Francisco. This book is free in digital format on the MSSF website. On the home page go to: “Culinary” and click on “cookbook”. For more information on Bill go to this link: www.youtube.com/watch?v=KdlOljXpBdE or www.youtube.com and search: “Dr. Bill Freedman on David Letterman”. The grand opening of the newly named library will be held at 7:30 p.m. in the Buckley room of the Randall Museum at the April 16th general meeting.

MSSF LIBRARY USED BOOK SALE

The MSSF Bill & Louise Freedman Mycological Library is bursting at the seams! Due to donations of used books over the last year the library has run out of storage room again. We have archived the books we did not currently have in the library and the excess used books will be up for sale at the April general meeting on the 16th from 7:00 to 7:45 p.m. in the Buckley room of the Randall Museum. Used books will only be available to members in good standing of the society. If you are not yet a member and would like to be eligible to purchase any of the used books, you can join the MSSF by going to www.mssf.org.
April 2013, vol. 64:08

MSSF Calendar April

Monday, April 8, 7 p.m. - Culinary Group Dinner
S. F. County Fair Bldg, Golden Gate Pk, 9th & Lincoln, S.F.
A scrumptious mussel feed. Bring your tableware and a beverage. The SFCFB does not provide dishes, etc.
The next dinner is May 6.

Tuesday, April 9, 7 p.m. - MSSF Council Meeting

Tuesday, April 16, 7 p.m. - MSSF General Meeting
7 p.m. - Mushroom identification and refreshments.
8 p.m. - Speakers Norm Andresen and Scott Koch.

Fri.-Sun., April 26-28 - Spring Morel Forays
Pines Campground, Groveland, CA. Tentative camp-out morel forays scheduled for MSSF members. (Friday and Saturday night camping with pot luck dinners). Forays are dependent upon moisture levels and weather conditions. Event may switch to the first weekend in May. Contact Norm Andresen n.andresen@comcast.net for more information.

Tuesday, May 14, 7 p.m. - MSSF Council Meeting

Tuesday, May 21, 7 p.m. - MSSF Annual Meeting of the Society and Election of Officers.

Announcements

MSSF VOLUNTEERS NEEDED

Join the Council leadership, learn the inner workings of the MSSF, and help make decisions that shape the future of the society. Do your part, by contributing your time to a 100% volunteer organization!

Librarian: Help co-chair this very important position. This position does not require you to be a formal educator or librarian. This is an interesting and fun position where you assist in cataloging and maintain our mycological library materials, plus check items into and out of the library during general meetings.

Mycena News Editor: Let creativity be your guide. Bring out your inner artist. Knowledge of Adobe InDesign CS5.5 and Adobe Acrobat X Pro helpful. Current editor can train you personally through mid-April and coach thereafter via email.
Send email to: mycenanews@mssf.org.

To learn more about all council and committee positions, go to: www.mssf.org, member’s-only area, file archives, council member position descriptions, or e-mail: President@MSSF.org

Remember, our great ALL-VOLUNTEER organization would not survive without volunteers!

Check the MSSF online calendar at:
http://www.mssf.org/calendar/index.php
for full details, latest updates and schedule changes.

The submission deadline for the May 2013 issue of Mycena News is April 15th.
Send all articles, calendar items and other information to: mycenanews@mssf.org.