Our Annual Meeting this year will be held Friday, December 14 at 6:30 PM at the usual location: The U of A Cooperative Extension Bldg located on the south side of Broadway just west of 44th Street, at 4341 E. Broadway. For the potluck, if your last name begins with A-H bring a main dish, I-O bring a salad and P-Z bring a dessert. Reminder: When you bring a dish to the potluck, bring whatever serving utensil is needed. If it is a soup, bring bowls as well as soup spoons. The only utensils supplied by the club are the plastic knives, forks and spoons, flat disposable plates and Styrofoam cups. If your dish requires something special, please bring it. Keep in mind that if your dish needs to be heated, there is no stove. If you need to plug in your serving item such as a crock pot, bring an extension cord.

Highlights: Bring your photo or craft work involving mushrooms to share with the members. Gabe Zorn and Jim Murphy have agreed to reprise their slideshow of photography of fungi with all new pictures. For those who missed last year’s meeting, this is your chance to enjoy and learn from Gabe and Jim’s extraordinary photographs as well as Gabe’s wit. This is a reminder. A new Editor is needed for this Newsletter. Please see any officer if you would like to try your hand.

You can see the location for our annual meeting has not changed. However, the venue is now on a Friday night instead of a week night. It is hoped this will accommodate more members for whom a week night was difficult to make. For the out of town members, maybe the boss will let you go a couple of hours early to make it to Phoenix. Please give any feedback to one of the Officers if you like or dislike the change or would prefer a Saturday even if it means renting a facility.

White Mountain Foray Report – 2007
Respectfully submitted by S.T. Bates
The following mushroom species were collected or reported from the White Mountains Foray 2007 (August 18 & 19). Vouchers for some have been included in the personal herbarium of the author. Please note that there are several new foray records. Some of these are very likely new records for Arizona (a few still await final determinations – one, Hydnellum peckii, is a definite)! There are several more unidentified species that require a bit more work before final determinations can be made.
A special thank-you is owed to B.W. Freyburger and Gabrielle Zornes for contributing to this list! Both have submitted potential new records for...
Mushroom Pie
(Sienipiirakka) Finnish

Filling
2.5 cps chopped onion
flour
3 T butter
8 cps chopped mushrooms
1 t dried thyme
1/2 t salt
lots of freshly ground black pepper
8 oz cream cheese
(t=teaspoon, T=tablespoon, cp=cup)

Crust
2.5 cps unbleached white flour
2 t baking powder
1/4 t salt
1 cp butter
1 cp sour cream
flour for coating dough and board for rolling

Glaze
1 egg
1 T milk

Fresh or reconstituted dried mushrooms, or a combination, may be used in this pie. Domestic commercial white mushrooms are fine, but if you can find (and afford) any rich-flavored mushroom, use them for at least a portion of the amount; this will give you a more pungent and woody-tasting dish.

To make the filling, sauté the onions in the butter in a large skillet. When the onions are soft and translucent, add the mushrooms and thyme and sauté for a few more minutes, until the mushrooms release their juices. Add the seasonings. Cut the cream cheese into small pieces and then stir it into the mushrooms until it melts. Remove from the heat and set aside until the crust is ready.

Preheat the oven to 400°.

For the crust, combine the flour, baking powder, and salt in a large mixing bowl. Using an electric mixer or by hand, cut in the butter just enough to achieve an evenly textured crumbly mix. Stir in the sour cream to form a soft dough. Generously dust the dough with flour and form it into a ball.

On a heavily floured board, roll out 2/3 of the dough to fit a 10-inch pie plate. Trim the edges and fill with the mushroom mixture. Roll out the remaining dough about 1/4 inch thick (thicker than a usual pie crust) and cut into strips 1 inch wide. Weave the strips into a lattice over the filling. This is a bit of trouble but well worth the effort, as you'll see. Fold the ends of the lattice strips under the bottom crust, pinch the edges together, and flute.

For the glaze, beat the egg and milk. With a pastry brush, thoroughly coat the pie crust (You'll have more then you need ----- give leftovers to the cat)

Bake the pie for 25 to 35 minutes, until the crust is puffy and golden. (Chanterelles, porcini, and cremini work well.)
A Mushroom Hunting Checklist

From the Oregon Mycological Society Website: www.wildmushroom.org (It appears this website is defunct at this time. Editor). Reprinted from: MUSHROOMER, April 2006, publication of the Snohomish County Mycological Society.

When you take to the wilds in search of mushrooms, be prepared! Here is a checklist for the well equipped Mushroom Hunter:

On Your Body
- Polyester or wool clothes
- Rain jacket
- Rain pants
- Gaiters
- Sturdy moisture proof boots
- Wristwatch
- Hand Lens
- Whistle
- FRS walkie-talkie radios* (optional)
- GPS (optional)

In Your Flat Bottomed Basket
- Waxed paper bags
- Knife, brightly marked
- Brown paper bags

In Your Knapsack
- Good map of the area
- Lunch
- Water
- Extra Clothes
- Sunscreen
- Insect repellent
- Trowel and Toilet Paper
- Field guides and key
- Notebook & pencil
- Spore print making equipment (black and white paper)
- Photography equipment
- Matches (waterproof)

* A happy and useful addition to the above might include two or more FRS walkie-talkies. This new type of radio is small, effective over several miles and often modestly priced. FRS radios do not require a license. They're a great way to stay in touch with your fellow mushroom hunters in the woods and during any caravan drive to the hunting area. You can find FRS radios at most sporting goods and consumer electronics stores. (FRS radios are different from CB radios, and MUCH better in all respects.)

A New Web Site

Thanks to web-meister, Tony Ambrosini, we have a new web site. The address is az-mushroom-club.org. It is still in its infancy. In the future, the newsletter will be posted on this web site and an email will be sent to members giving a link to it. For those without internet access, a hard copy will be mailed. The saving in printing and mailing will more than pay for the domain name and hosting. We should be able to post special events there as well as forays. Please take a look at the site. Suggestions are welcome. Contact Tony or Larry Morehouse with those suggestions.

THE GREAT FUNGAL VOCABULARY QUIZ

By S.T. Bates

Fungal substrate preferences or symbioses
- Definitions from the Illustrated Dictionary of Mycology by M. Ulloa & R.T. Hanlin

Award yourself 10 points per correct answer.
90-100% = professor!
80-89% = honors grad!
70-79% = plenty smart!
60-69% = hmmm.
Below 60% = hit the books!!!!!!

1) Mycorrhizae
2) Keratinophilic
3) Lignicolous
4) Coprophilous
5) Entomogenous
6) Fungicolous
7) Muscicolous
8) Lichenicolous
9) Bryophilous
10) Lichen

answers on page 5

BBQ at the Winery

Rod Snapp and Cynthia Reed, who are owners of the Javelina Leap Vineyard & Winery, had invited the AZ Mushroom Club to have a BBQ at their winery. It was to take place this past October. However, this year had to be cancelled because the wine crop in California came in two weeks early. That meant they both had to shift into high gear for making this year's wine. A new date, some time next year, will be selected and Members will be notified when that new date is available with the details.

White Mountain Foray

Our annual White Mountain Foray was attended by the most participants we have had in memory. There were about 40 vehicles over the two days. Obviously there were vehicles with more than one rider. This made logistics a little harder. Even with the large turnout, everyone found collectable mushrooms. A special thanks is due all those who helped the new members to find and identify the mushrooms. The quantities were not as good as last year, but most of the usual varieties were found.

Another special thanks is owed to Joel Thalheimer. He took the time to teach your Editor how to ID the honey mushroom (Armillaria mellea). Joel even marked locations where honeys could easily be found by Club Members. His knowledge was passed on to those who did not have the honeys in their knowledge bank.

Taste of Mushrooms

THE TASTE AND smell of mushrooms are important for both the identification of species and for the oro-sensory sensa-
tions one experiences while eating them. Several issues regarding gustation and olfaction are important to the mycophagist and will be discussed here. First, perceptions of the taste, smell and texture of mushrooms will be differentiated and discussed. This will be followed by a discussion of sensory deficits that can impair the taste or smell systems and lead to particular problems either identifying or eating mushrooms. Special consideration will be given to those who cannot taste bitter compounds and the potential that exists for these people to misidentify particular species of mushrooms.

The flavor experienced from eating mushrooms, or any other food, comes from a combination of taste, texture, temperature, spiciness and aromatic qualities. . . . Taste is one component of flavor and is thought to be limited to the perception of sweet, sour, salty, bitter and savory. . . . Receptors for these five taste qualities are contained in taste buds, which are located on the palate (top of the mouth) and pharynx (back of the throat), as well as the tongue. Despite what is commonly believed, taste receptors on all portions of the oral cavity respond equally well to the different taste…

Savory or “meaty” is the taste quality represented by amino acids, or protein. Foods rich in amino acids include mushrooms, fish, meats, cheese and some vegetables like kelp and tomatoes. . . . A second component of flavor is smell. Our olfactory systems are capable of detecting around 10,000 different smells. These various smells when combined with taste, often yield a unique oro-sensory experience. The last components of flavor are the spiciness, physical temperature, and general texture of the food, which are all signaled by the trigeminal nerve. . . .

The taste of Agaricus bisporus is often described as “mild” or “meaty” and is best typified by the taste quality “savory” because of its high amino acid content. To account for the taste of this mushroom, we will explore its components…(A scientific analysis followed. Editor) This mushroom thus provides a rich source of complete proteins while being a low-fat food source, and is of particular benefit to those individuals on a vegan diet who need alternate sources of essential amino acids.

Other commercially available and commonly consumed mushrooms such a Flammulina velutipes, Lentinula edodes, Morchella deliciosa, Pleurotus eryngii, P. Ostreatus, and Ustilago maydis contain similarly high amounts of amino acids. A commonly available commercially available mushroom, Catharellus cibarius, is comprised of 10% protein. One amino acid in particular, glutamic acid, is present in high concentrations in most of these mushrooms. . . . MSG and other amino acids are flavor enhancers and increase the palatability of (pleasantness) of foods. . . . Meat, fish, and canned vegetables or recipes containing these foods were improved by MSG. Interestingly, this indicates that adding MSG to amino acid rich foods further enhances their flavor. This implies that adding mushrooms to other protein rich foods increases overall palatability. Conversely, cereals, milk products, or sweet-flavored recipes were made worse by the addition of MSG. One could posit that adding mushrooms to similar food types would make them unpalatable, but this might best be left to individual experimentation.

**Other Sensory Components**

**Trigeminal:** Mushrooms described in the field guides with descriptors such as acrid, peppery, or burning, all excite the trigeminal nerve, which innervates the tongue and carries the sensory signals to the brain. Russula brevipes and R. emetica are good examples, and anyone who has tasted these mushrooms is aware of the burning sensation that overcomes the oral cavity.

**Smell:** The odors of mushrooms are as numerous as the number of species themselves. Mushrooms vary from the soapy smell of Tricholoma saponaceum to the difficult to describe but immediately recognized cinnamon-like odor of T. magnivelare.

**Sensory Deficits**

Deficits in smell and taste are widespread and can present a handicap in mushroom identification and alter the oro-sensory experience of eating them. Common causes of taste and smell deficits will be briefly considered, followed by specific examples of when these deficits can lead to the misidentification of mushrooms. Most people who experience a subjective loss of “taste” actually have smell dysfunctions instead. . . Thus, most people who complain of “taste” deficits could likely have olfactory problems.

Olfactory disorders are common, often have sudden onsets, and have several main causes. . . . These causes of olfactory loss are important to know because sensory loss negatively impacts the overall quality of life, not just the ability to quickly differentiate a Tricholoma magnivelare and T. zelleri, which can look very similar.

Gustatory loss is less prevalent than olfactory loss, but also has profound effects on the quality of life. . . (There follows a discussion of common causes for this loss. Editor)

Non-tasters: Approximately 25% of the population has a genetic variation in their bitter taste receptors that renders them unable to detect some bitter compounds. These people are therefore at risk for misidentifying bitter mushrooms, especially if they are taught to rely on their sense of taste to distinguish between bitter and non-bitter mushrooms. . . .

**Conclusions**

The sense of taste and smell is important to the identification of mushrooms. First, this review explained the common tastes of mushrooms, and the specific components in mushrooms that yield different tastes. Second, this review described common taste and smell deficits that impair the perception of some mushrooms, as well as discussed specific taste-related deficits with aging. Research has demonstrated that bitter and salty taste is compromised with the normal aging process. A decrease of salty taste is likely of little importance in tasting mushrooms because mushrooms are not naturally salty. However, elderly people should be aware that there is a decrease in the perceived intensity of some bitter compounds with age. Interestingly, deficits in the perception of savory taste stimuli with aging have not been studied. Other deficits to taste and smell typically come from physical damage to the sensory systems or from genetic causes, and this short review has described the most prevalent ones. It is the aim of the review that mushroomers are educated about the importance and individual variation of perceptions of taste and smell of mushrooms. For example, a mushroom might be de-

(Continued on page 5)
scribed as tasting very bitter to one person, somewhat bitter to an elderly person, and not bitter at all by a non-taster. Importantly, these individual variations can lead to the misidentification of specific mushrooms. This review has described a few specific examples where specific taste or smell disorders can lead to the misidentification of particular mushrooms, but it is likely that many more exist, underscoring the role of educating mushroomers about these issues.

Continued from page 1

Arizona. These records (along with B.W. Freyburger’s photos) will eventually be added to the Arizona Mycota Project (http://www.public.asu.edu/~stbates/amf.html) and will be published in Canotia as new additions to the Checklist of Arizona Macrofungi (http://lifesciences.asu.edu/herbarium/canotia/CANOTIA-9Feb06-vol2_2.pdf) in the upcoming year. I also thank Dr. Leathers for reporting several species that are included here. * New record for the White Mountains Foray ** Potential new record for Arizona and the White Mountains Foray

**inserted by author

ASCOMYCOTA

Helotiellales

Spathularia flavida Pers.: Fr.

Hypocreales

Hypomyces lactifluorum (Schwein.) Tul. Hypomyces luteovirens (Fr.) Tul. & C. Tul. Pachycondyla spathulata (S. Imai) S. Imai

Pezizales

Aleuria aurantia (Pers.) Fr.

Aleuria rhenana Fuckel

Peziza arvernensis Boud.

Peziza repanda Pers.

Sarcosphaera coronaria (Jacq.) J. Schröt.

BASIDIOMYCOTA

Agaricales

Agaricus albolutescens Zeller

Agaricus silvicola (Vittad.) Peck

Agaricus sp.

Amanita “caesarea” (Scop.: Fr.) Pers.

Amanita fulva (Schaef.) Fr.

Amanita muscaria subsp. flavovolva Singer

Amanita “pantherina” (DC.: Fr.) Krombh.

Amanita “rubescens” Pers.: Fr.

Amanita vaginata (Bull.: Fr.) Lam.

Ammialaria “mellea” (Vahl: Fr.) P. Kumm.

Clavaria purpurea Fr.

Clitocybe gibba (Pers.: Fr.) P. Kumm.

Clitocybe cf. odorata (Bull.: Fr.) P. Kumm.

Coprinellus micaceus (Bull.: Fr.) Vilgalys, Hopple & Jacq. Johnson

Coprinopsis atramentaria (Bull.) Redhead, Vilgalys & Moncalvo

Coprinus comatus (O.F. Müll.) Gray

Corinarius trivialis J.E. Lange

Crepidotus mollis (Schaef.: Fr.) Stauder

Cystoderma falcum A.H. Sm. & Singer

Flammulina populicola Redhead & R.H. Petersen

Flammulina velutipes (Curtis: Fr.) Singer

Floccularia straminea var. americana (Michel & A.H. Sm.) Bon

Gymnopus dryophilus Murrill

Hebeloma crustuliniforme (Bull.: Fr.) Quél.

Hygrocybe chrysodon (Batsch: Fr.) Fr.

Hygrocybe speciosus Peck

Inocybe geophylla var. lilacea Gillet

Inocybe rimosula (Bull.: Fr.) P. Kumm.

Laccaria amethystina Cooke

Laccaria laccata (Scop.: Fr.) Fr.

Leptolopha bouldieri Geëg.

Leptolopha clypeolaria (Bull.: Fr.) Quél.

Leucopaxillus giganteus (Quél.) Kotl.

Lycoperdon perlatum Pers.: Fr.

Lycoperdon pyriforme Schaeff.: Pers.

Marasmius androsaceus (L.: Fr.)**

Megaclayzia platyphylla (Pers.: Fr.) Kotl. & Pouzar

Panaeolus semiovatus (Sowerby: Fr.) S. Lundell & Nannf.

Pholiota aurivella (Batsch: Fr.) Fr.

Pholiota squarrosoides (Peck) Sacc.

Phyllolopsis nidulans (Pers.: Fr.) Singer

Pleurotus “ostreatus” (Jacq.: Fr.) P. Kumm.

Pleurotus populinus O. Hilber & O.K. Mill.*

Pluteus cervinus P. Kumm.: Fr.*

Sphoraria cf. ambiguia (Peck) Zeller**

Sphoraria sp.

Tricholoma flavovirens (Pers.: Fr.) S. Lundell

Tricholomopsis rutilans (Schaeff.: Fr.) Singer

Xeromphalina campanella (Batsch: Fr.) Maire

Auriculariales

Auricularia auricula-judae (Fr.) Quél.

Boletales

Boletus barrowsii Thiers & A.H. Sm.

Boletus “edulis” Bull.: Fr.

Boletus subtomentosus L.: Fr.

Gomphidius subrobus Kauffman

Leccinum insigne A.H. Sm., Thiers & Waling

Phylloporus sp.

Suillus kaibabensis Thiers

Suillus lakei (Murrill) A.H. Sm. & Thiers

Suillus sibiricus (Singer) Singer

Cantharellales

Cantharellus “cibarius” Fr.

Hydnodendrum reconditum L.: Fr.

Dacrymyctales

Calocera viscosa (Pers.) Fr.

Dacrymyces palmatus (Schwein.) Burt.

Phallales

Clavariadelphus ligula (Schaeff.: Fr.) Donk

Clavariadelphus truncatus (Quél.) Donk

Gomphus floccosus (Schwein.) Singer

Ramaria auricula (Schauff.: Fr.) Quél.

Ramaria stricta (Pers.: Fr.) Quél.

Polyporales

Albatrellus confluens (Alb. & Schwein.) Kotl. & Pouzar

Albatrellus novus (Schaeff.: Fr.) Kotl. & Pouzar

Fomitopsis pinicola (Sw.: Fr.) P. Karst.

Polyporus cf. elegans Bull.: Fr.**

Polyporus varius (Pers.) Fr.

Sparassis crispa (Wulfen: Fr.) Fr.

Russulales

Lactarius barrowsii Hesler & A.H. Sm.

Lactarius deliciosus (L.: Fr.) Gray

Lactarius rubriacteus Hesler & A.H. Sm.

Lactarius uvidus (Fr.) Fr.

Russula brevipes Peck

Russula xerampelina (Schaeff.) Fr.

Thelephorales

Hydnum peckii Banker**

Sarcodon imbricatus (L.: Fr.) P. Karst.

Answers for The Great Fungal Vocabulary Quiz:

1) The symbiotic association between the hyphae of certain fungi and the roots of vascular plants.

2) Exhibiting affinity for keratin.*

3) Living on wood, but not necessarily deriving nourishment from it.

4) A fungus that develops preferentially on dung or manured soils.

5) Growing on or obtaining nourishment, especially as pathogens, from insects.

6) That which lives or develops on fungi.

7) Living upon, or among, mosses.

8) That which lives on lichens, as a parasite, parasymbiont, or saprobe.

9) Develops in or on mosses.

10) …The symbiotic association of fungi and algae (or cyanobacteria**)

* http://medical.merriam-webster.com/medical/keratinophilic

** inserted by author
Would you like a polo shirt, hat, or patch displaying club logo? If so, use the form to the right to order from Rose Mary or Chester Leathers. They need minimum orders before they can send in an order, so you may have to wait until enough requests have been given.