

Eugenia Bone's presentation,  
*Mycophilia*

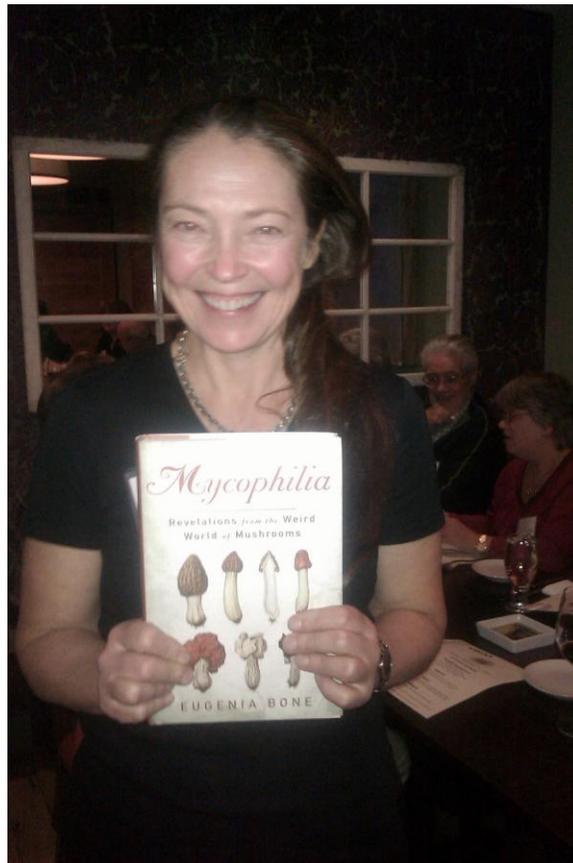
Article and photos by Russ Cohen

[Editor's Note: Ms. Bone's talk took place at the BMC Banquet on Sunday evening, November 1, 2012 at EVOO Restaurant in Cambridge. See Sarah Boardman's article, "BMC Banquet 2012," for a description.]

[Eugenia Bone is currently the President of the [New York Mycological Society](#). Besides her most recent book, [Mycophilia: Revelations from the Weird World of Mushrooms](#), that was the subject of this talk, Ms. Bone has also written three cookbooks: [At Mesa's Edge](#), [Italian Family Dining](#), and [Well Preserved](#).]

She started the talk by answering a question she is frequently asked, particularly since *Mycophilia* came out a year ago: How did she get into mushrooms? Her response: "It boils down to one thing: gluttony – I just wanted beautiful, fresh, fat, free, wild mushrooms. Then, in the process, I got into the biology [of fungi] and things really started to change for me."

She then read several excerpts from her book (which she prefaced by describing *Mycophilia* as part memoir, part an overview of the culture of amateur mushroom hunters, and part journalism, reporting on the emerging field of mycology, covering longstanding knowledge as well as new revelations coming out in the last ten years or so).



**Eugenia Bone held a copy of her book, *Mycophilia: Revelations from the Weird World of Mushrooms*.**

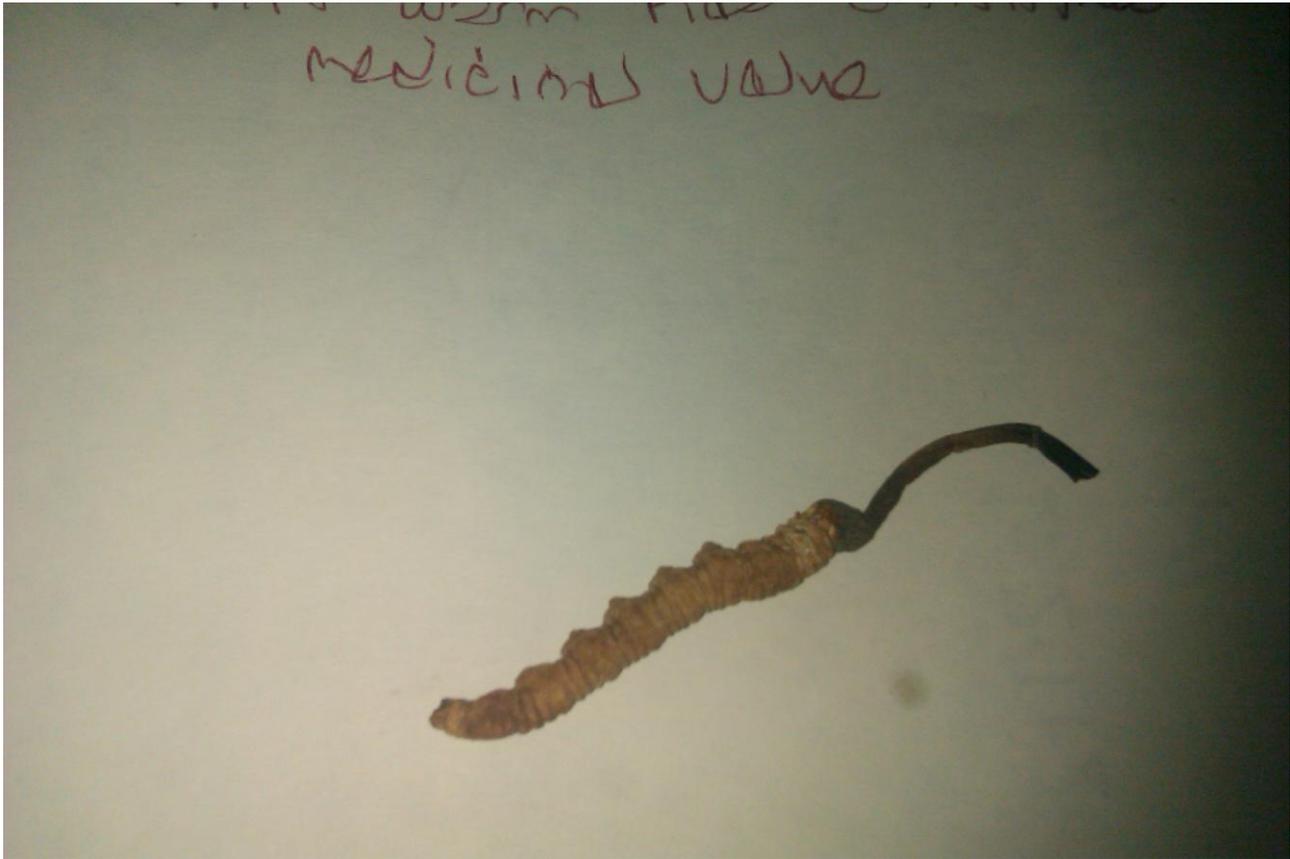
The first excerpt recounted a hike she and her husband Kevin had taken up Bald Mountain, near their ranch in southwest Colorado. While he raced ahead up the trail, passing through a Douglas Fir forest, to “bag the peak” with their guests, she reluctantly trudged behind, until her husband brought a mushroom with an enormous cap and fat stalk to her attention. It was a Porcini (*Boletus edulis*), and the forest floor nearby soon revealed many more. Eugenia stuffed her, Kevin’s and the guests’ jackets with every mushroom they could hold and brought them home, hobo-style. Once home, ignoring her guests, she turned her attention to the mushrooms, grilling some of the caps, cooking others with pasta, and throwing the stems into an ox-tail and posole soup. [I myself can attest to the bountiful *B. edulis* fruitings in that region: my wife Ellen (who accompanied me to the BMC banquet) and I took a two-week camping vacation in SW Colorado several summers ago, and on one hike we lost count after having seen over 300 Porcinis along the trail.]

Her next excerpt recounted her first foray with [New York Mycological Society](#) (NYMS), founded by composer [John Cage](#) 50 years ago. One of the NYMS’ big events is its annual morel foray and breakfast, which takes place on the first weekend of May and is held at an abandoned apple orchard on the west side of the Hudson River north of NYC. Unlike Colorado, this NY club foray experience proved to be much more competitive, an “arthritic stampede” into the bramble- and poison ivy-festooned orchard, and Eugenia ended up yielding the only morel she encountered to someone else who had spotted it at the same time.

Eugenia then went through some facts of mushroom biology, noting that [Fungi have their own Kingdom](#), which has more similarities to the Animal than the Plant Kingdom (e.g., like animals and unlike plants, mushrooms do not produce their own food). Only a little over 1% of the species in the [Fungi Kingdom](#) produce mushroom fruiting bodies (the others reproduce in other ways). Some fungi are saprophytes (plant decomposers), and it is now understood that fossil fuels would not have formed were it not for the incomplete metabolic processes of primitive fungi. Ironically, mushrooms are now also being used to break down small quantities of hydrocarbons into harmless products (through a process called [mycoremediation](#)).

Other fungi have a [mycorrhizal](#) relationship with plants (indeed, it is believed that 90% of all plant species do this). Not only do their fungal friends help extend the reach of plants’ root systems (in exchange for a share of the plants’ nutrients), mutualistic, endophytic fungi inside plant cells might help boost plants’ immune systems and/or help them deter predators. Other endophytic fungi are believed to help reduce plants’ stress levels (like a “Plant Prozac”).

Then there are the parasitic fungi, like the Asian species (*Cryphonectria parasitica*) responsible for [Chestnut Blight](#) and the decline of the [American Chestnut](#), formerly a major component of eastern forests. [Cordyceps](#) is a genus of fungi that parasitizes insects. Sometimes one species of Cordyceps parasitizes just one species of insect. “This is a very, very interesting group to me”, Eugenia declared. [Indeed, before her talk, she enthusiastically took around a Cordyceps-infected “worm” (i.e., caterpillar) from table to table at EVOO, and encouraged people to touch it. It was a dried Tibetan Ghost Moth caterpillar infected by [Cordyceps sinensis](#); the thread-like fungal fruiting body protruding from top of the “worm’s” head.]



**Bone passed around a dried Tibetan Ghost Moth caterpillar infected by [Cordyceps sinensis](#); the thread-like fungal fruiting body protrudes from top of the “worm’s” head.**

According to Eugenia, *Cordyceps sinensis* is the most expensive natural medicine in the world. The “worms” are worth about half their weight in gold, and are very hard to find. These infected caterpillars are Tibet’s primary export, and 70-80 % of the Tibetan population hunts for them.

The medicine is in the ‘worm’, not in the fungus, because, after the fungus infects the worm, it produces chemicals inside the caterpillar’s body in an attempt to fight off microbial competitors for that worm (like bacteria), and it is believed that these same chemicals might exert a similar protective effect for humans. Eugenia also noted that some believe that *Cordyceps sinensis* can serve a similar function as Viagra. Eugenia next noted that Cyclosporine is synthesized from a [Cordyceps](#)-infected scarab beetle. This medicine [helps prevent rejection of transplanted organs](#). [Renowned mycologist Tom Volk](#) has a [transplanted heart](#) and [he takes cyclosporine](#). She made the wry observation that the medicine responsible for giving Tom a second chance at life is synthesized from a fungus growing on a species of insect that is an Egyptian symbol for rebirth.

Back to the subject of mycophagy, Eugenia pointed out that almost all cultivated mushrooms (including cultivated versions of “wild” mushrooms) are saprophytes, while many of the wild mushroom species we hunt for and eat are mutualists. The reason is that it is a lot easier to provide substrate for a “decomposer” mushroom to grow on than it is to establish a [mycorrhizal](#) relationship. Truffles are a notable exception to this rule – while they are a mutualistic species, efforts are being made to cultivate them because they are so valuable. Regarding mushrooms’ nutritional value, a subject many of us are fuzzy on, Eugenia reports that mushrooms are also good for you. They are low in calories, fat free, cholesterol free, low in sodium, and yet contain a higher grade of protein than beans. They provide several important nutrients, including selenium and Vitamin

B-12. Replacing meat with mushrooms in your diet can help you lose weight, as eating them will make you feel full (this has been confirmed in several scientific studies). Eugenia advises that all mushrooms should be cooked before being eaten, as some species (like morels) are toxic raw, and mushrooms are more digestible by (and their nutrients more available to) humans after cooking.

Fungi are also the source of many important drugs: immune system boosters, antibiotics, cholesterol-lowering drugs, even [Beano](#). [The active ingredient in Beano is derived from a black mold, *Aspergillus niger*.] The controlled use of [Psilocybin mushrooms](#) has recently been shown to help terminal patients suffering from depression and end-of-life anxiety as well as a wide variety of neurological disorders. *Psilocybin* has also helped scientists locate a place in the brain that, when stimulated, causes spiritual epiphany. People who have served as subjects for these experiments have reported that the spiritual epiphany they experience on *Psilocybin* is equivalent to their most profound religious experience in church, or the birth of their first child. Speaking of religion, Eugenia noted that many religious traditions are believed to have originated through the consumption of psychotropic mushrooms. Even Santa's red and white suit and the Christmas tree may have their origins in the red-and-white colored (in Eurasia) [Amanita muscaria](#) mushroom and its mycorrhizal conifer friends.

She selected as the last excerpt from *Mycophilia* to share with us a story that highlights the social aspects and like-minded nature of mushroom hunters. Her story (also recounted [here](#)) was about the time she took part in the [Illinois State Morel Hunting Championship](#), in [Henry, IL](#). She described the friendly and colorful characters she encountered among the 300 people participating at the event, ranging from hippies, Iraq war veterans, bikers, drinkers, smokers, along with children, many dressed in camouflage. Many of these people shared their mushroom hunting superstitions, like one fellow reporting that he always found mushrooms after doing a good deed, another always wearing the same outfit for each mushroom hunt, and others choosing to carry small-sized baskets, so as not to scare the mushrooms away. She was warned to “never say the ‘m’ word” while in the woods, and to refrain from picking the first morel she saw, for to do otherwise would trigger the mushrooms to send a signal through their underground mycelial network to all the other morels, which would then go into hiding.

While she ended up (with a friendly local's help) finding about 35 morels during the two-hour contest, others complained about the meager fruitings that year. Afterwards a kindly couple took her to a military base outside Peoria, where access was restricted unless you had a military I.D. (one of them did). The base contained a beautiful moist forest, great mushroom habitat, but which also was in close proximity to an active firing range. Nevertheless, they found many pounds of morels, some of which Eugenia took home on the plane back to New York.