



The fragile dapperling mushroom (*Leucoprinus fragilissimus*) collapses its cap soon after it opens, seeming to disappear from sight.

## A Kingdom unto Itself

WHEN WE SEE A MUSHROOM, we are catching the barest glimpse of a complex arrangement. The visible mushroom represents the reproductive state of a fungal organism that extends well beyond our sight. A mushroom is like the fruit of a tree, often visible, sometimes edible, and responsible for establishing the next generation. But imagine if an entire apple tree, roots, trunk, and branches all were underground and only the apples themselves popped up above the soil. Fungi are like that. These beautiful photographs are the work of Paul McFadden who captured the images at Barrington Hills Farm.

Fungi were once thought to be somehow akin to plants. Both seem to be rooted in place, while most animals are free to roam. However, there are stark differences between plants and fungi.

Nowadays, fungi are seen to occupy their own biological kingdom. Biologists recognize that green plants are producers in our ecosystems, making their food from sunlight. Animals are consumers. Fungi perform roles within ecosystems, but they do not produce their own food. In fact, biologists today recognize that fungi are more closely related to animals than to plants.

So, what do fungi do in the environment? Having encountered mushrooms on rotting logs or dead trees—some fungi act as decomposers, breaking down dead matter into essential organic compounds, recycling the stuff of life from one organism or generation to another over time. But fungi can do much more.

The part of the fungus that we do not see beneath the mushroom is a far-reaching fibrous network called mycelium, spreading through the

rotting wood or the soil. Individual strands are called hyphae. Underground, these hyphae connect the fine roots of various plants in a complex network. These symbiotic associations are known as mycorrhizae. All parties involved get a boost from the association. Mycorrhizae serve plants by significantly increasing the efficiency of root hairs' ability to take up nutrients; the fungal partner is fed by carbohydrates and sugars served by the plants—nutrients that fungi cannot manufacture. It is through mycorrhizae that trees, for example, exchange nutrients and communicate chemically across a woodland.

With some 10,000 species of fungi occurring in the United States, including more than 2,000 species in Illinois, members of the fungal kingdom are as diverse as one might imagine. There are some 500 species of fungus considered common in the greater Chicagoland region. You have likely seen many mushroom species in the Barrington area.

Mushrooms are most likely to be encountered in the autumn, but some species present themselves in spring, and few may be seen at any given time during the growing season. Some mushrooms are delicious to eat, while others can be deadly, so foraging is not to be encouraged unless in the company of an experienced expert. In any case, collectors must obtain landowner permission to harvest any wild food or sample organisms for study.

The study of fungi, known as mycology, continues to reveal fascinating new aspects of these extraordinary organisms. For those interested in learning more, there are good field guides about the diverse properties of mushrooms. Illinois Department of Natural Resources and the Illinois Mycological Association are two authoritative sources of information about our local fungi. U

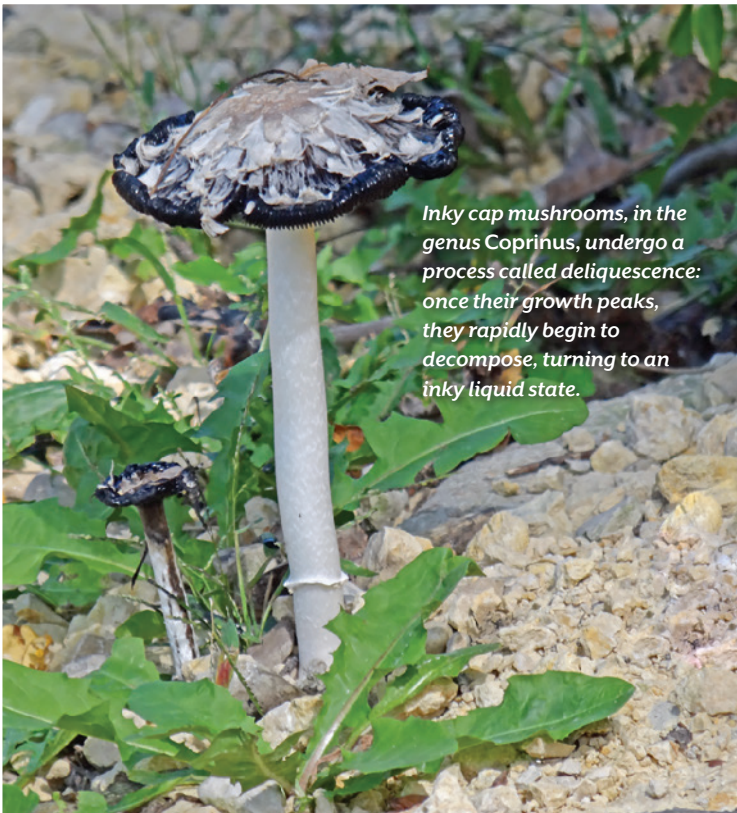
.....  
*Greg Rajsky is executive director of the Kettle Moraine Land Trust headquartered in Elkhorn, Wisconsin, and Principal of True Nature Consulting in Woodstock, Illinois. He can be reached at [greg@kmlandtrust.org](mailto:greg@kmlandtrust.org). • Paul McFadden has lived in unincorporated Algonquin, Illinois for nearly 50 years. Barrington Hills Farm offers opportunities for his camera work with nature. He may be reached at: [circa6936@gmail.com](mailto:circa6936@gmail.com).*



Turkey-tail fungi, in the genus *Trametes* (or *Polyporus* according to some authorities) grow directly on wood.



Dryad's saddle or pheasant-back is named *Polyporus squamosus* according to some authorities, while others designate it *Cerioporus squamosus*. Growing on wood, whether a live tree or dead, it is one of a few mushroom species that can be found in the wild most anytime, spring through fall.



*Inky cap mushrooms, in the genus Coprinus, undergo a process called deliquescence: once their growth peaks, they rapidly begin to decompose, turning to an inky liquid state.*



Hen-of-the-Woods (*Grifola frondosa*), known to the Japanese as *Maitaki*, can be found in autumn, emerging directly from the ground near the base of an oak.



Scarlet elf cup (*Sarcoscypha coccinea*) is a bright red little cup mushroom that appears in the woods early in springtime.



[www.barringtonhillsfarm.org](http://www.barringtonhillsfarm.org)

Barrington Hills Farm is 700 acres of pristine, undeveloped land located at Haegers Bend and Spring Creek Roads in the northwestern most corner of Barrington Hills. The rarity of Barrington Hills lies in its open space, fresh air, clean water, and abundant wildlife. The land is precious and delicate and in constant need of stewardship to keep it that way.