

Sports Turf Manager

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Fairy Rings are Magical

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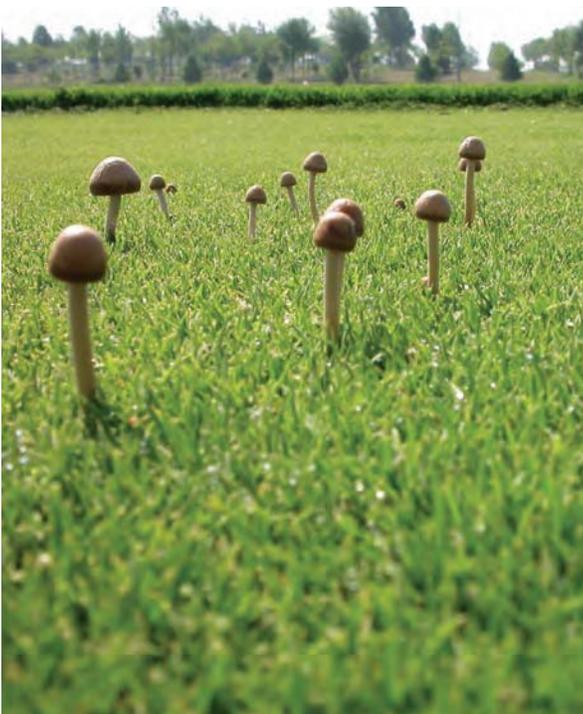


Figure 1

Fairy Rings are magical. Or so it was believed by people in olden times. What they saw was the seemingly magical appearance of mushrooms virtually overnight. They then superstitiously linked this to the dancing of mythical creatures in circular patterns at night. We now know that they indeed are magical, and grow stealthily in the thatch or buried woody material, and sprout to spread their spores on the wind (Figure 1). They are often circular because they grow outwards from a central start point, and only produce mushrooms or other symptoms (dead ring or stimulated ring) at the outer edge of the ring. The fungus in these rings is only active at the outer edges and will have died off in the centre. If left undisturbed, the rings can continue to grow to be metres across.

Most mushrooms are soft, delicate and sensitive to drying, and they don't care for exposed habitats. They prefer the deep, dark recesses of the forest. In the woods, there is abundant organic debris they can use for food, and it stays damp for long periods under the canopy. Also, there are some fungi which are associated with tree roots, and they appear annually in a ring around the tree (Figure 2). These fungi are mycorrhizal and live in symbiosis with the tree, by providing the tree with nutrients and perhaps providing protection against root-attacking organisms, and obtaining photosynthates from the tree.

Fungi like it wet, and wide open grassy places are exposed to the sun all day, therefore, are not among the favourite spots for fungi to set up shop.

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Figure 2



Figure 3



Figure 4

There are of course exceptions to every generalization and not unexpectedly, therefore, a handful of fungi have adapted to the more rigorous demands of the open spaces. From time to time often following prolonged periods of intermittent rain and somewhat cooler weather, mushrooms will pop up in abundance over lawns, fields and fairways.

Over the years, thatch builds up under the grass in fairways and other grassy places. The organic matter mixed into soil provides an ideal substrate for a host of microorganisms including fungi. Not only does it supply the food source (cellulose, etc.) for energy, but the thatch tends to hold the moisture for longer, which is ideal for fungus growth. As well as thatch, some turf fungi also grow on dead wood. This source becomes available when trees die, and the stumps and hidden roots buried in the turf can supply abundant food for a long time for these fungi.

What are mushrooms? The active fungus is a very fine thread measured in micrometres (1 micrometre = 1/1000 mm). It colonizes the thatch or buried wood. When times are right, the fungus produces spore producing bodies that we call mushrooms. Mushrooms are among Mother Nature's most prolific, sophisticated and successful reproductive machines. A good-sized mushroom can shoot off millions of spores. These are carried by breezes to other sites to attack more woody material or thatch. The following mushrooms are commonly found in open grassy areas.

Mica Cap (*Coprinus micaceus*, Figure 3, George Barron)

This is probably one of the most common and widespread of the lawn mushrooms. It grows in old hardwood stumps, dead roots and buried wood. It produces mushrooms early in the year, usually in large clusters in grass or soil above the buried wood. The caps are small, tan coloured, radially streaked and when young covered with a layer of tiny mica-like particles that glisten in the morning sun, hence the common name. These delicate flakes often disappear with rain or ageing. This species is edible but the mushrooms are flimsy and will disappear to almost nothing during cooking. Not only that, there are not any rave reports about its flavour!

Haymaker's Mushroom (*Panaeolina foenicicii*, Figure 4, George Barron)

Perhaps the most common of the lawn mushrooms, this species comes up early in the year scattered or in small groups. It is recognized by its small, hemispherical cap and mottled gills. The caps often change colour from darkish brown to light tan as they dry. The spores are black and will leave black smudges on the fingers if the gills are handled. This small mushroom is only one to three centimetres in diameter. It is reported as poisonous because it contains very small amounts of the hallucinogenic psilocybin chemical.

Agrocybe (*Agrocybe vervacti*, Figure 5, George Barron)

Common near the Great Lakes but not as well known elsewhere, this is a distinctive yellow-brown mushroom. The caps are up to 4 cm across. It produces mushrooms during wet periods in summer. Edibility is unknown and no one has volunteered to test it.

Fairy Ring Mushroom (*Marasmius oreades*, Figure 6, George Barron)

The word "choice" is often overused and overstated for wild edibles of all types. For the most part wild mushrooms aren't as flavourful as the gourmets tell us. The Fairy Ring Fungus, however, is an exception and is one of the better

tasting edible mushrooms. This knowledge won't do you a lot of good in Ontario, however, as the Fairy Ring fungus is not that common in this province. In the west, on the other hand, *Marasmius oreades* is abundant and is also a serious problem and very destructive of turf grasses. It produces mushrooms in rings (Figure 7) hence the common name. More important, in dry weather it shrivels up but with heavy dew or during rainy weather it resurrects itself and starts to produce spores. You can collect this fungus wet or dry and shrivelled up. If it is dry and it is put in water, it will flesh out and look just like "new". If it doesn't do this you've made a mistake and it isn't the Fairy Ring Mushroom!

Shaggy Mane (*Coprinus comatus*, Figure 8, George Barron)

Shaggy Mane is one of the "Inky Cap" group. In this group the caps break down rapidly by self digestion (autolysis) to an inky black fluid. Shaggy Mane is a medium sized mushroom that is easily recognized by its tall scaly cap. It is highly prized as an edible by some, but it ripens very rapidly to a black inky goo and must be eaten the day it is collected or you will have to suck it through a straw. Shaggy Mane is more common in late fall and more prolific on disturbed sites where it colonizes woody debris.

Tippler's Bane (*Coprinus atramentarius*, Figure 9, courtesy of Brian Shelton)

This mushroom is conical to bell-shaped and has a smooth, silky, streaked cap with a metallic grey sheen. This inky cap is edible but with a caution. Alcohol must not be consumed with the mushroom or for several days after. The caps contain a substance called coprine which acts like antabuse and, in association with alcohol, gives most unpleasant (but not lethal) symptoms such as flushing over the upper body, metallic taste on the mouth, nausea, etc. It produces mushrooms in summer and fall.

Dunce Cap (*Conocybe lactea*, Figure 10, George Barron)

This species is only a few centimetres across at best. It is recognized by the whitish to pale tan, conical cap and the gills that turn reddish brown as the spores mature. It is quite common and produces solitary mushrooms or in scattered groups in early summer.

Smooth Lepiota (*Leucoagaricus naucina*, Figure 11, courtesy of Brian Shelton)

One of the larger "grass" mushrooms, the Smooth Lepiota can be up to 10 cm across or more. The cap is hemispherical to convex with a central knob. The gills are white at first but become pale pinkish in age. The stalk is stout and swollen at the base and has a narrow ring. This edible species is never recommended because it is very similar to the deadly poisonous Destroying Angel which has already killed a number of Canadians over the years. It produces mushrooms in summer and fall and is especially common on newly developed grassy areas.

Spiny Puffball (*Lycoperdon curtisii*)

As with most puffballs, this mushroom when young is edible, but on closely mown grass, it is often sliced (Figure 12) before it has grown large enough to enjoy. When allowed to grow in taller grass, it becomes ornamented with spines (Figure 13), and still entirely white inside. As it matures, the inside turns entirely into spores, and these are released by rainsplash and blown by wind. This fungus can cause the darker stimulated green rings found on grass.



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12

Fairy Rings often show up as one or more of three types: (1) dead ring, (2) stimulated ring, and (3) ring of mushrooms. In wetter regions across the country, we seldom see the dead ring (it is more likely to be Necrotic Ring Spot disease on Kentucky bluegrass if there are multiple dead rings close together). The stimulated ring is more common, and there's little that is done to control these except to mow off the faster growth in the stimulated ring more frequently, and perhaps to mask the non-ring parts with nitrogen or iron to make it all greener. The ring of mushrooms is also something that is just a nuisance and doesn't really harm the grass. But there are concerns by parents and pet owners that their children or animals will consume the magically appearing mushrooms, so it is probably better to mow them away quickly.

Next time you're wandering around a sports field or golf course, and it's a slow day keep your eye open for one or other of these common mushrooms (Figure 14, Figure 15, Figure 16). You don't have to eat them! You can enjoy them as one of nature's little wonders. If the worst comes to the worst you can always practice your putting or kicking game on a *Conocybe* or a *Panaeolina* and impress your friends with your knowledge of the names. Sadly for some, the hallucinogenic mushrooms of the *Psilocybe* genus (magic mushrooms) that are so common on the east and west coasts do not seem to thrive in the central regions. C'est la vie!

If you're really excited about all this, there is a locally written book on mushrooms available (Barron, 1999). Other useful guides to mushrooms of North America include Lincoff (1981), McKnight & McKnight (1987), and Miller (1978).

References

Barron, G.L. 1999. Mushrooms of Northeast North America. Lone Pine Publ., Edmonton, Canada. See www.uoguelph.ca/~gbarron.

Lincoff, G.H. 1981. National Audubon Society Field Guide to North American Mushrooms. Knopf, New York.

McKnight, K.H. and V.B. McKnight. 1987. A Field Guide to Mushrooms of North America. Peterson Field Guide Series, Houghton Mifflin, Boston.

Miller, O.K. 1978. Mushrooms of North America. Dutton, New York.



Figure 13



Figure 15



Figure 14

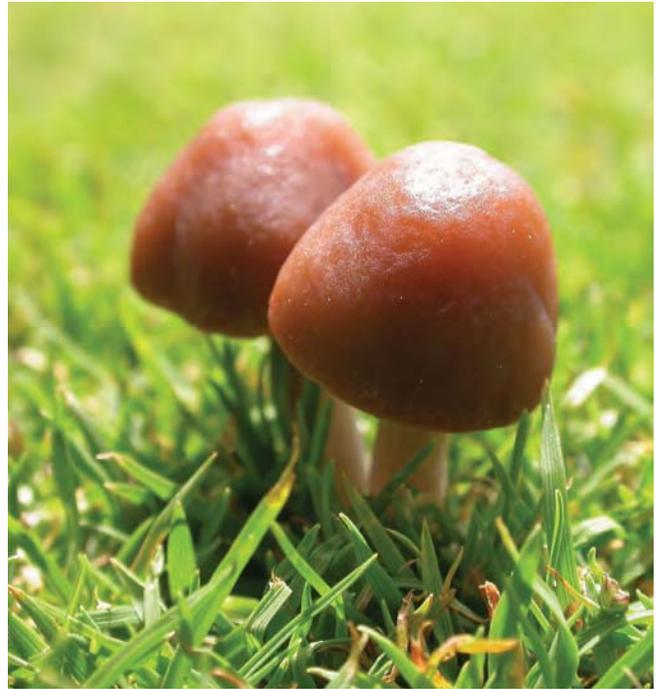


Figure 16



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