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Identification of Mushrooms – Getting Started

Venture into the woods to explore the incredible diversity and ecology of our local fungi. Learn the key identifying features of mushrooms, for example the characteristics for separating gilled mushrooms. Learn the methods for collecting mushrooms for study, making spore prints, writing descriptions, photography, using a microscope, and using identification keys.

Topics: basic biology and fungal life styles, plant associations, roles in the environment. Collection and identification, major groups, mushroom characters and how to use a key. Discussion of mushrooms found on forays.

Suggested activities

Look for mushrooms and other fungi in your area or nearest park. Make a list of those you find. Collect if you have permission. Make spore prints. Take photographs. Use the picture key and a book or website to figure out what groups of fungi they might be. If you can identify them to genus or species then write the names down, otherwise you can give them descriptive names or numbers. Describe several of the ones you find. Also make drawings.

Pick mushroom species from a Chicago checklist or other list, choosing ones from different morphological groups. Look them up in a mushroom book or website (or search the name using Google). Read the descriptions and compare the photographs. Also look to see how and where they come out in the key, if the book or website has keys. Describe briefly on paper their characteristics, e.g., cap shape, gill attachment, stipe shape, colors, surfaces, texture, etc. How is the species separated from similar species?

Attend meetings of a mushroom club or mushroom related talks or events with other groups. Go on forays with these groups. Upload your mushroom photos to [iNaturalist](#) or [Mushroom Observer](#).

1st book: **Joe McFarland and Gregory M. Mueller. 2009. Edible Wild Mushrooms of Illinois and Surrounding States: A Field-to-Kitchen Guide. 1st Edition, University of Illinois Press.**

2nd book: **Michael Kuo and Andrew S. Methven. 2014. Mushrooms of the Midwest. University of Illinois Press.**

Illinois Mycological Association: <http://www.illinoismyco.org/>

Wisconsin Mycological Society : <http://www.wisconsinmycologicalsociety.org/>

Michael Kuo, Eastern Illinois University (has keys): <http://www.mushroomexpert.com/>

Gary Emberger, Messiah College, Fungi on Wood (has keys): http://www.messiah.edu/Oakes/fungi_on_wood/

Tom Volk, Fungus of the Month pages: http://botit.botany.wisc.edu/toms_fungi/fotm.html

Recommended websites and other resources: <http://www.mycoguide.com/guide/resources>

Recommended books: <http://www.mycoguide.com/guide/resources/books>

Checklists for Chicago Region: <http://www.mycoguide.com/guide/resources/checklists>

Videos with Illinois Mycological Association: <http://www.mycoguide.com/guide/resources/video>

Handouts and documentation PDFs: <http://www.mycoguide.com/guide/methods>

Identification of mushrooms – Important factors

- ✓ Spore print color (white, cream, buff, green, pinkish, various shades of brown to black)
- ✓ Partial veil and universal veil (consistency, location, ring, volva, warts, other remnants)
- ✓ Cap characters (shape, color, surface texture and covering, margin, veil remnants)
- ✓ Gills / pores / teeth / or other; attachment and other characters (spacing, color, width)
- ✓ Stalk characters (shape, color, surface texture and covering, base, veil remnants)
- ✓ Staining or bruising, and chemical reactions
- ✓ Other characters: odor, taste (certain groups), latex, cords or rhizomorphs
- ✓ Microscopic characters (spore shape and size, features of cystidia, type of cap pellis)
- ✓ Manner of growth (solitary, scattered, gregarious, caespitose, imbricate, etc.)
- ✓ Substrate (type of wood, tree, roots, leaf litter, wood chips, soil, sand, moss, dung)
- ✓ Habitat (prairie, savanna, woodland, urban, etc. ; type of trees)
- ✓ Time of year
- ✓ Part of country or world

Find the tree – Find the mushroom

Many fungi are specific to what they grow on (the substrate) if they are saprobes (eating dead matter) or parasites (feeding on living matter). Symbiotic fungi include the lichens (living with algae) and ectomycorrhizal mushrooms (living with woody plants). If you are looking for certain fungi it is best to look for their food source. When collecting fungi, note what they are growing on, what the habitat is, and what trees and other vegetation is present.

Trees *in the Chicago Region* that are mycorrhizal: Pine family (pine, spruce, fir, larch, hemlock), Beech family (oak, beech), Birch family (birch, alder), Willow family (aspen, cottonwood, poplar, willow). To a lesser extent also ash, basswood, hickory.

Larger basidiomycetes *in the Chicago Region* that are mycorrhizal (crusts and truffles not included). Gilled mushrooms: *Amanita*, *Cortinarius*, *Entoloma* (in the strict sense), *Hebeloma*, *Inocybe*, *Hygrophorus* (in the strict sense), *Laccaria*, *Lactarius*, *Russula*, *Tricholoma*. Boletes: all of the bolete genera and relatives including *Phylloporus*, *Paxillus*, *Scleroderma*, *Astraeus*. Other fungi: *Albatrellus*, *Cantharellus*, *Clavariadelphus*, *Clavulina*, *Coltricia*, *Craterellus*, *Hydnellum*, *Hydnum*, *Phellodon*, *Ramaria*, *Sarcodon*, *Sebacina* (includes *Tremellodendron*), *Thelephora*.

Below taken from Michael Kuo: <http://www.mushroomexpert.com/collecting.html>

Ecology, Ecology, Ecology!

Mushrooms have evolved along with plants and animals as integral parts of complex ecosystems. It should be obvious that understanding mushrooms, therefore, depends on understanding the whole picture.

Is the mushroom growing from wood? If so, is the wood dead or living? If the tree is still alive, where on the tree is the mushroom growing--near the base of the tree, or around the roots, or higher up? (To show you that I'm not just giving you woodland busy-work, notice that *Laetiporus sulphureus* and *Laetiporus cincinnatus* can be handily separated with the answer to that last question.) If the wood is dead, is it a log or a stick? Is the bark still attached to the wood, or has it been decaying for a long time?

What kind of tree is (or was) it? No, successful mushroom identification does not usually depend on the ability to identify living and long-dead trees with 100% certainty, but this information can often make the process much easier.