

## MUSHROOM SERIES

### RESPECT, DON'T RIDICULE, THE RUSSULAS

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Go into the woods and pick a basket of mushrooms. I can almost guarantee at least one of them will be a species of the genus *Russula*. They are major ectomycorrhizal partners with the roots of trees in coniferous and deciduous forests around the world. It's no surprise then that their mushrooms are commonly encountered popping up from beneath litter across the forest floor. I can't think of a season I haven't seen one.

It's pretty easy to tell if your mushroom is a *Russula* sp. Once you get to know them you will recognize them by sight. It is difficult to describe just what makes them so characteristic. The cap colours can range from deep shades of red, orange, yellow, purple, or green, to plain browns or off whites. The etymology of their name is from Latin *russus* for "red", the striking cap colour many of them exhibit. Their gills are white to yellow and somewhat thick, and their stems are rigid and white except for a few that have a red blush applied to the outer surface. Under the microscope, their spores are covered with (beautiful) warty ornamentations.

But to a novice mushrooer, I suggest breaking your *Russula* apart to fully experience the properties of its flesh. They are often incredibly fragile, particularly the gills that crumble apart upon handling (hence the common name "brittle gills"). Their stems will snap cleanly like a piece of chalk, unlike other mushroom stems that are usually fibrous and stringy. The skin on the surface of the cap can often be peeled off (to some degree), leaving you with a translucent membrane between your thumb and forefinger.

Actually, *Russula* species are kind of a joke amongst mushroomers. They are kicked, punched, stomped, thrown, or otherwise utterly destroyed on forays – "oh, another JAR" ("Just Another *Russula*").<sup>1</sup> Another saying goes, "throw your mushroom against a tree, if it explodes it is a *Russula*". They are so common and fragile they are basically asking for it. Another factor against this group is the difficulty in identifying them to species. It can prove to be an incredibly frustrating endeavor, and reading about the countless hours mycologists have spent trying to distinguish these species is downright depressing (see

Kuo 2009<sup>2</sup> – probably the most hopeless article on mushrooms I've ever read).

The problem is that while your *Russula* specimen may seem distinct, the range of characters permissible within each species is very wide, so your collection may be any one of these. Take colour of the cap for example (easy, right?). Many species exhibit some range of cap colours (ex. red to orange to orange-brown) and some species such as *R. xerampelina* can vary widely: usually red to dark red, purple, or brownish-olive, but sometimes outright green, brown, yellow-brown, purple-brown, or anything in between.<sup>1</sup> Even if your species is less variable, the cap colours on any *Russula* will fade and change with weathering and can become misleading. Other features such as degree of peelability of the cap's skin, taste of a piece on the tongue (bitter to mild to spicy hot), shade of spore print, and wartiness of the spores can exhibit a range of degrees. That and there are about 750 species out there.<sup>3</sup> The difficulty is compounded across field guides with differing species descriptions and online reports where identifications may be incorrect, making information on distributions and ecology unreliable.

All of that said, let it be known I do not encourage violence towards any such friendly creatures as these mushrooms! There is no harm to the fungal organism itself (the main body – the network of hyphae – is safe underground) but we should cultivate in our minds a respect and appreciation for these interesting and important organisms. In addition to their being important for the health of our forests as ectomycorrhizals, they are home to insect larvae and serve as food for squirrels and deer. Another fungus, *Hypomyces lactifluorum*, grows on *Russula brevipes* and produces the “lobster mushroom”, which is bright orange and has a unique pimply texture. Do you know *Monotropa uniflora* (aka ghost plant, Indian pipes, corpse plant)? It's a weird white plant (no chlorophyll) that is a mycoheterotroph – getting its energy by parasitizing fungi who are mycorrhizal with trees (ultimately obtaining energy from other plants). Anyway, it has been found to exclusively form relationships with fungi from the family Russulaceae, mostly *Russula* spp.<sup>4</sup>

There are a few species commonly mentioned in field guides that wouldn't hurt to learn. You may encounter them, or at least be able to say you have something that could be these species or is



very similar. *Russula emetica* has a red cap and white gills and stalk. Chewing on a small edge of the cap with gills will produce a strong acrid (hot peppery) sensation in your mouth (spit and rinse afterward! The name is appropriate for its emetic properties). *R. sanguinea* (a European name probably incorrectly applied to many of our species) is similar to *R. emetica* except for having stalks tinged pink or red. *R. lutea* is one of a few common yellow-capped species you may find. To distinguish from other yellow ones be sure to test for the acrid taste and if the inner flesh bruises ashy gray after handling (and how quickly this reaction occurs). *R. xerampelina* can exhibit a range of colours (as described earlier) but has a distinct fishy smell and is fairly common. Green-capped species are often identified as *R. virescens*, but this is exclusive to Europe. So far in North America we know there are several species in this “virescens-crustosa” group, but their precise features and names have mostly not yet been determined.<sup>5</sup> *R. crustosa* differs from *R. virescens* by the attractive quilted pattern on the cap surface. There are several other names around for other olive to greenish species.

Go forth into the forests and find

*Russula* mushrooms! Explore their fragility, tastes, and colours. Put them side-by-side and create a rainbow spectrum. Maybe even try to identify them. This is one genus of mushrooms I hope you never forget.

## REFERENCES

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*A typical Russula sp. found in a small aspen forest in Grasslands National Park, SK; 2013. This specimen has a white stem, yellow gills, and a purple-brown cap.*  
- Chris Hay

