



Slime Molds

Every summer UNH Cooperative Extension offices across New Hampshire get calls like this from panicked home gardeners:

“Ewwww! There’s an orange-yellow slimy blob that’s growing in the bark mulch around our shrubs. Almost overnight it seems to have grown from a small patch of what we thought was dog vomit to a giant thing the size of a bath towel! It’s creepy, like some alien creature. Help!”

Don’t blame the landscaper who spread your mulch or the garden supply retailer you bought it from. The blob-like invader is a *slime mold*, whose biological name is *Fuligo septica*, one of an unusual class of organisms that sometimes behave like plants, sometimes like animals.

Inelegantly compared to dog vomit, wet cookies or scrambled eggs, patches of *Fuligo septica* arise from invisible spores that may have been present on the bark of a tree before it was harvested, or may have blown in on the wind. Under cool, moist conditions the spores absorb moisture and burst, each releasing a single amoeba-like cell that forages through the litter on the forest floor or in the mulch around your rhododendrons, consuming up bacteria and other microscopic particles by engulfing them.

Triggered by some as yet undetermined combination of moisture, temperature and food supply, these individual cells to come together to form a giant mass which looks and acts like a single organism. The once independent single-celled organisms now begin coordinating their activities, foraging and moving as one body, creating a thin layer of slime around itself to prevent moisture loss.

Scientists call this stage of the slime mold’s life cycle — the one that shows up and may grow rapidly in your bark mulch — a *plasmodium*.

It’s not just your imagination — the plasmodium actually moves in the direction of light and food sources, covering as many as two feet or more a day, feeding on bacteria and other microorganisms. It grows as it feeds; though most plasmodia remain small, homeowners have reported them three feet or more in diameter. The plasmodium’s color varies with temperature, pH, and the materials it has consumed.

As reported in the September 28, 2000 issue of the British journal *Nature*, a Japanese research team demonstrated that slime mold plasmodia have the ability to find the shortest route through a maze to a food supply. Using rhythmic, coordinated pumping movements, a plasmodium moves through the maze until it forms a single long “pipe” that traces the shortest route to the food.

As it gradually consumes the supply of food and moisture in the substrate it feeds upon, the *Fuligo septica* plasmodium dramatically transforms itself again, now behaving more like a fungus than an animal. (Scientists initially classified slime molds with the fungi, though now they occupy their own phylum, called

the *myxomycetes*.) The plasmodium develops lumpy, mushroom-like fruiting bodies with distinct cell walls and differentiated parts, including a cluster of spores that will disperse on the wind or through mechanical action to start the slime mold life cycle anew. A tan or light orange crust with black spores on the underside marks the fruiting stage of *Fuligo septica*.

Based on genetic evidence, scientists estimate the 1000 or so species of slime molds arose from a common ancestor about a billion years ago. They are related genetically to both animals and fungi. Biologists studying them believe slime molds will yield valuable information about how single-celled animals organized themselves into complex multicellular organisms and what sort of biochemical signaling the individual cells use to communicate, both before and after their aggregation into plasmodia.

Slime molds will not directly attack or infect your landscape plants, but in rare cases a large plasmodium may injure small plants by shading or smothering them. Plasmodia will disappear if you simply leave them alone, but if you're in a hurry to eliminate a slime mold plasmodium invading your mulch, simply hose it down or rake it up.

Reviewed by Dr. Cheryl Smith, UNH Cooperative Extension Plant Health Specialist, 7/01

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