Indian Pipe

Indian pipe, or ghost flower, emerging from the forest floor

We usually think that propagation in the forest is a straightforward affair. A plant produces a flower, the flower is pollinated and a seed develops. The seed falls to the ground, sprouts roots and a new plant grows. One problem with this simplistic way of looking at things is that it totally ignores what is going on beneath the soil’s surface. Virtually every tree and shrub in the forest is supported by a system of soil fungus called micorrhezal. Part of the structure of micorrhezal fungi is a network of thread-like extensions (mycelium) that attach to the roots of the plants and draw some of the nutrients from those plants. In exchange, the fungi supply moisture and minerals to the plant roots. Without the micorrhezal fungi plants will not grow. That happy symbiosis is ignored by parasites like Indian pipe. Indian pipe does not directly parasitize trees and shrubs in the forest, instead it parasitizes the micorrhezal fungi, from which it draws the moisture and nourishment it needs to survive. No one has been able to find anything that the Indian pipe does for the fungi, nor does the Indian pipe do anything for the plants that micorrhezal fungi are supporting.
Indian pipe—because it is waxy and white it is also known as “ghost flower” or “corpse flower”—is very widespread but not common. It can be found in Asia, Europe and both North and South America. I find some in the forest every two or three years, growing in a dark, moist, rich habitat. It can survive in dark parts of the forest because it does not need light since it does not use photosynthesis to produce nutrients. It gets all the nutrients it needs from the fungi. It generally appears in the forest in August or September. Each plant has a three to ten inch long stem and a single nodding flower, with no leaves. Leaves are only necessary for plants that use photosynthesis.

I was surprised to learn that this weird-looking plant is actually a perennial flowering plant that is pollinated by small bees. Further, that it is in the same family as blueberry. (I guess, if you look hard enough, nearly every family has a weird member.) Once it is pollinated its flower turns upward and the seeds mature. There are only about ten seeds in each plant and they are microscopic in size and are dispersed by the wind. That passive propagation technique must explain why they are uncommon. Once the seeds are gone the plant blackens and disappears.

An otherwise reliable acquaintance told me that he saw a mountain lion in his backyard on the edge of the Sourlands. I don’t believe him. Nor do I believe in Sasquatch or the Loch Ness Monster. Don’t even talk to me about vampires and ghosts—but wait, I do believe in the ghost flower. I believe in it and I celebrate it. This little, insignificant, rarely-seen plant reminds me once again of the wonderful complexity of the web of life.