Indian Pipes

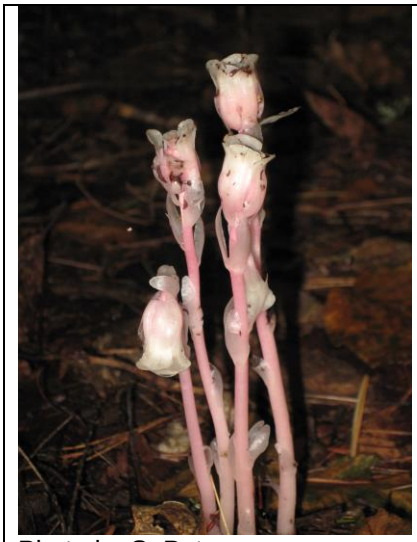

Photo by S. Petersen

Most people who frequent our woodlands have encountered waxy white or pinkish Indian pipes, also known as corpse plant or ghost flower. Many think that they are a type of mushroom, but Indian pipes are actually perennial plants. Unlike most plants, they cannot make their own food. They lack chlorophyll, the pigment that enables photosynthesis, and they have greatly reduced leaf bracts along the stem. While most plants are classified as ecological producers, Indian pipes are classified as ecological decomposers.

Indian pipes have a network of roots covered by mycorrhizal fungi. In most plants, this relationship is mutually beneficial: the fungi benefit by absorbing energy compounds from the plant and the plant benefits from additional moisture and nutrient retention near the roots. The relationship between Indian pipes and the root fungi is not mutually beneficial; Indian pipes are actually parasitic on the fungi. The fungi in this case provide a pathway for the Indian pipes to absorb energy produced by nearby trees without being directly parasitic on the trees. Indian pipes are members of the plant family *Ericacae*, which also includes blueberries, rhododendrons, and azaleas. All plants in this group supplement their own food-making abilities with energy made by other nearby plants. Indian pipes and their closest cousins, pinesaps, represent the logical extremes of this strategy.

Indian pipes almost always have a single flower on each stem, thus the Latin name, *Monotropa uniflora*. In the photo above, the flower that faces down has not yet been pollinated by a tiny bee. The upright flowers have been pollinated and will turn into seed capsules. After the tiny seeds are dispersed by the wind, the whole plant will turn black and wither.

Because they do not rely on sunlight for energy, Indian pipes often thrive in forested sites that are too shady for other plants that must make their own food. The presence of Indian pipes is a good sign that the forest is mature and the soil is ecologically complex. These ghost flowers are a welcome spirit in our woods.