

Natural South Marysburgh

Seeing Ghosts in the Forest

-By Terry Sprague

It was deep in the woods, tucked under a conifer, on a property along Black River known as Stillwater Forest where I first saw it—Pinesap. Property owners at that time, Brian and Joan Tobin pointed it out to me.

At first, I thought it was the similar Indian Pipes that I had come across before in my travels. However, these peculiar growths were different. Unlike the ghostly white Indian Pipes, these were pale yellow, and instead of only one flower per stem, these contained several. They seemed to bend under the sheer weight of them all.

Pinesaps are truly the “ghost flowers” of our woodlands. They have no recognizable leaves, they have no colour for they have no chlorophyll, and they don’t even have true roots. No, they are not a fungus, although superficially, they may resemble them. You will find them in most wildflower guides, although to survive, they do not function like most wildflowers; instead, they depend on a symbiotic relationship with other forest dwellers in order to survive.



Pinesap - Mary Holland Photo

These plants long ago lost their ability to photosynthesize and have become totally dependent on other organisms. They require fungi to survive. If you want the technical side of it, they are obligate myco-heterotrophs. That is just a complicated way of saying they require mycorrhizal fungi to gather their food, and subsequently spoon feed them. What are mycorrhizal fungi? Simply put, they are those species that live symbiotically with plant species that do contain chlorophyll. Forming dense nets of fungal hairs around the roots of plants, they send their thread-like mushroom “roots” called mycellium great distances where they gather nutrients and water. They share these products with the plants they have partnered with, and as a trade-off, sugars are given by the plants to the fungi, allowing both to survive a little easier than they could if they were apart. In fact, fungi, it would seem, are not always the parasites that many would have us believe them to be. Many plants require the presence of fungi to survive. The Douglas firs of the Pacific area, are good examples, requiring fungal symbionts to live.

For the Pinesaps and Indian Pipes though, it is a one-way street of taking what they can get from the fungi, but really having nothing in return to give back.

Well, at least, that is what we were trained to think when we took all this stuff in high school biology. However, recent research in the world is upsetting this simplistic view.



Indian Pipe - Terry Sprague Photo

Some scientists feel that these chlorophyll starved plants actually stimulate their fungal partners into increased growth, subsequently promoting a much higher nutrient absorption by the trees that are symbiotically attached to the fungi. It’s still all rudimentary at this stage, but the evidence seems to point toward Pinesaps and Indian Pipes, indirectly, being fertilizer factories.

My first introduction to these unusual non green plants was during my first day on the job as a park naturalist at Sandbanks Provincial Park some 37 years ago. I came across a growth of something rather grotesque along the Cedar Sands Trail which my supervisor told me were Coral-root. Only Coral-root are not members of the wintergreen family like the Pinesaps and Indian Pipes. They are, in fact, orchids, and like the Pinesaps and Indian Pipes, lack green pigment and bear their flowers on leafless stalks. There was a cluster as I remember and the “flowers” were as nondescript in colour as the stems themselves.

We left the Pinesap at Stillwater Forest that day, as we found it - a cluster of short, erect scaly stems, so delicate as if to disintegrate with the first breeze that might find its way through the conifers. Their colour, what there was to show, will turn black once their life is over, and the tiny bouquets we found will melt into the forest litter. A totally genetically different species of Pinesap may spring up here the following year, or somewhere else nearby, and its colour will be more of a reddish. However, the conditions have to be just right, as after nearly a lifetime underground, they spring through the soil surface only when all systems are go—and that was definitely the case at Stillwater Forest.

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