

HORTICULTURISTS' CORNER

By Larry Mellenchamp

Are there any ants in your plants?

I have specimens of all ten species of southeastern pitcher plants (*Sarracenia*), along with several hybrids, which I grow outdoors in full sun all year. They are grown in various sizes of plastic pots which I keep sitting in shallow water. Some of the large specimens are growing in 12" diameter plastic tubs. The growing medium is mostly plain coarse whole-fiber sphagnum moss, though some are growing nicely in a mixture of Canadian brown peat and white quartz sand (1:1). For some of my *S. oreophila* I have mixed in a little sandy clay along with the sphagnum to see how that does; so far, so good. The specimens range in age from one and two year-old seedlings (*S. leucophylla* and *S. purpurea*) to some specimens which I have been growing for over ten years (*S. purpurea*). This past winter we experienced the worst cold situation that anyone could remember. It dropped to zero (0° F) one night late in late spring after the spring thaw had begun. Usually the winter low is around 10° F, and it occurs in February in Charlotte. It was devastating to many garden shrubs which had never experienced cold tolerance problems before. Such hardy types as azalea, ligustrum, nandina, and holly were severely damaged; some were killed to the ground, while other merely lost leaves and young twigs. Meanwhile, my collection of pitcher plants seemed to suffer no ill effects from this cold snap. They usually remain frozen all winter, thawing occasionally as the weather oscillates between cold and warm. The only plants I lost were a few *S. psittacina* from Mobile due to the fact that their pots happened to be too exposed. Other specimens of *S. psittacina* which were situated nearer other larger pots escaped unharmed. This provides

some evidence that southeastern pitcher plants are quite cold hardy when properly acclimatized to the winter. They can withstand even colder weather in Michigan (temperatures to -25° F and below) if they are growing in the ground and can be covered over by the winter snow blanket. The secret seems to be having sufficient medium around the roots (as a large pot, aggregations of pots, sinking the pots and/or plants into the ground or bed of some sort or covering up the collection of plants with plastic) to provide some insulation, and having grown in the particular climate long enough to slowly adjust to the weather change (probably several weeks to several months, depending on the severity of the climatic region to which they must adapt). In other words, plants take a few weeks of growing to get ready for winter; if they are abruptly transplanted just before very cold weather (such as from inside to outside, or south to north), then they will probably experience damage from cold temperatures. They have to build up their "anti-freeze" before winter, and they do this by manufacturing thickening substances inside their cells which make the sap thicker, and hence have a lower freezing point.

Now, what does all this have to do with ants? Well, after winning the bout with cold weather, I thought nothing could hurt these plants. As spring sprung and summer simmered, the pitcher plants seemed to sending up stunted and deformed pitcher leaves, and they were not coming up as rapidly as they usually did. I thought they must be feeling the effects of the cold, as some tissue was damaged and was beginning to rot. I watched the plants through the summer, which

was the wrong thing to do; I should have acted sooner! They became worse and worse, fewer and fewer leaves were produced, and those were severely deformed. One day, when I finally had the time, I decided to figure out what was going on. To do this, I was going to take each plant out of its pot and look at it. When there is something wrong with the top of a plant and there are no obvious problems up there, then you can rest assured that there is something wrong with the root system or underground rhizome. There is no better way to become intimately acquainted with your pitcher plant collection than by spending four days unpotting and carefully examining each specimen. So, I began.

To my surprise as I began working with the collection I first noticed ants crawling around the pots — not up and down the leaves, but just in the pots. The first plants I unpotted told the story. In one 8" pot of *S. alata* was an ant colony, full of lively workers and numerous white eggs and larvae. They had essentially taken over the pot. Normally, ants would not harm a plant themselves, even growing so close (ants do not eat living roots). But what does happen, which is far worse, is that the ants bring mealy bugs (flat, white oval-shaped insects related to aphids) and "plant" them on the young, tender growing portions of the underground rhizome (down among the leaf bases where they are hard to see) and the mealy bugs suck juices from the plant, convert some of it to a thick syrupy material, and exude it from their bodies. The ants then "milk" the mealy bugs, just like they do aphids on young leaves and stems of other garden plants, to collect the "honey dew." The ants literally stroke the mealy bugs and wipe off the sticky honeydew, which they then feed on. Ants carry young mealy bugs from plant to plant, and start new colonies of their "cows" everywhere they can. They had literally seeded mealy bugs onto every pitcher plant in my collection, some worse than

others. Mealy bugs reproduce rapidly and can weaken the plant as more and more of them suck juices. This is what caused the leaves to be deformed — the disruptive presence of the mealy bugs, and the ants were responsible for putting them there.

As I repotted each plant, I cleaned off all the old sphagnum, removed all the old leaf bases, dead roots, and dead rhizomes and thoroughly sprayed (or soaked) each rhizome in a solution of 25% wettable powder malathion (2 tablespoons per gallon). The powder comes dry and you mix it directly in water. This seems perfectly safe for the pitcher plants, which have been known to be sensitive to some of the petroleum-base solvents used to produce the liquid insecticides normally used in garden pest control. After spraying each plant, especially down between the leaf bases and making sure all the white cottony mealy bugs have been removed, I replanted each rhizome in new, clean, presoaked sphagnum. Now, after five weeks, all the plants are putting up strong, new leaves and are beginning to look as good as ever. I have applied this malathion liquid as a drench directly into the pots of the plants one time since repotting as a preventative. I also mix in a fungicide with the malathion as a preventative for fungus infection.

How do you avoid a problem like mine? Keep close watch over your plants, especially if they are outside close to the ground. Watch for ants. Even inside a greenhouse, ants moving along quietly on the benches and ground are not harmless. They are there because food is there. And, they are tending their "herds" of old, finding the best pastures, and moving them as conditions change. Follow the trail of ants and you will usually find the source of their nourishment; you may even find a nest in one of your pots. Destroy them immediately, repot if necessary, and keep watch for future invasions. This goes for all carnivorous plants, and other kinds of ornamental plants as well.