



Great Adaptations

Intriguing carnivorous plants and colorful orchids

The carnivores huddled together in the bog, still and waiting. They seemed innocent, oddly attractive — their only weapons gaping pitcher-shaped mouths with maroon traceries and a ring of glands that secrete sweet nectar to lure their victims.

Their prey buzzed and crept around them. A fly was already trapped by the multitude of sticky downward-facing hairs in one of the pitchers. As I watched, the fly tried vainly to climb to safety and slipped into the pool of death at the bottom. Not far away a white-fringed orchid was a witness to the

drama. I'll get to the orchid later. Right now I'm concentrating on the carnivore, *Sarracenia purpurea*, an insect-eating plant better known as a pitcher plant because that's what its leaves look like. The pool inside each 8-inch-tall pitcher is filled with rainwater and digestive enzymes.

This strange plant lusts after insects in the acid bogs of the pine barrens, where the sphagnum moss is squishy underfoot and dragon flies show off translucent wings with spots like diamonds. I've been out and about examining these fleshy fly-catchers and I'm perpetually intri-

gued. It's not that I haven't been down the garden path a time or two. I know about Venus fly-traps and Audrey, the talking plant that pigged out on people in "Little Shop of Horrors." But who would have thought carnivorous plants live among us in the wilds of suburbia?

Believe it or not, we have three groups of such botanical savages on Long Island — pitcher plants, sundews and the aptly named bladderworts. And they account for 18 species.

Sundews are sticky business — tiny bog-dwellers covered with fine glandular hairs that secrete a gooey substance to trap insects. The different species are named for the shape of their leaves — round-leaved, spatulate-leaved and thread-leaved. All look positively celestial when the sun glistens on their dewy hairs. To me, bladderworts sound like something out of Harry Potter. They live in the shallows and qualify as the gourmets of the carnivorous plant set, feeding on minute aquatic crustaceans. Each of the tiny bladders in the plant's filament-like leaves has a trapdoor that opens when something yummy floats by. A gush of water and — bon appetite.

Picking these plants is strictly forbidden. I tread carefully, and I think about them long after I have left their protected precincts. Because plants do not walk or run or slither or fly, we tend to think of them as inanimate — at least not alive in the same sense as mammals and reptiles and birds and fish. We especially tend to treat flowers — incidentally, the pitcher plant displays an umbrella-shaped burgundy bloom on a foot-tall stalk — as nothing more than pretty faces rooted in place for our own enjoyment.

But they're not just here for us to pick and sniff and write poems about. Like other beings from hummingbirds to humans, plants are alive and striving. They make fascinating adaptations to get what they need, to ensure their own survival.

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A NATURE JOURNAL



Irene Virag



Newsday Photo / Bill Davis

The pretty pitcher plant, dressed for dinner, secretes sweet nectar to lure insects, which are trapped and digested.

Take a virtual tour of carnivorous plants and wild orchids on Long Island at www.linature.com.





Carnivores And Orchids

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Bogs are nutrient-poor places, and so the pitcher plant became a carnivore, subsisting on such meaty delicacies as flies, gnats, mosquitoes, spiders and the like.

Nor are carnivorous plants the only masters of adaptation in the soap opera of sex and death that is the natural world of Long Island flora. If carnivorous plants are the bold, wild orchids are the beautiful.

I'm not talking about the hothouse orchids that girls other than me got on prom nights. I'm talking instead about wild orchids. Wild, wild orchids — right here on Long Island.

Orchids that are more subtle than showy, that do not get along well outside their native bogs and woods, that seem to have evolved in tandem with the insects that pollinate them. White-fringed orchids and dragon's mouth orchids and pink lady's slipper orchids and crane-fly orchids and orchids with names like rose pogonia and small whorled pogonia and ladies' tresses and coralroot and rattlesnake plantain.

The orchid's adaptations are as elemental to the survival of the species as that of a carnivorous plant. Both have a thing for insects. But while one is fixated on eating, the other is obsessed with sex. I'm not trying to be lascivious about orchids, but the ancients were on to them. The very word *orchis* is Latin for testicle.

Orchids comprise one of the largest plant families in the world with approximately 30,000 species. They come in many sizes and — sorry, Basil St. John — most colors except black. The thing about orchids is that they're infinitely fascinating. I can understand why the script writer who adapted the book "The Orchid Thief" to the screen had so many problems. And how the movie, which was aptly titled "Adaptation," evolved into an examination of writer's block. I could tell you how I cleaned the garage, organized the backyard shed, weeded the garden and drank untold cups of venti 2 percent lattes before I was able to get a grip on orchids.

For one thing, they're considered the most highly evolved flowering plants on the planet. The stamen or male part of the flower is fused with the pistil or female part into a single unique sex organ called a column. The lowest of the plant's three petals forms a distinctive lip that acts as a landing pad for pollinating insects, with the sex organ conveniently located above it. Insects go from lip to column and carry off pollen, which is then deposited in another orchid.

What makes orchids so amazing are the lengths they go to in seducing the insects. Some species resemble insects and lure pollinators into trying to mate with them. One such floral fatale is the crane-fly orchid, whose only New York State haunt is the North Fork. The pale purple flowers resemble the elongated abdomen of the mosquito-like crane-fly. All the unsuspecting insect gets out of this besides frustration are packets of pollen to bring to its next date.



Newsday Photos / Bill Davis

With wild orchids, it's sex, not food, that is the main attraction. The pink lady's slipper, for example, has hinged sac-like lips that trap bees long enough to pollinate them so they can carry the orchid's dust-like seeds.



The white-fringed orchid, above, and the crested-fringed orchid, left.

Other orchids achieve the same result by looking like the insect's prey. Twayblade orchids are anything but coy. The lily-leaved species no longer exists here, but the Southern twayblade holds on in a South Shore park. The orchid's column protrudes like a gun barrel and fires a blast of fast-drying adhesive that glues pollen to the insect. And our own pink lady's slipper orchids possess hinged, sac-like lips that trap bees. The bee's only way out is a narrowing passageway, where sticky threads of pollen rub off on its back.

All of this is aimed at procreation. Orchid seeds are almost dust-like, and each seed capsule holds millions. But the seeds don't come with built-in food supplies. They won't germinate unless they

hook up with a nutrient-providing fungus in the soil. The fungus feeds the seeds, which in turn provide it with a home. It's a symbiotic relationship and one reason it makes no sense to pull up orchids — they can't be transplanted. An even better reason to leave wild orchids alone is that it's illegal to collect them.

Iworry about our wild orchids. Once as many as 38 species thrived on our island. Now — due to development and habitat destruction — there are only 26, most of them in populations of various sizes on the East End. "They're all rare," says Eric Lamont, president of the Long Island Botanical Society. "They're all protected. They're all imperiled."

We were on the edge of the Quogue Wildlife Refuge, where dozens of white-fringed orchids grew in the 1980s before woody plants moved in, drying up the wetlands and shading out the natives. By 1996, only six orchids flowered. That's when Eric enlisted a handful of students from his science classes at Riverhead High School to pull out the invaders and restore the environment. At last count, 88 white-fringed orchids were blooming in the refuge.

On a hot summer day, one of them stood witness to the ingenuity of another species in a bog where dragonflies danced. A carnivorous pitcher plant devoured an insect and the natural world never seemed so bold and so beautiful.