

Putting bite into carnivorous plants

By Robert Naczi

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Two weeks ago in this column, Arthur Tucker debunked the fabled "man-eating plants." Today, we should examine the truth about Delaware's carnivorous plants. Yes, the state hosts green meat-eaters, just not the man- or woman-eating sort.

Carnivorous plants use their leaves to attract, trap, digest and absorb nutrients from animals. Though all of them are small, a wide variety of animals fall prey to carnivorous plants. Animals often captured by Delaware's carnivorous plants include spiders, ants, millipedes, flies and slugs.

Nectar secretions and bright colors are the most common means of attracting prey for carnivorous plants. Some species have leaves so brightly colored that they resemble flowers.

After prey is attracted, it is snared with watery pitfalls, fast-moving suction bladders or sticky droplets. Digestion then follows through the action of enzymes produced by the plant or by symbiotic bacteria living in the leaves. Specialized glands absorb the nutrients released through digestion of the prey's body.

The nutrients most often absorbed by carnivorous plants are nitrates and phosphates. Strictly speaking, carnivorous plants do not "eat" their prey and do not use animals as food. Rather than supply energy to carnivorous plants, prey animals furnish nutrients essential for the plants' existence. After all, these green plants make their own food through photosynthesis.

Fifteen species of carnivorous plants are native to Delaware. Habitats for all 15 are wetlands, including bogs, ponds, and wet, sandy ground. The particular environments where these plants grow have very low supplies of nutrients, hence the adaptiveness of carnivory for these plants.

Such nutrient-poor habitats are naturally rare, but past and ongoing destruction and degradation of wetlands makes the plants even rarer. In fact, three additional species of carnivorous plants used to grow in Delaware, but can no longer be found here.

With 11 species occurring in Delaware, the bladderworts



Submitted photo/Delaware State University

Sundew leaves are highlighted by tentacles bearing small, sticky droplets that glisten in the sun.

Garden Tales

(Utricularia, Lentibulariaceae) are the most diverse group of the state's carnivorous plants. Bladderworts catch protozoa, mosquito larvae, and other small, aquatic creatures when they swim close to the lightning-fast, trigger-activated, minute suction bladders on their leaves.

Bladderworts are most conspicuous during flowering season, when surfaces of certain ponds and wet sands can be covered with their bright yellow or purple, snapdragon-like blooms.

Three species of sundews (*Drosera*, Droseraceae) live in Delaware. Sundew leaves are beset by tentacles bearing small, sticky droplets that glisten in the sun. These droplets were inspiration for the common name of these plants.

After the prey is mired in the leaf's goo, its struggling stimulates the tentacles and the entire leaf blade to slowly curl around it. The curled leaf smothers the prey and creates a temporary stomach

for the digestive enzymes soon to be released by the leaf. Sundews are small, low-growing plants that most often catch ants, gnats and small moths.

One species of pitcher plant occurs in Delaware (*Sarracenia purpurea*, Sarraceniaceae). Its immobile leaves ("pitchers") are tubular, with the opening of the pitcher facing upward. Consequently, the pitchers collect rainwater, which enables the pitcher to act as a pitfall trap in prey capture. The pitcher plant is the state's largest carnivorous plant, and larger pitchers routinely capture large ground spiders and slugs.

On the campus of Delaware State University, the Claude E. Phillips Herbarium is Delaware's center for research, education, and outreach about plant identifications, locations, and uses. Call 302-857-6452 (Dr. Susan Yost) to arrange a tour of the Herbarium, and call 302-857-6450 (Dr. Robert Naczi) for more information about this article.

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