

Focusing on *U. calycifida*—a Variable Species

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Since Peter Taylor's *Utricularia* monograph was published in 1989, learning about the plants in our collections has become much easier. But, since the genus is large and globally widespread, the monograph is technical and expensive and not likely to be in every CPer's library. The result is many CP enthusiasts don't have a way to get to the valuable information in Taylor's work. This is why I'm writing the Focusing on *Utricularia* articles—to present parts of Taylor's work to CPer's. Each installment of this series will be about a different species, a species commonly in cultivation but not illustrated in CPN or other easily accessible sources. I'll try to include enough of a description of each species so you can verify the identification of your plant if you think you're growing it. Space allowing, I'll include a photograph or two. I already have the next few articles planned, but if I hear of much interest in a particular species I can put it in the queue. With 214 species of *Utricularia* described, identifying a plant can be hard. Often a very good (or the best) way may involve microscopic details—the precise nature of the bladders, seed coats and such. I'll avoid these details and spend most of my time on the macroscopic features of the plants—leaves, flowers, or features that can be seen with a magnifying glass. If you grow the plant being discussed, aggressively compare my description to your specimen. Since the time the ancestor of your plant was originally field collected, its descendants may have passed through the hands of many growers, and could have become mislabelled on the journey. Treat the name tags in your pots with a healthy skepticism. It is very helpful if you know the country from which your plant (or its ancestor) was collected. If you have this information for your plants, record it.

Species of *Utricularia* can be variable. Not only can one clone be different from another, but the same plant can produce wildly different leaves and flowers under differing conditions. As an example, consider *U. subulata*—a weed in my CP collection. Sometimes the flowers on my plants are cleistogamous—forever pale white, small and budlike—and are produced on short erect inflorescences. Meanwhile, a *subulata* pot next to it may be producing many brilliant orange-yellow flowers several millimeters long on lanky inflorescences that eventually topple onto other pots. Other pots have plants producing inflorescences of intermediate form. In fact, during the year a plant may change among these forms. Clearly it would be wrong to assign different species or subspecies names to these different growth habits (although this has been mistakenly done in the past, e.g. '*U. cleistogama*'). Remember some species are prone to variation, and just because your plant is producing small flowers instead of large, or lavender flowers instead of lilac, does not mean you have a different species. As I said before, the characteristics that best distinguish one species from another may not be the flowers alone.

The tropical *U. calycifida* is a good example of variability within a species. Before I talk about its variable features, let's look at what most of the forms have in common. The above ground part of the olive green leaves can be large—easily 5 cm or longer, are roughly oval shaped, and are semi-erect or lie on the ground. They are either scattered helter-skelter on the soil surface or arranged in a rosette. The largest are fleshy, and are veined in a complex pattern (Figure 1). While a leaf is growing its veins may be purplish, but this can fade as it matures. The bladders of the plant are small (about 2 mm maximum), and the plant does not produce tubers.

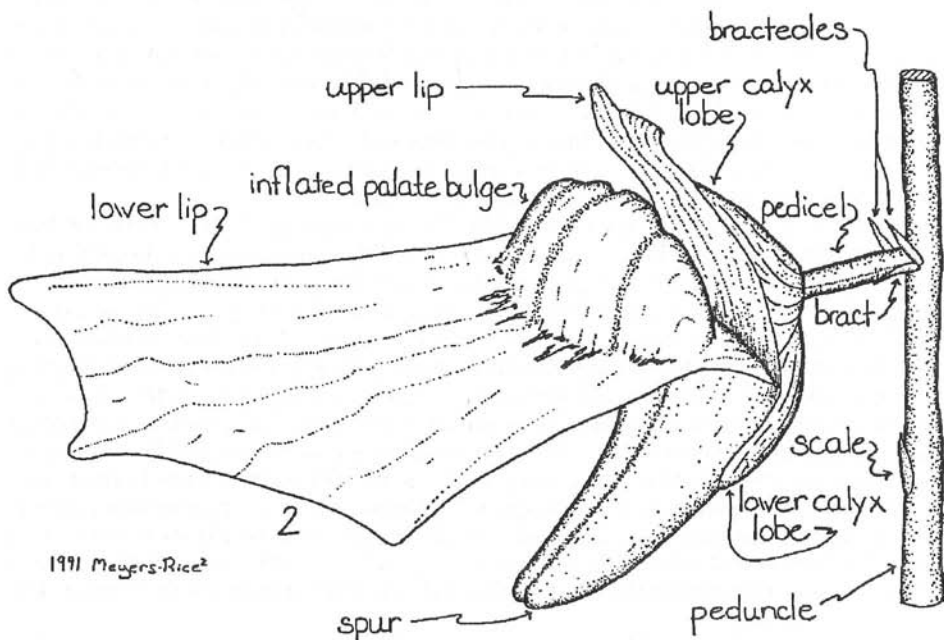
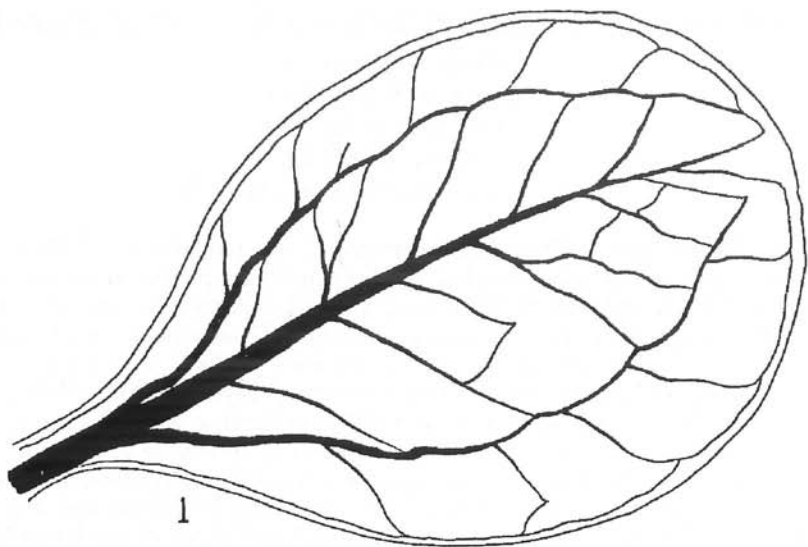


Figure 1: 1, a single *U. calycifida* leaf showing the complex network of veins; 2, a much magnified fictional *Utricularia* flower with relevant structures labelled.

In good conditions the plant will produce a thick vertical flower stalk (peduncle) that is round in cross section near its base. Often when *U. calycifida* produces a flower stalk, a second inflorescence will emerge near the first in about a week. The upper portion of the peduncle has subtle grooves and ridges along its length, producing an almost polygonal cross section. At maturity it can be more than 20 cm tall and have produced more than 20 flowers. The flowers are on short (up to 5 mm) horizontal or ascending pedicels. In Figure 1 I have drawn and labelled the parts of an archetypal flower to clarify my use of botanical terminology. Where each pedicel branches from the peduncle are three little (1 to 3 mm long) prongs—one bract and two bracteoles. These are very noticeable on this species. As in all *Utricularia* (except for those once classed as genus *Polypompholyx*), the calyx is divided into two sepals, or calyx lobes. Looking very closely (you may need a microscope) you'll notice the lower calyx lobe is forked at its tip and the sepal margins are minutely fringed. The name *calycifida* means "split calyx." Altogether, the pointed bracts, bracteoles, and fringed calyx lobes remind me of some sort of warrior or armoured beastie of Arthurian legend. Each combat equipped flower glares out over the field of battle-Sphagnum! Just a few days after each flower matures, it drops off and the wide sepals clasp together to protect the developing fruit.

The features described are common to all the clones of *calycifida* I have seen. The flowers, however, can vary greatly in color, size, and shape. None are scented, but this might occur in special or ideal conditions. In general, a *Utricularia* corolla can be divided into three main components: the upper lip, the lower lip, and the spur. In one of my forms of *calycifida* the 5–6 mm long upper lip arches close against the lower lip. It is only 3–4 mm wide where it emerges from beneath the upper calyx lobe, narrows smoothly to 1.5–2 mm in width, and then abruptly truncates in a rounded end. The lower lip is longer than the upper, 6–7 mm long. It is only 3–4 mm wide when it emerges from the calyx lobes, flares to 4–5 mm wide at mid-length, and then tapers to a point. The edges of the lower lip are often strongly reflexed or undulate. Like the upper lip it is pale lilac or white. The keel-shaped inflated palate bulge is longer than it is wide, and at its top, nearly hidden by the upper lip, is an orange-yellow splotch, margined with purple-brown. Much of the rest of the lower lip is speckled with small (1/4 mm diameter) purplish-brown spots. These spots also occur on the upper lip, but are stretched out into elongated streaks. The spur, usually paler than the lips, curves up to almost touch the lower lip at its tip. I call this form *calycifida* 'spotted flower' (Figure 2). Keep in mind this is not a registered cultivar name, it is just how I informally refer to the plant. The veins on this plant's leaves are purple only while the leaves are growing, and even then the coloration is mild—often purple is completely lacking in the leaves. This plant self pollinates readily, and if you let it will infest all of your other pots with viable seeds!

The second form of *calycifida* I grow is cultivated by many CPers in the U.S. Those that don't know its specific name call it *U. sp. Venezuela*. Even when it is not in flower it is distinguishable from 'spotted flower' because of differences in its foliage—it produces far fewer but larger leaves. Also, the veins on this form are bold and purple for the leaf's entire life span. I refer to this plant as *calycifida* 'purple veins' (another informal, unregistered name). The inflorescence of the two forms are similar except in the details of the corolla. In 'purple veins,' the corolla's upper lip is more erect and is only occasionally horizontal, and both the upper lip and spur are larger—up to 10 mm long each. But the chief difference between the flowers of the two forms is in the lower lip. Up to 1 cm long, the lower lip of 'purple veins' is slightly or clearly three lobed, not very undulate, and is much wider than in 'spotted flower.' The inflated palate bulge is approximately hemispherical. The coloration of this form is also different—the entire flower is lavender, except for a yellow blotch ringed with a very narrow white zone, located at the crest of the inflated palate bulge (Figure 3).



Figure 2: A flower of *U. calycifida* 'spotted flower.'



Figure 3: A flower of *U. calycifida* 'purple veins.'

Altogether, the flowers of *calycifida* 'purple veins' are the larger and more striking of the two. With excessive temperature, as often found in terrarium culture, the flowers tend to pale somewhat, especially as the inflorescence reaches the light fixtures. This plant produces seeds less commonly than does 'spotted flower,' but I've obtained seed by selfing the flowers.

Cultivation of *calycifida* is easy. It enjoys the conditions many tropical CPs like, and is an ideal terrarium subject. It is not at all picky about temperatures, provided you keep it warm, around 60—90°F, and in high humidity. For soil, I use dead or live *Sphagnum*—it is a large species so it usually does not become overwhelmed by live moss as long as you have fulfilled its other requirements. If I keep my plants too cool they slow in growth but don't die. I doubt they could survive a frost well. If you grow them too warm the flowers are often short lived, pale, and stunted. The plant's strongest dislike is bright sunlight—with too much sun it will only produce small

leaves that easily burn. Aphids and scale can be problems, and the best policy is prevention. If you have an infected plant and can't get rid of the pests by picking them off it might be best to find a subterranean, uninfested portion of your plant and start up a new pot.

In the wild the plant is found in shaded wet areas in northern parts of South America, i.e. Venezuela, Guyana, Surinam, and northern Brazil. With the recent surge in interest for the flora of these countries, it is likely new clones of the plant will be introduced to cultivation. I have already heard of several South American plants new to cultivation I suspect are *calycifida*. These new clones may have flowers with different colors and morphology from the ones I've described here, but the other characteristics (i.e. leaves, peduncle, bracts, sepals) are likely to be the same. The dimensions I have quoted in this article, especially of the flowers, should be viewed as variable. Under different conditions from mine, the flowers and leaves may be larger or smaller.

I'm beginning to experiment with selfing and crossing among the *calycifida* forms I have to see if the plants will grow true from seed. These experiments are incomplete but I'll publish them in a future issue of CPN as a letter to the editors. If you grow different forms of *calycifida* side by side, you may be surprised or skeptical that they are the same species—I know I was. However, Peter Taylor himself examined specimens I sent him and verified they were *calycifida*. I hope botanists will study the populations of these plants in the wild—perhaps some day the species will be split into two or more species or subspecies. Until then, they are all considered forms of one interesting polymorphic species.

I thank Don Schnell and Peter Taylor for comments and criticisms useful in the preparation of this article. I also thank Peter Taylor for examining my specimens of *Utricularia*.

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