



Figure 1. Flower and leaves produced in spring and fall 1994 of the *S. leucophylla* (green) mutant. Photos by Bill Scholl.



Figure 2. *S. minor* (green) in burned long leaf pine seepage wetland in southwestern Georgia, June 1994. Photo by Bill Scholl.



Figure 3. *S. rubra* ssp. *gulfensis* F₁ heterozygote. Red petals are deposited at FTG, #1469. Photo by Phil Sheridan.

Rediscovery of a Very "Rare" *Utricularia* in Brazil

by
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On my third trip to Cuiabá (Mato Grosso state, western Brazil) in February '94 to

visit my friend Marcos Cardoso. Twenty-nine species of CPs were seen during the week we spent exploring the nearby Chapada dos Guimarães (see CPN 21:3), plus areas south of Cuiabá, in the northern Pantanal Basin. Of these 29 species, 5 were *Drosera*, 3 were *Genlisea*, and the remaining 21 were *Utricles*. Most of the *Utricularias* were terrestrial (14 species), others aquatic (6 species), and one rheophytic.

The terrestrial species we found were *U.amethystina*, *U.costata*, *U.hispida*, *U.lloydii*, *U.nana*, *U.nigrescens*, *U.pusilla*, *U.simulans*, *U.subulata*, *U.tenuissima*, *U.trichophylla*, *U.tricolor* (?), *U.triloba*, and an unidentified *U.sp.* (apparently in the same section of the genus as *U.subulata*). While *U.lloydii*, *U.nigrescens*, *U.simulans*, *U.tenuissima*, and this *U.sp.* seem to grow strictly as annuals, *U.amethystina*, *U.pusilla*, *U.subulata*, and *U.triloba* are apparently optional, growing as annuals in sites that dry up in winter and as perennials at sites that remain humid all year long (or at least regenerating new plants constantly from seeds). *U.costata* might belong to this annual/perennial category, but we are not sure yet since we have only found it at one site next to a stream where it flowers all year long. *U.trichophylla*, *U.nana*, and *U.hispida* grow as perennials in marshy seepages often among tall grasses, the first two also growing on streamsides. *U.trichophylla* always grows in soil below water with only the peduncles above the surface. Its long, feather-shaped leaves are very pretty.

The plants we believe to be *U.tricolor* were found at a streamside shaded by forest. It could be *U.amethystina*, but we are not sure yet since it has never flowered. The typical forms of *U.amethystina* in central and eastern Brazil have purple, lilac, violet, or bluish flowers with a vertical yellow or orange-yellow streak on the base of the lower lip. We have found two varieties of *U.amethystina* (which I believe should both be separate species from *U.amethystina*) at the Chap.dos Guimarães.

There is a white-flowered variety (with the usual yellow blotch), which grows in grassy seepages, with the leaves and peduncles usually concentrated around the slightly elevated and drier mounds formed by tufts of grasses. The flowers are very tiny and always single atop very delicate peduncles. It has been found growing as an annual in sandy soil, where they are even smaller and more delicate as a whole. I often see this variety in eastern Brazil growing near the common forms of *U.amethystina*, where both are easily distinguishable from each other.

The other variety of *U.amethystina* at the Chap.dos Guimarães grows only as an annual. Its leaves are usually covered by mucilage on the upper surface (like *U.pubescens*) and form small rosettes. What is most surprising is that the flowers are golden-yellow! There are various flowers per scape and these are found alternately along the peduncle, born by long pedicels. In cultivation, this variety lost the mucilage and the leaves spread out over the soil like most *Utricularias* do, no longer restricted to rosettes. Though conditions were kept humid in cultivation, all leaves had disappeared by the end of the dry season.

U.neottiioides can be considered both terrestrial and aquatic, depending on how you look at it. Technically, it is rheophytic, which means it grows fixed to rocks submerged by water (Taylor 1989). It is commonly found growing in cold, mountain streams here in Brazil.

The aquatic *Utricularias* were found in marshes, small ponds, and roadside ditches. I saw the beautiful *U.cucullata* for the second time in the wild. Though it is widespread in South America (Taylor 1989), it is very hard to find. There was a single light-purple-lilac flower among a small group of free-floating stolons, located in a small puddle amid grasses at a marshy seepage. I had seen plants with beautiful deep-violet flowers and a friend of mine claims to have seen red-flowered plants (both in Goiás

state). *U.breviscapa*, *U.foliosa*, *U.hydrocarpa*, and *U.gibba*, were found south of Cuiabá and the latter two also in the city itself.

The last aquatic *Utricularia* was uncovered by a stroke of enormous luck and came as a tremendous surprise. It was one of those finds which are even more exciting than discovering a new species. A case of inverse proportion, with its importance being as gigantic as the species was microscopic. Every night in Cuiabá, after a shower and dinner, Marcos and I would organize the day's catch of CPs and the herbarium we had made. On one of those nights, I was cleaning some aquatic *D.communis* (plants with long stems growing partly or totally submerged) we had collected at a grassy seepage at the Chap.dos Guimarães, preparing them for herbarium. As I delicately removed the mesh of algae covering the sundews with the help of tweezers (while holding a flashlight low on batteries with my teeth and trying to keep it pointed towards my hands), I came across a hair-thin string bearing minute reddish bladders. At first I thought it was a stray, leafless stolon, maybe of *U.subulata*. More of these strings appeared and I got a little suspicious, but what was flashing through my mind was utterly impossible, too much to wish for! All of a sudden I froze in awe with my mouth forming a big "O" as my tweezers came up with one of these strands bearing a minute peduncle!

I ran to get Marcos' photocopies from Taylor's monograph and in total ecstasy flipped nervously through the pages. I soon found what I wanted and confirmed that I was actually holding *U.biovularioides*!! I had rediscovered the smallest of all the *Utricularia* in the world! I was in a frenzy of excitement. According to Taylor, this species has only been found TWICE IN HISTORY! One of these collections was from somewhere in the vast Brazilian Amazon (1913) and the other from the Chapada dos Veadeiros in northern Goiás state (1940). At that moment I was feeling like I was that person who discovered live *Coelacanth* off the coast of Africa in 1938 (a fish thought to have been extinct for 60 million years)!

Before I returned to São Paulo, we went back to collect more *U.biovularioides* for herbarium and to preserve in alcohol. Surely enough, we found the aquatic *D.communis* to be surrounded by creamy-white dots, which we now knew were the flowers of *U.biovularioides*, though we had not even noticed their presence previously! This *Utricularia* is probably not that rare at all, but is extremely unlikely to be seen and collected since it's one of the world's smallest flowering plants, probably the smallest in weight. Now that I know what it looks like in situ (which is usually a whole lot different than seeing drawings in books) and the type of habitat it can be found in, I will hopefully start discovering more *U.biovularioides* on my CP hunts around Brazil. Though if they are not in flower, I will continue tramping on the invisible stolons, as I have probably done a few times in the past.

In April/May '95 I returned to the Chap.dos Guimarães and Chap.dos Veadeiros. Marcos and I went to the *U.biovularioides* site at the Chap.dos Guimarães and found them to be still in flower, though we unfortunately found no new sites for this species. At the Chap.dos Veadeiros I had better luck than on my previous trip in early '93 and uncovered four sites where this species grew thanks to the experience of having already seen them in the wild once.

Like at the Chap.dos Guimarães, the *U.biovularioides* at these four sites were always mixed with green, stringy algae from which they were hard to separate. At two sites they grew in pools of slow-flowing water. One of these was almost a puddle by a stream and the other was a series of holes in a grassy bog packed with these *Utricularias* near the edges (mixed with aquatic *D.communis* up to 22cm in length!!).



Figure 1. *Utricularia biovularioides* at Chapada dos Veradeiros, Brazil. Note the minute red traps. Photo by Fernando Rivadavia. See article this issue.



Figure 2. *Utricularia biovularioides* in flower at the Chapada dos Veradeiros, Brazil. Photo by Fernando Rivadavia.



Figure 1. *Drosera sessilifolia* in seepage at the Chapada dos Veradeiros, Brazil. Photo by Fernando Rivadavia.

At another site they were crowding the sides of a small rivulet cutting a grassy seepage. The other site was a seepage where they grew among large, semi-aquatic *Drosera hirtella*. Curiously, I only found the *Utricularias* that night while cleaning the *Drosera* for herbarium, like when I first discovered them. All of these sites seemed to be the type that are wet all year round, which indicates that *U. biovularioides* might be a perennial and not an annual, as Taylor suggested.

Reference:

Taylor, Peter. 1989. The Genus *Utricularia* - A Taxonomic Monograph. Kew Bulletin Additional Series XIV, Royal Botanic Gardens, Kew.

Drosera sessilifolia

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One of the prettiest native Brazilian sundews is *D. sessilifolia*, a species similar and also closely related to *D. burmanni*, with which it forms Sec-