

ous about *Drosera* as I am. Renewing some trading circles would be a good way to swap information with others and get some new plants into cultivation. Of particular interest to me are *Drosera meristocaulis* (from Neblina), *D. humbertii* (from Madagascar) and any species growing in Africa, especially north of South Africa. My web page can be found at: <http://www.geocities.com/sundewmatt/growlist.html>

John Brittnacher (P.O. Box 72222, Davis, CA 95617 USA) writes: How much is that book really worth? We've all seen the \$14,000 porcelain cupids on The Antiques Road Show. How much are Allen Lowrie's books Carnivorous Plants of Australia Volumes 1 and 2 worth? They have been out of print for something like 10 years. I look for copies in every used book store I come across. No luck so far. The Clayton's of Triffid Park in Australia lists copies of Carnivorous Plants of Australia Volumes 1 and 2 in the range of AUS\$500 to AUS\$1000. That is US\$260 for a soft cover Volume 2 to US\$520 for the hard cover version of Volume 1. WOW! Last March, Bruce Salmon did an e-mail auction of a copy of each volume. We were going to put The Antiques Road Show to the test! After a few rounds of bidding Volume 1 sold for NZ\$800 (US\$344) and Volume 2 for NZ\$400 (US\$172). I dropped out of the bidding really early so I'm still checking used book stores. At those prices, I'd be checking them anyway! Bruce's new book Carnivorous Plants of New Zealand should be out by the time this issue of Carnivorous Plant Newsletter is printed. Let's hope he isn't auctioning those too! But how much will they be worth in 10 years?

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## UTRICULARIA GEMINILOBA IN FLOWER AT LAST!

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*Utricularia geminiloba* Benj. was described in the mid-19th century. It belongs to section *Iperua* P.Taylor, which also includes *U. humboldtii* Schomb., *U. nephrophylla* Benj., *U. nelumbifolia* Gardn., and *U. reniformis* St.Hil.—all natives of eastern Brazil except for *U. humboldtii*, which is found in northern Brazil, southern Venezuela, and Guyana (Taylor, 1989). *U. geminiloba* is the most geographically restricted of all the above taxa, known only from the state of Rio de Janeiro and from a single collection from São Paulo state (Taylor, 1989).

The species of sect. *Iperua* are commonly referred to as epiphytic by carnivorous plant cultivators (in this respect they are often grouped with *U. longifolia* Gardn., from sect. *Psyllosperma* P.Taylor.). These are often associated with growing epiphytically in the water-filled leaf axils of bromeliads. (*U. nelumbifolia* always grows in bromeliads and *U. humboldtii* usually grows in them, while *U. reniformis* is only extremely rarely found in them.) Nonetheless, they should not be confused with the (similarly large) species of sect. *Orchidioides* A.DC., such as *U. alpina* Jacq., which truly grow on trees and even have small tubers. *U. geminiloba* was reported by Taylor (1989) to have produced small tubers, and while I had seen this in a specimen collected by a friend, I did not know it was a common plant.

*U. geminiloba* is a perennial with long petioles, and leaf lamina, which vary in shape from narrowly elliptic to heart-shaped. The lamina is approximately 1-5 cm long, and the petiole may vary from nearly absent to approximately 15 cm in length. In sunny habitats the leaves are often thick, leathery, and covered with dark spots or patches. Taylor (1989) also mentions smaller, spatulate leaves as being common. The stolons are thicker than in most *Utricularia*, but do not compare with the robustness of those produced by its cousin *U. reniformis*.

I have seen *U. geminiloba* three times in the wild, always at the Serra dos Órgãos

highlands, not far from the city of Rio de Janeiro (Figure 2). The first was in September 1993 during a fantastic four-day hike across these beautiful mountains. Several small sites with this species were discovered from an elevation of 1500-2000 m, but unfortunately all were flowerless.

The second time I saw *U. geminiloba* was in March 1996, during a ten-day carnivorous plant marathon around southeastern Brazil with my friend, Josef Mullins from Ireland, a botanist and carnivorous plant enthusiast. It was his first trip to the tropics (oohs and aahs at every step!) and my last for a long while, as I was about to move from São Paulo, Brazil, to Tokyo, Japan for a few years. After driving all around Minas Gerais state, Joe and I headed towards Cabo Frio, a city on the coast of R. Janeiro state, where we searched unsuccessfully for *Drosera intermedia* Hayne, the only *Drosera* species native to Brazil south of the Amazon Basin that I still had not seen in the wild. We took a road that led us from the city of Petrópolis across the Serra Órgãos, where I had heard that *D. villosa* St. Hil. grew. Other than the fantastic views along the road carved through the steep cliffs, the ascent was uneventful since we found no carnivorous plants. We finally got lucky near the top, at around 1300 m, where we found two sites with small-leaved and flowerless *U. geminiloba*—mere appetizers compared to what was in store for us that afternoon!

Descending to the city of Teresópolis, I found it hard to concentrate on that dangerously steep and winding road. My eyes constantly wandered from the magnificent views on our right, to the rocks dripping with water on our left, which offered new possibilities of finding carnivorous plants at each sharp bend of the road. Suddenly, at an altitude of around 1150 m, we realized we were passing a rock wall covered with long scapes loaded with purplish *Utricularia* flowers! (Yelps of joy as I quickly searched for a place to park.) In a flash we were outside the car, examining the plants on the wet, moss-covered rock, moving in quick spasms of excitement. I quickly realized that those hundreds of beautiful flowers, on scapes 10-40 cm high, belonged to both *U. geminiloba* and *U. nephrophylla*!

As with all *Utricularia* species from sect. *Iperua*, the flowers of *U. geminiloba* are astounding. Although they measured only around 2 × 3 cm, they were beautifully colored in bluish-purple, and the base of the lower lip bore two small vertical yellow ridges inlaid in a white patch (Figure 3). Contrary to the drawing shown in Taylor (1989), the two lobes of the lower lip were clearly longer than wide, even tongue-shaped. Examining numerous scapes of both species, we were surprised no seeds could be found.

Close to this site, we also found *U. reniformis* and *U. tricolor* St. Hil. growing in live *Sphagnum*. Both the bases of the flower scapes and the leaves of the *U. tricolor* were covered with a layer of clear gelatinous mucilage, especially where these were buried in the *Sphagnum*. I have seen this before in *U. huntii* P. Taylor, *U. pubescens* Sm., *Genlisea aurea* St. Hil., and *G. pygmaea* St. Hil., but this was the first and only time with *U. tricolor*—even though I have encountered the species at countless sites while botanizing in Brazil.

Further down the road, at around 1050 m of altitude, we located more *U. geminiloba* and *U. nephrophylla*, as well as the rare and magnificent *U. nelumbifolia* growing inside bromeliads on a cliff. We also found plenty of pinkish *D. villosa* rosettes measuring up to 9 cm in diameter. This species is widespread and extremely variable from mountain to mountain. The beautiful variety native to the Serra dos Órgãos has semi-erect leaves that droop at their apices—giving it a spider-like appearance. It also has unusually long petioles, wide lamina, and hairy flower scapes and leaves. This *D. villosa* form is featured in Slack (1980) and is the most widely cultivated of this variable taxon. The story goes that it was introduced into cultivation in the 1970's by Reginaldo Britto—a carnivorous plant enthusiast from Rio de Janeiro—who collected seeds from plants growing along that same road crossing over the Serra dos Órgãos.

Unfortunately, *U. geminiloba* did not do well in cultivation and died a few months after being collected, as it did when I collected it in 1993 and 1996. It is certainly a more sensitive species than the similar and widely-cultivated *U. reniformis* but is probably not as difficult to grow as *U. quelchii* N.E.Br., *U. jamesoniana* Oliver, or other

species of section *Orchidioides*. Judging from what I observed in the wild, I would say *U. geminiloba* can be grown in moist soil year-round, without a dry dormancy. It also seems to like indirect sunlight, high air humidity, and constantly cool temperatures between 10 and 25°C. *U. geminiloba* would probably grow well if placed among highland *Nepenthes* in one's collection. After my two failed attempts to establish *U. geminiloba* in cultivation, more plants were obtained from the wild by friends—these plants are now being grown well, but slowly, by my friend Fábio Pinheiro. Fábio has made a very interesting observation on these plants. He noticed that when flowers are pollinated, the (normally drooping) main inflorescence axis (the peduncle) curves upwards at the insertion points of the pedicels. Therefore pollination of several flowers on a single inflorescence will result in successive bends in the peduncle, which gives it the appearance of a series of steps.

In October, 1999, I visited the Serra dos Órgãos and saw *U. geminiloba* in the wild for the third time. I revisited the roadside site I discovered with Joe in 1996. Sadly, there were no flowers and the leaves were rather small. The site was humid, but dry, and when I lifted small bits of moss off the rocks I was surprised to see numerous small tubers. Looking around I found they were very common. It must be a dry season phenomenon for this species.

While driving down the Serra dos Órgãos from Teresópolis to Rio de Janeiro, I realized the roadside was absolutely packed with *U. geminiloba*! It had done a great job of invading the rock walls carved by the construction of the highway, thriving all the way from around 425-1000m in altitude. Although their mossy habitats were dripping with water in most places, there were still plenty of tubers on the plants. Best of all, there were hundreds of beautiful flower scapes along this road. These flowers were more typical in shape, with shorter and rounder lower lobes. Strangely enough, once again I searched dozens of scapes and could not find a single seed pod.

#### References:

- Slack, A. 1980, *Carnivorous Plants*, Reed, London.  
Taylor, P. 1989, *The Genus Utricularia—a taxonomic monograph*, Kew Bull. Additional Series XIV, HMSO, London.



Figure 1: *U. geminiloba* tubers.



Figure 2: *U. geminiloba* leaves on a rock wall at Serra dos Órgãos.



Figure 3: *U. geminiloba*.