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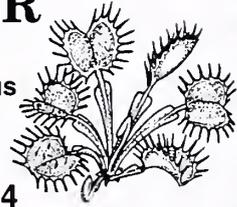


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CARNIVOROUS PLANT NEWSLETTER

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Volume 24, Number 4
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Front cover: *Drosera montana* from Caraca, Brazil. Grown by Ivan Snyder, photo by Arthur TerHovanessian.

Rear Cover: *Utricularia novae-zealandiae*. Grown and photographed by Barry Meyers-Rice.

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THE SAVAGE GARDEN

“How To Torture a Carnivorous Plant”

by

LIBRARY

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JAN 10 1996

NEW YORK
BOTANICAL GARDEN

I'll tell you how.

You sowed a handful of *Drosophyllum* seed last spring. Many germinated. Then, sadly although almost expectedly, one by one they die off. Soon, in a couple of months; they're all dead - except for one. You're growing the sole survivor in a big clay pot of perlite, sand and vermiculite. The pot sits in a sunny place out on your deck. Summer comes, and it looks great. You water it once or twice a week, knowing its preference for drier conditions. It grows in Portugal, doesn't it? Soon it is eight inches tall, smells like honey and is black with flies. Autumn, still bigger. Friends admire it. It's the best dewy pine you've ever grown.

The autumn rains begin. By Thanksgiving, the soil in the pot has been wet for six weeks. Nights are dropping into the 30s. More rain. Wind. It's New Years and your *Drosophyllum* still looks okay. It has been wet for three months and the first light frost occurs. Your mini-maxi thermometer records a low of 29F. During the day it barely reaches 50F.

Late January. It still rains about 2 or 3 days a week. You're watching the weather channel. An "arctic express" is coming. By the following morning it's predicted to be 17F.

Now this is where the torture comes in.

You go to the window overlooking the deck. The sky is grey and blustery. The storm front has gone through and the rains have stopped. The temperature is dropping. You can see the thermometer a few feet away from your potted dewy pine. It's 32F. You know by the following morning it'll be below 20F. Is your dewy pine pleading with you? Is it begging to be brought into the kitchen, where it's a balmy 74F?

Tough. You close the blinds and go back to your TV. In a few hours you climb into your warm bed. You sink into slumber, down, dawn, down, just like the mercury in the outdoor thermometer. But your sleep is disturbed, as you dream of your dewy pine.

Awake. The heat has been going all night, but your house is cold. You throw on your robe as you hurry to the kitchen window. Everything outside is white. No, it didn't snow, but a thick layer of frost covers everything. The cat's water bowl is a block of ice. (The cat is safely inside.) And there your *Drosophyllum* sits, frozen solid. The tips of its thin leaves are drooping. The thermometer reads 18F. Your stomach is in a knot.

Hey, wait a minute. Who's being tortured here - the plant or the grower? Would you ever do such a thing to a poor, defenseless dewy pine? Would I?

Well... yes. Yes I would.

I can see my defense attorney now, arguing my case in front of a jury of carnivorous plant lovers. Four of the jurors have grown dewy pines in heated greenhouses. The other eight jurors never have grown one, but always wanted to. These eight Jurors never look me in the eye. The other four scribble notes angrily. The jury leaves to deliberate. They reach a verdict in seven minutes. "Guilty!" they cry, "Guilty of torturing a *Drosophyllum lusitanicum* under special circumstances of deep freeze!"

"But I did it for horticulture!" I plead, as I'm dragged out of court. The Judge looks like Charles Darwin, and he sentences me to six months in the south pole, where no CP can be grown! "See how you like it," Judge Darwin sneers.

(Of course, in real life Charles Darwin tortured carnivorous plants unmercifully. Forget his burning *Drosera* leaves or dropping boiling water on them. He fed his hapless sundews unspeakable things just to see what they would eat. All in the name of science.)

But back to my poor *Drosophyllum* plant. Did it survive the deep freeze experiment? It most certainly did. As the days warmed up, its leaves straightened out. Soon spring came, and it flowered. I learned of the dewy pine's hardiness to cold from Joe Mazrimas, another intrepid torturer of carnivorous plants. If I'm to be banished to the south pole, some growers like Joe should be sent to Pluto!

Back in the days when carnivorous plants were impossible to find, back when the modern hobby started in the 1960s and 70s, the few growers around pampered their plants with terrariums and greenhouses, and rightly so. I remember my first *Nepenthes khasiana*. To me, a "cool growing" *Nepenthes* meant it could take temperatures down maybe into the 40s. It meant I could grow it in a tank in my house, where the nights in winter got that chilly. That first plant thrived under those conditions.

Years went by and soon I had a greenhouse and many *N. khasiana*, some quite large with eight foot stems. It became time to torture one. Maybe two. I decided to grow one on my screened-in porch, out here in Sonoma County, California, Just north of San Francisco on the coast.

Briefly, Sonoma County's climate is like this: Mediterranean, with warm, dry summers and cool, wet winters. A typical summer day will see a high of 83F and a low of a chilly 53F. In January the average low is 38F, high of about 58F. Extremes occur frequently. Lows in winter always hit the mid-20s for at least a couple of nights in mild winters, and much colder in big freezes. Highs in summer often top 100F. Humidity in winter is high, when all of our rain falls, usually from October to April. Summer afternoons the humidity can drop to 40%, 30% even as low as 15%. It is not unheard of in October, for instance, to see a low of 36F and a high of 92F all it one day! A far cry from a terrarium.

I grew my *N. khasiana* in that screened-in porch for three years. I found that it grew best in spring and in fall, when it pitched profusely. What it despised were weeks of hot, dry summer afternoons near 100F, and winter night temperatures below about

25F. From 27F to 89F, it was generally quite happy, if protected overhead from frost, and watered heavily in summer.

The worst temperature extremes I exposed *N. khasiana* to was in an unheated greenhouse during the big freeze of '89-90. Two huge plants with stems several feet long were frozen solid at about 15F. Highs for two weeks barely hit 40F. The plants turned black on the day after the first record low. The pots were frozen solid for a week. When the big freeze was over, I trimmed all the black, mushy leaves away. Deader than a doornail, I assumed.

Two months later green shoots appeared! Both plants survived and are now, once again, lush green giants.

Here are some other horrible tortures I've exposed some plants to. Most regard temperature extremes, and most were not intentional.

Nepenthes tobaica. I grew one on that same porch as the *khasiana*. It remained lush and green and with pitchers after a couple of lows at 29F. A week later it hit 27F, and the next day the plant turned black. It never returned, even after being moved indoors.

I lost several highland *Nepenthes* (*veitchii*, *stenophylla*, *rajah*) on the record breaking day in 1988 when outdoor temperatures hit 116F, and it was hotter in my sheet-covered greenhouse, where I stayed all day wetting down the plants. All other highland *Nepenthes* survived (*fusca*, *maxima*, and so on).

One-year-old *Sarracenia* seedlings. fully exposed outdoors during that deep freeze of '89-90. frozen solid for two weeks - all survived.

Pygmy sundews easily survive frosty nights in the mid-twenties, although they won't look too good until temperatures remain above freezing.

Again, that big freeze took a toll on tuberous sundews. Most plants were not yet at ground level when the pots froze solid. By spring nothing happened and I assumed they were dead. I dug them up, and found the stolons had grown up from the tubers, reversed themselves and had started to grow downward back into the soil! The tubers looked okay, so I repotted them. All plants (*D. stolonifera*, *macrophylla*, etc.) returned the following year, missing a whole growing season and considerable smaller, but they were back to normal the year after that.

Mexican butterworts do not care for winter lows below freezing, especially if wet. But *P. esseriana* is one that I froze at 20F for a brief time, and it appeared untouched. Several Mexican butterworts introduced into bogs in Mendocino County survived wet and frosty winters for several years, but all were killed off in the big '89-90 freeze when temperatures dropped into the mid-teens.

Drosera capensis is almost indestructible, as the roots will survive at least down to the low teens, briefly.

I have seen photos of *N. ((x mixta) x maxima)* grown for five years outdoors on the coast of southern California, surviving rare lows around 28F and surviving hot, dry Santa Ana devil winds in summer, although it probably loses its pitchers in the extremes.

Several growers in places like Ohio have reported satisfactory growth and survival of all *Sarracenia* species in both pots and bog gardens during typical winters. One fellow told me his wading-pool bog lifted out of its container every winter, frozen solid in Ohio. The American Pitcher Plants in such northerly climes may not be as robust or produce as many offshoots as in a warmer climate, but otherwise grow fairly well.

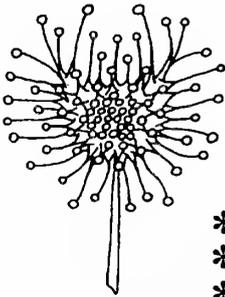
I have even tortured - unintentionally - *Heliamphora heterodoxa*, back in the days when the plants were quite rare. Frozen solid in an early surprise freeze in an unheated greenhouse in the early 1980s, they lost all pitchers but returned weeks later, although the plants remained dwarfed for a couple of years after.

There are several people growing a variety of highland *Nepenthes* outdoors in the San Francisco Bay Area, such as *N. ventricosa* and *x rokko*. Generally the plants do pretty well in frost-free areas that get plenty of cooling fog in the summer.

All of this does not mean you can expect to grow prize-winning carnivorous plants with such extremes of climate and temperature. The ideal is always greenhouse or terrariums where conditions can be controlled. But 15 years ago I never would have thought of growing, say, *Cephalotus* outdoors in a place like northern California. I must now admit that one of my better plants has sat for years on that torture-chamber screened-in porch of mine. It takes 22F lows and highs of 106F, although I did lose one in a bog garden at a low of 15F. I would never have discovered this had I not occasionally sacrificed an extra plant or two.

If you have tortured a carnivorous plant, and can add to this information, drop me a card with details. Next year I hope to do a piece on windowsill growing, and would love to hear from growers who've tried CP indoors. Some of the finest carnivores I've ever seen have been "houseplants", and some of the worst! Let's see if we can pass some of this information around.

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S. flava all green
S. flava Ben Hill Cty GA
S. flava Ocilla GA
S. flava Irwin Cty GA
S. leucophylla
S. leucophylla white & grn tops (2)
S. minor (3)
S. minor Oculo GA
S. minor, Ben Hill Cty GA
S. minor Irwin Cty, GA
S. minor Fitzgerald GA
S. oreophila
S. oreophila red veined (2)
S. psittacina Fitzgerald GA
S. purpurea
S. purpurea purpurea
S. purp venosa, Mtn Bog Form (3), GA
S. purp. venosa (3)
S. rubra
S. X alata X leuco (3)
S. X (ala X leu) X (leu X psit) (1)
S. X alata X (ala X leuco) (3)
S. X (ala X purp ven) X (ala X leu) (3)
S. X alata x minor (2)
S. flava X leuco (2)
S. X flava X purp X flava X self
S. flava X purp (3)
S. X flava X (ala X leuco) (2)
S. X flava ornata X (ala X leu) (4)
S. X leuco X (fla X leuco) (2)
S. X leuco X psittacina (4)
S. X leuco X purp venosa (2)
S. X (leuco X rubra) X ?
S. X (leu X fla) X (leu X rub) (1)
S. minor X (ala X leuco) (2)
S. X mitchelliana (1)
S. X oreophila x flava giant red throat (2)
S. X psit X (ala X leu) (4)
S. X purp. ven X (ala X leuco) (2)
S. (purp X ala) X (fla X leu) (3)
S. X rubra gulf X (ala X leuco) (1)
S. X alata X rubra gulf (1)
S. leuco X (leu X psit) (3)
Nepenthes gracilis Mersing
N. gracilis Singapore Pink ptch (10)
N. gracilis Singapore Purple Ptch (10)
D. arcturi Lewis Pass NZ (2)
D. aliciae
D. auriculata (5)
D. binata Haraki Plain NZ
D. binata North Plains, NZ
D. burmannii
D. burmannii Berwah, QLD (6)
D. capensis
D. capensis 'alba'
D. capensis 'Narrow Leaf'
D. capensis red (2)
D. capensis wide leaf (3)
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D. dielsiana (13)
D. filiformis filiformis NJ Pine Barrens
D. filiformis filiformis
D. fili fil X CA Sunset (3)
D. glanduligera (1993 seed)
D. indica grn plt, pk flowers (3)
D. intermedia
D. intermedia 'Carolina Giant'
D. intermedia Giant
D. intermedia Cuba (1)
D. intermedia Tropical (2)
D. intermedia Brazil (2)
D. intermedia 'Pine Barrens' (10)
D. macrantha macrantha
D. marchantii marchantii
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D. peltata Kandos Area (3)
D. planchonii
D. rotundifolia
D. rotundifolia Bloomsburg, PA
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D. rotundifolia Thomas Lake, WA
D. spatulata (9)
D. spatulata pink flower (3)
D. spatulata Kanto (5)
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A Visit to Kinabalu Park

by

Perry Malouf (5308 Carlton St., Bethesda, MD 20816-2304)

Part 2

Wednesday: A trip outside the Park, and to Masilau

Today's schedule was to include some exploration outside Kinabalu Park, as well as a hike to Masilau (which is part of the Park) where we expected to find *N. rajah* in its natural habitat. We packed up the jalopy and drove off. The drive was slow but gorgeous as we wound along the mountain roads through small villages, down into one valley and up the other side. We pulled off the road at the top of a grassy hill near the village of Bundu Tuhan; from here on we would be hiking. This was a fairly short hike which took us through chest-high grass, past some small tomato farms and to a steep embankment that bordered a creek. Here we found several specimens of *N. gracilis*. Some were fairly mature plants which were climbing through bushes, and others were very young rosettes growing close to the ground. The pitchers had more red mottling than I have seen in photographs of *N. gracilis*.

We continued down the embankment and across the creek, through another grassy field and finally we ended up near some old shacks that appeared to be abandoned. Behind the shacks was a grassy knoll which we began to climb. There was no trail, so the guide had to cut one with his machete. I found out that it was extremely important for me to follow his exact footsteps, since once I strayed a bit to the right and almost fell off a 2 m ridge; the grass was so high it was impossible for me to determine the actual topography of the hill. We crested the knoll and began walking downward to another creek. Here we found *N. reinwardtiana*, the green form. It was a fairly large



Fig. 1 -- The author's bedraggled Thai friend holds a *Nepenthes rajah* pitcher. Photo by Perry Malouf.

plant that had grown extensively through the saplings which bordered the creek. The pitchers had the two distinctive "eyes" on the back wall. There were the remnants of two other large *N. reinwardtiana* vines in nearby saplings; both vines had been dead for some time. Apparently the property owners perform a periodic "slash and burn" on the hillside, and the two *Nepenthes* fell victim to this practice.

After taking a few pictures, we made our way back to the jalopy and drove toward Masilau. I understand that the area around Masilau used to be included in Kinabalu Park, and was later released so that a resort could be built. A golf course exists now where untouched forest used to be. Not all of the land was taken by the golf course; the areas which border the Park were made available to lumber companies. We had to drive through a shallow stream and over some deeply trenched logging roads to arrive in this area. The skies had become

overcast and we expected rain any minute. We parked the jalopy and walked about 1 km up the logging road to the edge of the forest. Our intention was to simply walk straight up the forested hillside, and that is exactly what we did. The trail was nothing like the summit trail we had hiked the day before. Instead, this was a poachers' trail and was barely discernable. The forest was very dense and lush. Though it had not started to rain yet, everything was dripping wet.

Orchids were everywhere, but few were in bloom. Moss grew in thick wads on the tree trunks, and I discovered that this was quite useful for washing my hands—the moss was like a water-soaked sponge. All I had to do was grab a moss-covered sapling and squeeze, and my hand came away clean. After 1 km or so we saw dead vines of *N. burbidgeae*. They had grown to be quite large plants, and I had no idea what killed them. The vines were still anchored in the ground, and had clambered about 7 m through the trees. Our guide did a little exploring off the poachers' trail and found one *N. burbidgeae* which still had a living tip. There were several aerial pitchers on it, each about 10 cm high, dull yellow and covered with red blotches. It was a beautiful plant, and I wished that I could have found one that was not dying.

Farther up the hill we arrived at a small clearing. Two trees in the clearing had red spray paint marks on them which signified that we were entering the Park boundary. We hiked about 1/2 km up the hill from the clearing, and finally found *N. rajah*. There were three plants growing within 5 m of one another, and though they were larger than the ones I saw in the mountain garden they still were not fully grown. The largest pitcher was about the size of an American football,



Fig. 2 -- *N. villosa* pitcher. Photo by Perry Malouf.



Fig. 3 -- *N. lowii* pitcher. Photo by Perry Malouf.

and had an orifice of almost 15 cm in the long dimension. Inside one pitcher we found some frog eggs. Our guide mentioned that larger plants might be found higher up, but I was much too tired to continue upward. We still had a long and tricky hike back down the hillside, and I opted to return to the jalopy rather than search for more *N. rajah*.

On the way down it started to rain, so my friend and I donned our panchos. It rained hard, and our guide was concerned that the stream we had driven through might not be passable now. I was too tired and uncomfortable to think about such things—I was dirty, my shirt was soaked with perspiration, my glasses had fogged up to the point of being useless (I removed them), and I was slipping on the wet trunks of fallen trees. After what seemed like an eternity we broke free of the forest and walked down the logging road back to the jalopy. I did not remember having traveled so far on the way in! Fortunately for us, the stream was passable and we made it back to the Park by around 4:30 p.m. Our guide suggested that we meet at 9 a.m. the next morning, and then departed.

Thursday: Trip to “White Sand” village, and a glimpse of *Rafflesia*

Today my Thai friend was suffering from hike-induced muscle aches, so he decided to stay behind. After a hearty breakfast, I met our guide in front of the Old Administration building at the appointed time. Today we were going to visit a small village outside of Kinabalu Park called Pasir Putih, which translates to “White Sand”. It took us about 45 minutes to drive there at the slow jalopy speed, and again the drive was filled with beautiful mountain scenery. We passed many mountain-side farms featuring vegetables like broccoli, cabbage, and hot chili peppers. One area had several structures that looked like greenhouses, except glass panels were replaced by black cloth. This was a mushroom farm, and the structures provided the perfect growing conditions—dark, warm, and moist. Many of these farms are owned by Chinese but are tended by immigrant Indonesian workers.

We arrived in the village of “White Sand”, and drove by several groves of cacao, betel nut, and durian trees. My guide saw an elderly gentleman walking along the road and asked him where we might find “periuk kera”, the monkey’s cup plant (*Nepenthes*). The gentleman said that he could take us to some, so I let him have my seat in the jalopy and I climbed into the back of the flatbed. We drove along the road for another kilometer and parked at the gate of a farmhouse. The gentleman led us onto the property, past the house and into some fields where we began following a cattle trail.

Immediately I could see why this village is called “White Sand”, because that is exactly what we were walking on. In places where the few centimeters of topsoil were washed away, there was nothing but clean, fine white sand. On either side of the cattle trail, growing in the topsoil, were several plants of *N. gracilis*. These appeared like those we had seen the day before, only the plants were larger and had clambered farther through the tall grass and saplings. Pitchers measured about 10 cm high at the most, and were a light green with plenty of red mottling. We continued onward, over a wobbly cable suspension bridge that crossed a creek, and into a wide grassy plain. Here there were more *N. gracilis* plants, about one every 10 meters on either side of the sandy trail. I found this natural growth of *N. gracilis* to be very attractive. The plants wound their way upward through the tall grass, securing themselves by coiling tendrils around twigs and branches, and these tendrils produced pitchers which hung from the twigs in clumps of two or three together. There were also a few young plants growing as small rosettes in places where the grass was somewhat sparse.

These were the only *Nepenthes* I saw that day. With the time we had left (most of the afternoon), my guide offered to take me where we might find some *Rafflesia*. Although I was interested mostly in *Nepenthes*, the possibility of encountering the rare *Rafflesia* was quite tempting, so I agreed. For those who do not know about

Rafflesia, I will mention the few facts I learned about it. Rafflesia is the largest flower in the world and has no stems or leaves but grows directly out of the ground. It has five fleshy petals, can grow to about 1 m in diameter, is usually orange-red in color, and has a stench of carrion. It is a parasite and grows on the roots of a certain wild shrub. The seeds need to be trampled into the earth by some large animal (e.g. a deer) near the roots of its host in order to germinate. On the rare occasion that Rafflesia is found, botanists flock to the area. If the flower blooms on private property, the lucky owners make some money by charging admission to those who wish to see it—and most people are willing to pay the price because it is indeed a rare find.

We drove to another location outside of the park, near a village called Kauluan. After parking the jalopy we hiked through some vegetable farms, started along a trail through a forest, then diverted off into that thick forest. This was jungle trekking in its most demanding form. There was no trail, the growth was dense, and I did not have a machete (which is standard equipment around there—every outdoorsman carries one). Fortunately my guide had all the “standard equipment”, and he hacked a meager trail for me to follow. I took a moment to look around; every direction seemed exactly the same. There was little light filtering through the treetops, I could not see the sun and there were no other points of reference. It must be easy for the inexperienced hiker to get lost in those woods! It was not raining, but just as before everything was dripping wet. After a 20 minute hike my guide found a patch of *Rafflesia pricei*. Unfortunately we were too late to catch one flower at its peak—it had already turned black but still retained its shape. Other flowers were almost completely rotted away. Very close by were some unopened Rafflesia buds, the largest of which (15 cm dia.) was about two weeks away from opening. It was shaped like an oblate spheroid, and the thin black membrane which wrapped it had separated along the top to reveal the enclosed light-orange immature petals.

Another half hour of walking brought us out of that forest and back toward the farms we had passed earlier. We boarded the jalopy and headed back toward the Park, where we arrived at around 4 p.m. The next day we would take a trip to Poring Hot Springs, another research station in the Park, and look for *Nepenthes* there. This time the Park head botanist would accompany us, and we would have the use of one of the Park's 4-wheel-drive vehicles.

Friday: Poring Hot Springs, *N. rajah* collecting, and our departure

Today my Thai friend felt better, and so both of us met our guide, the head botanist of the Park, and some other workers and we drove off. Before going to Poring Hot Springs, we had to drop off the other workers at one of the other field stations where they would go searching for some *N. rajah* plants. They were going to bring them back for use in an exhibit. Although the Park vehicle was more comfortable and refined than my guide's jalopy, the nasty construction road made for a very tough ride. I regretted having had breakfast, and I was holding tightly onto the vehicle's roll bar along the roof in an attempt to stabilize myself against the jostling. We made it to the field station, dropped off the workers, headed back down that terrible road, and proceeded to Poring Hot Springs.

Upon our arrival, the head botanist showed us around. There is a building under construction which will house some brand new tissue culture laboratories. Nearby are some open building frames where orchids are kept. There were many, many plants collected from various locations in the Park, some of which were in bloom. We departed

the orchid collection in time to see four deer stroll by the trail on their way to higher ground. They seemed abnormally tame—perhaps the Park employees feed them. There were no *Nepenthes* at the research station, but after leaving Poring Hot Springs we found some along the roadside. There were several *N. gracilis* plants similar to those we had seen in previous days. Nearby was another rather large *Nepenthes* vine with pitchers that looked just like *N. mirabilis* var. *echinostoma*, a photo of which I had seen in *Nature Malaysiana* (vol. 13, no. 4, October 1988). Each pitcher was about 12 cm high and 2.5 cm in diameter, and the peristome was rather wide and formed a shelf all the way around the mouth of the pitcher. It was the peristome which suggested to me that this might be the var. *echinostoma*.

On the way back to the Park we had to pick up the workers who were dropped off before, and I asked if I might be spared the ride on that construction road. Amusingly, everyone else had the same idea. We all disembarked at a market place, and the driver went on to pick up the other workers. For a half hour we mulled about, and I was getting quite a few stares from children and some adolescents. I guess they do not see many tall Caucasians around there, and I tried to be on my best behavior so that the villagers would not get a bad impression.

Finally our vehicle came back to pick us up. In the back of the truck were two very large *N. rajah* plants in a bamboo basket, and one orchid which is endemic to Sabah (I think it was *Paphiopedilum volonteantum*). I noticed with some satisfaction that the triumphant workers' trousers were filthy from the thighs down, identical to my condition after hiking in Masilau to find *N. rajah*. One of the *N. rajah* plants had a male inflorescence, and both had sizable pitchers—one pitcher was 30 cm from tendril attachment to lid attachment, and the lid was almost as long again. These plants were brought inside the New Administration building, to be potted up for the exhibit.

We returned to the Park in the early afternoon, and my friend and I set about packing our belongings, settling accounts at the front office cabin, and buying last-minute souvenirs. We boarded one of the tour buses bound for Kota Kinabalu; these buses visit the Park every day. The bus stopped at a farmers' market along the way where wild honey, fruits, and some locally made souvenirs were being sold. After 10 minutes we were off again. It started to rain and continued through our arrival at the Hyatt hotel in Kota Kinabalu. We spent the night at the Hyatt, took a taxi to the airport the next morning, and flew out of enchanting Borneo—it was clear enough on that morning to see Mt. Kinabalu through the jet windows.

Epilogue

Reflecting upon this one week trip, I am overwhelmed by my experiences in the Park and surrounding area. All of my expectations had been fulfilled. I had seen and photographed *Nepenthes*: *rajah*, *villosa*, *kinabaluensis*, *fusca*, *edwardsiana*, *tentaculata*, *lowii*, *burbidgeae*, *gracilis*, *mirabilis* var. *echinostoma*, *reinwardtiana*, and one species I could not identify. Of these, only the *edwardsiana* and the unidentified species were not seen in their natural habitat (they were in the Mountain Garden). Also, I had a chance to see the rare *Rafflesia* flower (though it was past its peak), and I saw a lot of beautiful scenery. The Park staff were cheerful, friendly, very helpful and generous. If I am lucky I will have another chance to visit in my lifetime, hopefully while I am still able to endure the hikes.

TIPS I HAVE FOUND USEFUL IN GROWING SARRACENIA PLANTS

Joe Cumbee
215 Lower Rebecca Road
Fitzgerald, Georgia 31750

When making *Sarracenia* rhizome cuttings, use a child's wading pool for growing them (which can be purchased cheaply at the end of the summer from discount stores). Overfill the pool with pine straw, cover the straw with a scrap piece of plywood, then place bricks or concrete blocks on top of the plywood for weight. Fill the pool with water and let the pine straw soak for 4 to 8 days. During this time the straw will soak up water and settle to within an inch or two of the top of the pool. Spread a half to three quarters of an inch of dried long fiber sphagnum moss over the top of the pine straw and let it soak for a few hours. Next, spread one half of an inch of sand over the top of the sphagnum moss. The sand that I use is the kind that is used to make concrete (It can be bought for \$ 14.00 a ton, delivered.) The Sphagnum moss acts as screen to hold the sand on top of the pine straw and prevent it from settling to the bottom. The moss also acts as a wick to keep the sand moist.

The rhizomes are cut into one and one-half inch lengths or left whole (minus the growing tip), dusted with a fungicide, and placed in the wet sand. Leave the top most portion of the rhizome above the sand. By mid to late summer the rhizomes have roots and can be transplanted, or left in the pool for a complete season. I have no scientific evidence, but the roots seem to be longer and healthier than those rooted in a sand and peat moss mixture. The plants are easily removed from the pine straw and have fewer broken roots compared to other soil mediums I have used.

Most of the plants I root are placed back in the environment; either in the yard, around the pond, or in a wetland area on the family farm. About midsummer I carefully remove the plants from the wading pool and place each plant in a 12 or 16 ounce styrofoam cup in a 50-50 mixture of peat moss and sand. I do not punch holes in the cups for drainage, as the *Sarracenia*s have no problem handling standing water for a few days. The plant is watered with one-fourth recommended strength solution of Benlate and one-eighth teaspoon per gallon of Peters 20-20-20 fertilizer. Plants are given this solution every four weeks. Interval waterings are with regular tap water or rain. Plants are usually transplanted in November or December. Plants that have been given this treatment seem to thrive better than those transplanted bare rooted back into the wild.

I use a homemade tool to transplant the plants from the 12 or 16 ounce styrofoam cups back into the environment. The tool is a combination between a pine tree dibble, a bulb planter, and a soil sample tube. The handle is made from a 4 foot section of three-fourths inch metal pipe or bar. A five inch foot rest is welded six inches from the bottom of the metal pipe. The hole producing section is made from a seven inch long length of two and one-half inch metal pipe. The cutting edge is sharpened around the entire circumference with a file or bench grinder. From the non cutting end the pipe is split three-fourths of its length with a metal cutting band saw or a hack saw. The two

sections are pried one inch apart or flared using a hammer or strong vise-grip pliers. This piece is then welded to the bottom of the handle below the foot rest. This tool works well when large numbers of plants are to be transplanted. First a hole is made with the planting tool, then the plant is tapped or gently pushed from the bottom of the styrofoam cup so that the soil and plant come out intact. The shape of the hole that the planter makes is the same size and shape of the plant with its soil. When planted this way, many more plants can be planted with less labor and the plant has a little added protection from diseases and a little extra grow power than when transplanting bare root plants.

***Sarracenia flava* Seed Data**

25 Oct 94

From a random sample of 200 *S. flava* seed pods, ten seed pods were selected to conduct a count of the number of seeds per lobe and the number of seeds per pod. The findings were as follows:

Each pod contained five lobes

One lobe contained sufficiently fewer seeds than the other four.

Each lobe contained different amounts of seed. On and average:

| | |
|---|-----|
| Lobe 1 had 19% fewer seeds than lobe | 2 |
| Lobe 2 had 6% fewer seeds than lobe | 3 |
| Lobe 3 had 8% fewer seeds than lobe | 4 |
| Lobe 4 had 9% fewer seeds than lobe | 5 |
| Lobe 5 had 36% more seeds than lobe | 1 |
| The pod with the most seed contained | 992 |
| The pod with the least amount of seed | 508 |
| The average number of seed per pod (mean) | 683 |
| The median was | 675 |

On an average there were approximately 1,000 dry seeds per gram, or 28,400 seeds per ounce. That would be 454,300 seeds per pound. (rounded off approximately one half million seeds per pound.)

On an average, one teaspoon of seeds weighed 2.53 grams, or 2500 seeds per teaspoon. Information compiled by Joe Cumbee and Ben Hill County Middle school students.

Sarracenia minor Seed Data

03 Nov 94

From a random sample of 200 *S. minor* seed pods, twenty seed pods were selected to conduct a count of the number of seeds per pod.

The findings were as follows:

Each pod contained five lobes

Each lobe contained different amounts of seed

The pod with the most seed contained 547

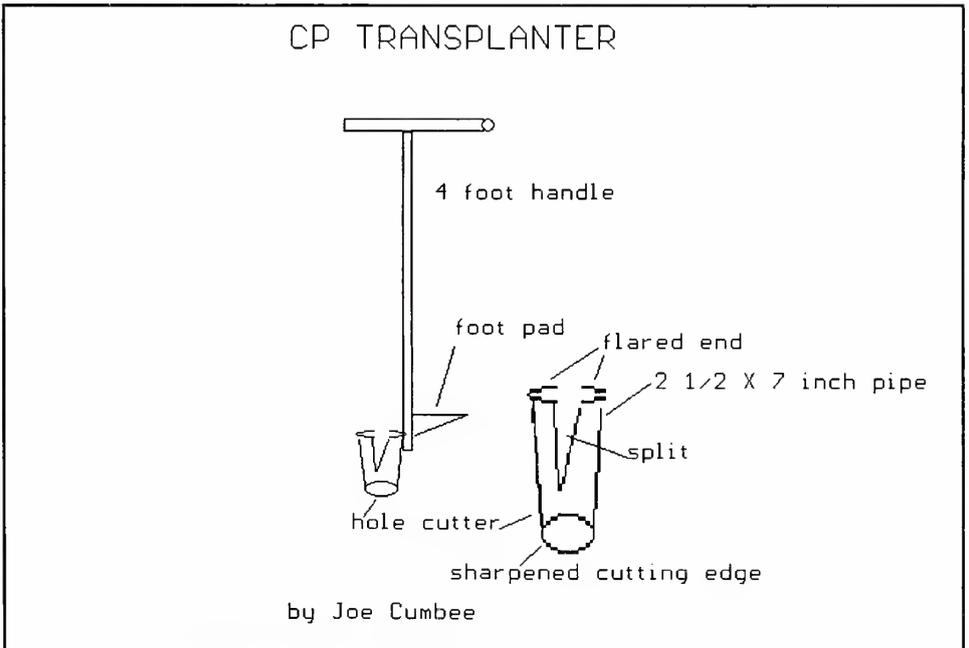
The pod with the least amount of seed 150

The average number of seed per pod (mean) 297

The median was 291

On an average there were approximately 1,800 dry seeds per gram, or 51,110 seeds per ounce. That would be 817,760 seeds per pound. On an average, one teaspoon of seeds weighed 2.45 grams, or approximately 4400 seeds per teaspoon.

Information compiled by Joe Cumbee and Ben Hill County Middle school students



BOOK REVIEW

SUNDEW STRANGLERS: Plants that Eat Insects by Jerome Wexler, 1995. Dutton Children Books, Penguin Books USA Inc, NY.,NY 10014. \$15.99. ISBN 0-525-45208-7

This 45 page book for the juvenile literature describes what sundew plants are and how they digest insects after capturing them. The author uses a mature *Drosera capensis* to illustrate many of the operations that the plant uses to gain its nutrition. It is a good book to give someone in the preteen years who indicates an interest and wants an introductory course in these fascinating plants. . .

Literature Review

Adamec, Lubomir. 1995. Ecological requirements and recent European distribution of the aquatic carnivorous plant *Aldrovanda vesiculosa* L. — A review. *Folia Geobot. Phytotax.*, Praha, 30:53-61.

This is an excellent review of the distribution problem with *Aldrovanda* in Europe along with good observations on growing conditions and their adaptation to outdoor culture in The Czech Republic where they are kept outdoors year round.

We often think of Australia or the orient when we think of *Aldrovanda*, yet there was once a considerable European series of populations wherein plants were adopted to more temperate climate. Unfortunately, due mainly to pollution and industrial growth, these locations are now down to a precious few and some contain only a few countable plants! There is a distribution map in the paper, and general discussion of each known extant location in an appendix.

The requirements noted in the field that support growth of the species, and which were further studied in the lab and in growing plants, include high CO₂ (not bicarbonate), medium concentrations of humic acids (tannins), high biomass of dead and partly decomposed litter (e.g. *Cares*, *Phragmites*, etc.), open water surface with full light exposure, transparent water, warmth, shallow water, rich in zooplankton, medium high concentration of ammonium and phosphate, high oxygen concentration. The acidity, pH, is not as important as once thought. There are more details on these factors in the paper, which you can get copied at a botanical library (This reviewer cannot supply copies!).

IUCN red list categories. IUCN Species Survival Commission. 1994. 21p.

IUCN has prepared a new set of categories for classifying species into levels of threat. There are now eight categories ranging from the most dire (extinct) down to "not evaluated". Near the middle of the list are "critically endangered", "endangered" and "vulnerable" which will likely receive most attention since they indicate still living populations with sufficient data to indicate serious problems. The booklet goes into great detail on definitions and instruction on how to arrive at a suitable classification, including using numbers of populations and plants within populations. These new categories will ultimately likely prove more useful than the older classes since definitions are more precise.

There is no information in the booklet concerning how to obtain copies, but you might try writing the following for information: Species Survival Commission, c/o Chicago Zoological Society, Brookfield, IL 60513, USA.

Rondeau, J. Hawkeye. 1995. Carnivorous plants of the west volume II: California, Oregon and Washington. Published by author. 82 p. plus maps, drawings, color plates.

This is an update and geographic expansion of the author's first book of 1991 which covered the CP of California. He has now surveyed the US west coast, and Mere is promise of a third edition in the future to include Alaska and western Canada.

The author opens with acknowledgments, followed by a preface and a general listing of most frequently quoted sites without being too specific for conservation reasons. There is a good summary first chapter on carnivorous plants in general, followed by specific chapters on the CP families of the west coast.

At this point, I will say that this is a book for everyone who wishes to add to their CP library, giving valuable information and insight at a very reasonable price. Even if you do not live on the west coast or ever intend botanizing the region this book will still be useful. While the plant descriptions Eve excellent and allow certain identification, the heavy emphasis in field observations, plant associates, ecology, etc. are very helpful.

There are some new discoveries mentioned, including sites further south into California for *Utriculatla ochroleuca* There is also a clear historical outline of the confusing taxonomic situation regarding pinguiculas on the coast and where we stand on nomenclature. While the author does not endorse either lumping or splitting, he mentions that they MAY eventually be included all in one species at some point.

The illustrative material is excellent with regional maps showing areas where species have been reported, and some fine color plates, including a full cover of *Darlingtonia*.

The book concludes with an epilog that is clearly upbeat for the future. While some locations on the coast are clearly threatened or have even been destroyed since the 1991 edition, CP in general seem to be in relative abundance (except of course for certain rare variations). The author also mentions many huge areas of wilderness and near wilderness that have yet to be surveyed for CP sites.

I must mention, with great pleasure, that at the very end there is a very thorough 24 page bibliography which I always appreciate in order to catch up on missed articles of one sort or another. I always send off a large order for xerocopies to my favorite botanical library.

For purchase, write J. Hawkeye Rondeau, 37 Sunnyslope Ave., San Jose CA 95127.

Want Ad

David-Emil Wickstrom (Weseler Str. 17, D-10318 Berlin, Germany)
He is looking for all available information on *Drosera regia* and *Utricularia gibba*.

Rooting *Nepenthes* in Water

Joe Mazrimas, 329 Helen Way, Livermore, CA 94550

Back in the eighties, I remember seeing a report in CPN from Steve Clemesha that he hurriedly placed some cuttings of *Nepenthes* in a jar of water to keep them fresh and planned to pot them up later. Well, he forgot about them and noticed about a month later that there were tiny roots emerging from the stems of these cuttings. He left them for a while longer in the water until the roots were about 1 cm (half-inch) long. Then he planted them into individual pots to grow. Well, they did! What an easy way to propagate this genus. Lately, I have experimented with this method and this is what I found out.

At first I used jars which I filled with clean low-salt water. Cuttings of *Nepenthes* were made on 45 degree angle with a new razor blade sterilized with alcohol. The cuttings were immediately placed into the water. I covered some of the jars with aluminum foil thinking that root formation would be enhanced in the dark and perhaps inhibited by light. I saw no difference. However, I did notice that algae growth affected the rooting process and so it was a good idea to use aluminum wrap to block light. I left all the upper leaves on the plant and at times half the cutting sat in the water. If the leaves remained turgid after 5 days, it meant there was a good connectivity with the water stream inside the stem. If the leaves wilted, then the stem needed to be recut and placed into fresh water. Usually, this fixed the problem and turgor pressure was restored.

Stem cuttings also conveniently could be placed into testubes (13 x 100mm) with the water level at the top of the tube. These can be placed in a rack to hold the tubes upright. A piece of aluminum foil can be wrapped around the stem and tube to slow down evaporation. No fertilizers or hormone solutions were used during the entire process.

The plant cuttings took about 3 months to show roots that were about 1/2 inch or 1 cm long. This was at average room temperatures and shading of light about 60%. During this time several leaves grew from the apical stem cutting and lateral buds emerged from lower cuttings. The cuttings were then potted up in a 50-50 perlite and chopped sphagnum mix. The cuttings were handled with some care because the roots are brittle and can break off easily. Healthy roots are stiff, black and have root tips that are pale yellow. Plants showed little change in growth patterns and continued to prosper despite the drastic change in their root environment. At this time, I then watered the plants with dilute fertilizer and a hormone-vitamin preparation called Superthrive. The species of *Nepenthes* that were used to conduct this experiment are: *N. alata*, *maxima*, *x dyeriana*, *x hookeriana*, and *x mixta*.

This simple method allows one to observe the fascinating process of rooting a plant similar to what you would do to your house plants. It takes place in a clear and directly observable system that uses common materials. The process is very efficient. I had 45 rooted plants from 50 starts. Most of the non-starts rotted before the rooting process began. This method is not universal for all species and especially so if the cutting is very difficult to root by normal means.



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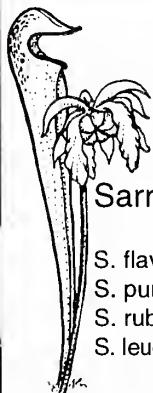
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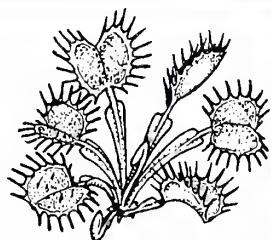
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| | |
|-----------------------------------|---------------------|
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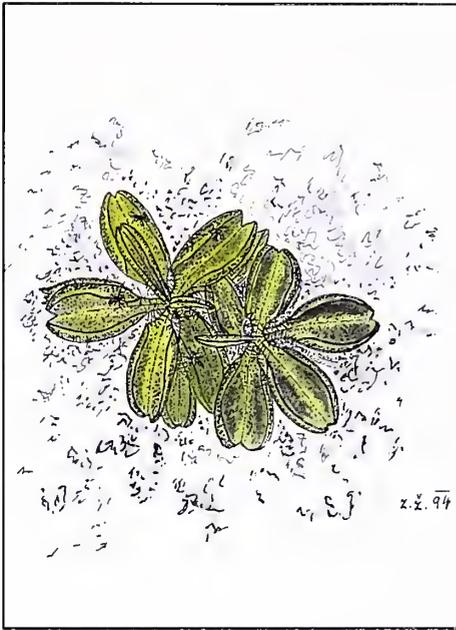


Fig. 1 — Two plants of *Pinguicula lusitanica* with tiny gnats on the leaves. Drawings by Zdenek Zacek.

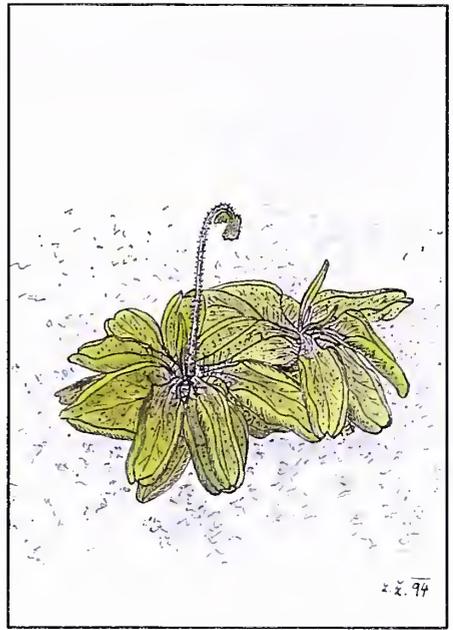


Fig. 2 — *P. lusitanica*. One of the pad of plants in Fig. 1 is developing a flower.



Fig. 3 — *P. lusitanica*. In full flower.

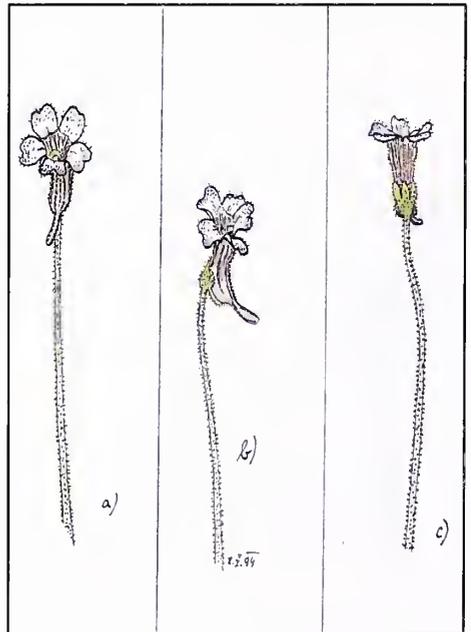


Fig. 4 — *P. lusitanica*. Three views of a mature flower. The plant self-pollinates.

LETTERS FROM THE CZECH REPUBLIC PART IV:

Zdenek Zacek, Ustavni 139, P 8, Bohnice, 18100, Czech Republic

I once received several tiny seeds of this butterwort, and after a short time they germinated. The plantlets had typical rosettes and seedlings were similar to adults. This is a small species, the adult rosette is only about 2.5 cm in diameter. The leaf margins are rolled up and there is a purple colored venation on the leaf surface. The leaves are able to trap tiny insects. I never observed any movement of the leaves. The leaves do have one curiosity—They are very narrow at their bases where there are long hairs growing. I know no other butterwort with such an arrangement. As far as I know, the function of these long basal hairs has never been ascertained. I have not seen prey caught in this basal area of the leaf. They are always trapped on the wider part of the leaf where the glandular hairs are shorter and barely visible with the naked eye. I will study this remarkable structure further with a stronger magnifying glass and my field microscope in order to try and learn something of its function.

When flowering, the corolla persists for a few days and then drops off. The rest of the flower lasts somewhat longer through seed maturation. *P. lusitanica* is also peculiar in that it is a self-pollinating pinguicula species. It readily reproduces in the pot by self-sowing seed and is generally an annual or biennial. After flowering, the entire plant dies. I grow it on pure peat with careful watering.

No other species of the genus *Pinguicula* grows in the African continent except for this interesting and rather inconspicuous little butterwort where it is a pioneer plant in some areas of the north African coast.

News and Views

Joe Mazrimas reports:

Once again the San Francisco Flower and Garden Show took place Aug 25-27, 1995. In the CP section of the show, there were 30 entries from 6 people who were: Larry Logoteta, Raul Hernandez, John Rizzi, Greg Lum, Joe Mazrimas and Gary Dughi. The best of show award went to Gary Dughi for his *Pinguicula* planter in a large glass bowl. The best Australian award went to John Rizzi for his *Cephalotus* plant. The display was set up by Tony Rae and we thank him for taking the time and energy for a display that enhanced the plants. Tony announced that this was his last year as manager of the CP display after a great 20 years of giving us the opportunity to show our plants. We are looking for his replacement to continue the tradition.

Richard Davion (Tilbrooke),(GPO Box 248, Adelaide SA 5001) writes:

Here is the latest news on the Plant



Gary Dughi & Best of Show Awards at SF Flower & Garden Show.

Breeding Rights(P.B.R.) saga. I hope you boys in the states can start to take it seriously and tackle it at your end since we can not seem to stop it here and it seems to be heading your way.

The information that Richard sent to us is summarized below:

It seems that this is all about the *Dionaea muscipula* plant called 'Royal Red' and if exclusive breeding rights should be given to anyone to propagate and sell this plant. Richard and others in his country are protesting and filed formal objections to the granting of this right. Once full P.B.R. is granted in Australia, the holder has entitlement for all countries that are signatories to the International Convention. The USA is included. One objection is the information that red color variants of *Dionaea* do occur in nature and it is not clear if all or some of these variants are included in the P.B.R. Richard is frustrated that he can not get reliable information from the registrar on whether there is any distinction between all the red clones and 'Royal Red'. It seems similar clones are in existence and it is not clear how they are distinguishable. Since several commercial interests are involved, they would like to see a decision made soon.

I suppose there would be another argument made on the *Dionaea* 'Green Hornet' which is the all green variety. I just made that up. The point being made is this can go on forever and I hope some kind of resolution can be had in the near future.

Donald E. Schnell reports:

In vol. 14 (March, 1995), p. 9 of the BULLETIN OF THE AUSTRALIAN CARNIVOROUS PLANT SOCIETY, Fred Howell has a brief report on rapid stratification of *Darlingtonia* seeds called "snap freezing", which is a pretty accurate description. Place some pure water in an easily torn container (such as a waxed paper cup) and sprinkle the *Darlingtonia* seeds on the water surface. Place in the freezer for 36 hours. The resulting ice block with seeds is removed from the cup and placed directly on a pot of plain peat or milled sphagnum and left to thaw in germination conditions. He had good germination in about ten days.

Allen Lowrie's volume 3 of the Carnivorous Plants of Australia should be available by the end of this year. There will be 54 species of utricularia, new tuberous and pygmy droseras, *Byblis*, *Cephalotus*, *Aldrovanda*, *Nepenthes* and tropical rainforest and other species of *Drosera* not included in previous volumes. Look forward to it!

Bruce Bednar (P.O. Box 669, LaBelle, Fla. 33935) writes:

Regarding Phil Sheridan and Bill Scholl's article "Noteworthy *Sarracenia* Collections", CPN 22:58-61, John Hummer told me exactly where they found the *Sarracenia psittacina* x *S. purpurea* hybrids. It was a locale I had given Hummer in the mid 80's when on his first trip to the area he failed to find *S. purpurea*. The low wet area across the road was where I first found three plants of *S. psittacina* x *S. purpurea* in June of 1983. I have since found several more! I talked to John Hummer a while back, and he had completely forgotten about the site which I had told him about. Sounds like a coincidental discovery. I believe Dave Kutt found that hybrid in 1979 in Baldwin County, Alabama.

Although John Hummer gave me the exact location of the *S. rubra* ssp. *gulfensis* green about 4 years ago, Clyde Bramblett and myself have been unable to locate it for photography. However, in 1989, the first time we tried to locate it, we did stumble onto a very prolific plant of (*S. psittacina* x *S. rubra* ssp. *gulfensis*) x *S. rubra* ssp. *gulfensis*

in the same general locale. The odd thing about this hybrid is its “yellow flower”! The pitchers are mostly yellow, even in autumn, but there is a lot of red veining. The plant is an easy grower and quick to divide!

I also found a *S. flava* x *S. psittacina* in 1982 north of the Yellow River, a single plant with no other *Sarracenia* within 0.25 miles of it! The closest pitcher plant was *S. flava* across the road. In 1988 Clyde Bramblett found 11 seedlings (2") at the base of a *S. flava* north of I-10 near Bagdad, Fla. They grew up and were typical for the cross, with pink/orange flowers!

I have also seen many, many normal leaf colored *S. psittacina* with pink or orange flowers growing side by side with yellow flowered *S. psittacina* of normal pitcher coloring as well as alba's - I'm very sure there is much genetic crossing occurring there.

Thought I might mention another “not so” fantastic discovery you might be interested in. Back in 1981 I found hybrids of *S. psittacina* x *S. minor* up in Georgia but they were mostly green and yellow, with lots of white around the windows. I thought perhaps they were alba, or at least partial! Then in 1984, I found a few albino *S. minor* in the area, green plants, white flowers, and light yellow replacing brown or red. I was out that way in 1990, and I saw a few others; the hybrids are more common. Also, there is an all green form of *S. psittacina* in one spot there but it flowers maroon to red!

Freddy De Coninck (Rijkeklarenstraat 20; B-9050 Gent; Belgium), President of CPS Drosera and collaborator of the Botanical Garden, University Gent.

On, June 25 to July 3, 1994, our CP society Drosera vzw. and the Botanical Garden of the University of Gent, have organized their second International CP exhibition. Our first one in 1991 was an overwhelming success, with 11,300 visitors. All genera of CP's were on display, including the rarer ones, such as *Heliamphora* spp., carnivorous bromeliads, flowering *Gentlisea* spp., *Aldrovanda*, different Tepui Utrics and *Drosophyllum*. A whole range of *Drosera* spp. (from *D. pygmea* up to *D. regia*), Venus' flytraps, beautiful Nepenthes, and even carnivorous fungi. For the first time, all the



Fig. 1 -- View of exhibit

aquatic Utrics of Europe were displayed in one exhibition. Plants were received on loan from several sources, namely BG University Bonn and Marburg (Germany), BG Liberec (Czech Republic), commercial growers and members of our society. Every European CP society was invited to participate in the jury and also well known CP specialists were asked for judging the plants. They were invited for two days at our expense. The president of the jury was Dr. John D.



Fig. 2 -- Artificial bog.



Fig. 3 -- 1. J. DeWitte, 2. ?????, 3. C. Clayton, 4. G. Lecointe, 5. Y.A. Utz, 6. J. Degreef, 7. K.P. Dickscheid, 8. P.M.c Keown, 9. S. Cottell, 10. M. Studnicka, 11. A. Vogel, 12. F. De Coninck.

Degreef. From CPS England: P. Mc Keown - S. Cottell; Carnivora, The Netherlands: A. Vogel; CPS Germany: K.P. Dickscheid; Dion  e, France: G. Lecointe. Further, Y.A. Utz (Switzerland), M. Studnicka, director BG Liberec (Czech Republic), J. Dewitte (Germany) and C. Clayton (Australia), have completed the jury. The winners of prizes were, for *Nepenthes*, P. De Wolf (1st price with *N. x coccinea*) and R. Deroose

(2nd price with *N. x mixta*); for *Drosera*, BG Bonn (1st price with *D. regia*) and BG Gent (2nd price with *D. madagascariensis*); for *Sarracenia*, F. De Coninck (1st price with *S. flava* "Red") and M. Goosens (2nd price with *S. purpurea* ssp. *purpurea*); for *Utrics* and *Genlisea*, M. Studnicka (1st price with *G. repens*) and K. Bruyninckx (2nd price with *U. reniformis*); other genera, M. Verdyck (1st price with *Heliamphora nutans*) and L. Nelissen (2nd price with *Darlingtonia californica*); special prizes for BG Marburg and Liberec. The scientific part of the exhibition, consisting of fifty displays (especially the one on carnivorous fungi), was set up by Dr. John D. Degreef. The layout was from Cristian Breckpot. The artificial bog was worked out by G. Van der Kinderen. All texts were in four languages (English, French, German and Dutch). Almost all books on CP's were displayed. There were also three stands where commercial growers and our society sold plants and books. Due to extremely hot weather for our region (up to 35  C) and because of the World Cup Football, only 2008 people visited our exhibition. Hereby, I would like to thank all the people and sponsors who made our exhibition possible. From 20-28 April 1995, our sponsor organizes a small exhibition of orchids and CP's. *Drosera* vzw. will be responsible for the CP part.

The Embrace of the Sundew

Willie Finley, 7172 Bassett Drive, Jonesboro, GA 30236

Glistening dewdrops sparkle amongst the maroon tentacles- tempting all to come forth and abide in their delicate beauty,

The innocent facade of the intricately stunning plant lures a drunken fly into the leaves of misfortune and treachery,

The small fly hesitates and explores a glistening globule as the perfume of the *Drosera* entrances the creature with the emotions of both curiosity and unreliable hunger,

“Come little fly and taste the droplet” is the plant’s relentless but pleasant whisper,

However, the fly only pauses- after exercising his transparent wings to and fro, the insect’s appetite gives way and he moves forward- resulting in the last mistake he’ll ever make in life,

The foolhardy is immediately mired in a viscous mucilage and the dewy *Drosera* has transformed into a ravaging demon without mercy!

The little creature’s struggles in an attempt to escape causes both excitement and amusement throughout the botanical menace,

The *Drosera* retaliates by folding the tentacles of death about the fly in an attempt to suffocate him to death like some vegetable python,

Alas, the exhausted fly reaches a state of despondency and is overwhelmed by the gluttonous stalks,

Caught in the embrace of condemnation, the fly takes a last wistful look at the world as the sundew envelops him in a sadistic clasp- his flesh will soon be liquified and his carapace will be displayed as a trophy amongst the bright red tentacles,

As the well-nourished tentacles gradually release their grip on the plant’s latest victim, the mask of innocence once again enshrouds the savage and enigmatic *Drosera*- the droplets of deception are formed once more as the tentacles continue to shimmer and glisten in all of their deadly radiance.

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We apologize for an error in Zdenek Zacek's article in CPN 24: 10-11(March, 1995) The article was on *Pinguicula rotundiflora* not *P. rotundifolia*.

