

# HISTORY OF DISCOVERY: YELLOW FLOWERED *SARRACENIA PURPUREA* L. SUBSP. *VENOSA* (RAF.) WHERRY VAR. *BURKII*

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Proposed new form: *Sarracenia purpurea* L. subsp. *venosa* (Raf.) Wherry var. *burkii* Schnell f. *luteola* Hanrahan & Miller f. *nov.*

Way back in August of 1985 I managed to complete the last original objective for my carnivorous plant nursery, World Insectivorous Plants. The acquisition and preservation of a natural carnivorous plant bog was conceived to be its crowning achievement. I purchased and saved from destruction an interesting forty acre gulf coast savanna bog in Elsanor, Baldwin County, Alabama. Baldwin County in lower Alabama has the distinction of being the fastest growing county in Alabama. Unfortunately, this new distinction may be translated quickly into eventual extinction for most carnivorous plant sites. Massive pitcher plant stands that were once common on commercial and private properties are being transformed into other uses on a regular basis. Carnivorous plant buffs who once remembered Baldwin County as “leuco country” would be devastated to see the recent changes. If you ever had the chance to see a majestic stand of *Sarracenia leucophylla* in Baldwin County, keep it in your memory. The old moniker was well deserved.

Actually, the county could be considered the hub of *Sarracenia* migration, distribution, or even perhaps evolution because six species have been discovered within its borders. Specifically, the acreage that I purchased originally had *Sarracenia leucophylla*, *S. purpurea* subsp. *venosa* var. *burkii*, *S. psittacina*, *Drosera capillaris*, *D. filiformis* var. *tracyi*, *D. intermedia*, *Pinguicula lutea*, and *Utricularia juncea*. Additionally, *Sarracenia alata*, *S. flava*, and *S. rubra* subsp. *wherryi* were found within 30 km (18 miles) from the site in other isolated bogs.

I began an earnest search for the ideal bog in Baldwin County in late 1984. I was lucky and managed to connect with a very savvy real estate agent who fully understood what I was looking for. The local jargon for pitcher plants was “bug catchers,” so I used the term to describe what was needed on the property. In March of 1985, she called and said she had a forty acre plot that looked promising. Jim Miller, a good friend of mine who once lived in Tallahassee, Florida, just could not wait to see and explore the savanna bog. Jim, a carnivorous plant enthusiast, professional photographer, and author of “The Status of Gulf Coast CP Populations” had moved to Sacramento, California in 1982 and was getting antsy to visit the southern bogs again. Jim flew to Atlanta and we headed down to the gulf on a lucky April 1st to visit Jim’s old haunts and see the property.

We first checked out the damage to the *Sarracenia purpurea* subsp. *venosa* var. *burkii* and *Sarracenia psittacina* that were growing just off the highway in apron and drainage ditches west of Tallahassee. The roadside was recently mowed and the *S. purpurea* pitchers were cut in half. The shiny interiors of the traps were fully exposed and prominent in the short grass. About ten feet from the asphalt, Jim spotted a totally yellow-greenish leaf and bent down to take a closer look. The plant

had a number of growth points, which is fairly common when plants are subjected to multiple cuttings during their development.

Finding very green *S. purpurea* subsp. *venosa* var. *burkii* plants in dense wire grass and heavily shaded niches is very common in southern forests. When a plant at first glance appears to be totally green, it usually turns out to have some minute red venation near the nectar roll (rim), or a reddish color on newly forming immature pitchers. Jim carefully spread the pitchers apart and tried to detect the usual light pink or red pigments in the remaining halved leaves. None was found, but we only had a bisected pitcher to work with.

Realizing that this plant could be an all-green form and growing in a very precarious location, Jim removed the plant for safe keeping and left a pup to maintain genetic diversity. We searched the immediate area for other possible anthocyanin-free plants. While some plants were very green, they all had some pink/red pigmentation in them. We concluded our visit and Jim was able to nurse the plant back to good health in his Sacramento greenhouse.

*Sarracenia purpurea* subsp. *venosa* var. *burkii* is the southern form of *S. purpurea* subsp. *venosa* and produces broader and typically larger pitchers than its more northern cousin *S. purpurea* subsp. *venosa*. The flower is not only larger, but is on a shorter, stouter peduncle, and produces pink rather than dark red petals. The anthocyanin-free plants are obviously reproducible mutants that lack pigmentation genes. The mutation is similar to that of the northern anthocyanin-free *Sarracenia purpurea* subsp. *purpurea* f. *heterophylla*. Apparently, direct habitat competition coupled with loss of habitat in general this century has restricted the distribution of this rare form. Also, the yellow-flowering form is genetically recessive and normal genetic blending with adjacent red *S. purpurea* cancels the full recessive color features.

Jim and I lost contact with each other for a number of years and I became oblivious to the actual growing status of the plant. In the meantime, Leo Song was able to leave his *Nepenthes* loaded greenhouses at California State University at Fullerton for a quick field trip in May of 1987. We drove down to my bog and it was here, while walking through the field of *Sarracenia leucophylla* and *S. purpurea*, that I found the second anthocyanin-free *Sarracenia purpurea* subsp. *venosa* var. *burkii*. Wow! And right there on my own property. The bog had been burned in February and the eerie greenish-yellow plant stood out like a beacon against the charred organic soil. This plant immediately brought back fond memories from my earlier trip with Jim and I eagerly extracted this specimen for closer observation back home.

Sad to say, the plant was lost (via unauthorized removal) from my collection by someone who apparently needed it more than I. While the loss was traumatic at the time, I knew as a plant propagator/breeder that the genetic structure for more anthocyanin-free plants could still be within one or more of the plants at the farm. The only problem was determining which one. I needed to capture seed from a heterozygous plant that carried the yellow recessive genes and hoped it was either self-pollinated or outcrossed to another heterozygous plant with the exact genetic codes to allow the recessive yellow characteristics to remain and become fixed in the gene pattern. These complicated mating scenarios, coupled with the fact that predators of all sorts destroy a substantial number of ripening seed pods, made the actual task of finding and producing more yellow-flowering plants a daunting one. Nevertheless, I began the task in 1989 by collecting seed from about 25 plants that were growing adjacent to the area where the original yellow plant was found. Of the nearly 10,000 plants that were grown, not one exhibited the desired physical traits.

I quickly realized that I would have to change my strategy or accept the fact

that this particular detective effort could become a multi-decade project. Mother Nature's genetic engineering program is often measured in millennia and is therefore not coordinated with human life spans. Therefore, I extended the collecting range and sowed about 100,000 *S. purpurea* subsp. *venosa* var. *burkii* seeds. Eureka! A few seedlings popped up that immediately exhibited the anthocyanin-free eerie yellow green pitcher color. Remembering the loss problems of a few years earlier, I gave the seedlings to the Atlanta Botanical Garden for safe keeping. The seedlings have prospered under their care, flowered (pure yellow as expected, see Back Cover), and produced viable seed from which plants have been raised and will eventually be offered to members of the ICPS.

By the way, I managed to stumble onto a third anthocyanin-free plant of *Sarracenia purpurea* subsp. *venosa* var. *burkii* in 1991. Again, it was right in my bog, about 100 meters from plant #2. While I could suspend the original detective project, I enjoy the challenge and now get sporadic crops of anthocyanin-free *S. purpurea* subsp. *venosa* var. *burkii* plants. I only sow about 50,000 seeds and feel that I am closing in on the heterozygous plant(s) in the field that produce(s) these unique yellow-green plants.

Jim has moved back to Tallahassee and his original plant #1 is still going strong and has produced several offshoots and, of course, those magnificent light yellow petals and yellowish (*luteola* in Latin) green pitchers.

Other than color, I have noticed only two major distinctions between the normal *Sarracenia purpurea* subsp. *venosa* var. *burkii* and the yellow-flowering form: (1)mature plants seem to be slightly smaller (reduced pitcher size), and (2)they do not produce as much pollen as the normal purple/red or mottled plants of this species. The more compact growth could be attributed to the age of our plants as well as to genetic growth factors related to being anthocyanin-free plants. A colony of these apparently rare yellow forms of *Sarracenia purpurea* subsp. *venosa* var. *burkii* plants will be established from my production plants and reintroduced to my bog for additional long term studies.

Finding anthocyanin-free plants of *Sarracenia purpurea* subsp. *venosa* var. *burkii* in the field is indeed rare. If anyone else has managed to stumble onto one while strolling through the southern savanna carnivorous plant bogs I would be interested in hearing from them. It will be interesting to note and document their additional occurrence along the southern gulf coast in future pages of ICPS publications.

Professional or graduate field ecologists and botanists interested in doing research studies on a private bog are welcome to use the property after their proposal is approved. I encourage its use for dedicated short or long term field research studies and projects to enhance carnivorous plant knowledge. Researchers will be able to observe and participate in field growing and production techniques that are currently being used and developed by carnivorous plant nurseries.

I am formally publishing the description of this taxon as follows:

*Sarracenia purpurea* L. subsp. *venosa* (Raf.) Wherry var. *burkii* Schnell f. *luteola* Hanrahan and Miller f. *nov.*

A var. *burkii* f. *burkii* partibus omnibus vegetativis anthocianino carentibus, his colore luteo-viride suffusis et petalis florum pallide luteis distinguenda.

Differs from var. *burkii* f. *burkii* in that all vegetative parts are yellow-green without anthocyanin, and flower petals are pale yellow.

TYPE: USA. Alabama, Baldwin County near Elsanor. Material from Hanrahan property near Elsanor, Alabama. Hanrahan and Miller 001. Holotype: (GA). The herbarium accession number at the University of Georgia is 222692.

ETYMOLOGY: Refers to pale yellow flower petals and yellow-green color of

leaves.

RANGE: Southernmost Alabama (Baldwin County) into western Florida to just west of Tallahassee. Infrequent.

HABITAT: Seep bogs and savannas.

Credits:

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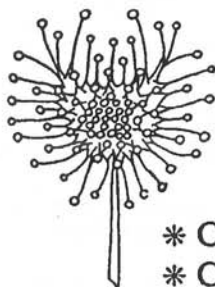
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