Noteworthy *Sarracenia* Collections

by
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Over the past several years a number of unreported *Sarracenia* forms and hybrids have been discovered in the wild. For security reasons, locality data is vague but serious students are invited to contact the authors for more information. Below follows a list of these interesting discoveries. *S. rubra* Walter ssp. *gulfensis* **Schnell (anthocyanin free form)**

A single clump was discovered by Jim Bockowski in 1987 in a shrub bog bordering a major river system in Santa Rosa County, Florida . The leaves, flowers and growth point of this plant are completely green and free of anthocyanin. Phyllodia are produced. Of further note is the presence of abundant areoles on the upper part of the pitcher. John Hummer (1992) reports the areoles are occasionally seen but not a prominent feature of the sub-species. The presence of phyllodia indicate probable introgression with *S. leucophylla* Raf. It is interesting to note the evolution of an anthocyanin free form that is a likely introgressed hybrid. Whether these areoles come from introgression with *S. leucophylla* or *S. psittacina* Michx. (which also grow in the bog) or are an inherent characteristic of the form have not been determined at this time. The areoles are not the very prominent white spots that one sees in *S. leucophylla*, *S. psittacina* or *S. minor*.

S. psittacina Michx. x *S. purpurea* L. (*S.* x *courtii*)

Discovered along a road embankment in Liberty County, Florida by Bill Scholl on 6/13/89. This is the first report from the wild of this hybrid. Ten clumps were found. Additional interbreeding between this hybrid swarm and S. purpurea was also suspected based on apparent F2 progeny.

Hybrid determination was made on intermediate characteristics of the leaves between parent species, flower color and shape and the occurrence of only the two potential parents in the vicinity that could result in this unusual *Sarracenia* hybrid.

S. flava L. x *S. psittacina* Michx.

Discovered in an open seepage bog by John Hummer on 6/12/88 in Liberty County, Florida. Additional specimens of this hybrid were discovered by Mr. Hummer in the same bog in 6/89 and 6/90. The color of the hybrids varies from green with little veining to heavily red veined. This hybrid was unknown to occur in the wild (Bell, 1952) but has been produced in cultivation.

S. psittacina Michx. (anthocyanin free form)

We first learned that such a plant even existed when we visited Fred Case in August 1985. Fred had plants which were discovered and collected by Tom Gibson in Florida. After seeing these plants we kept an eye out for this form and were promptly rewarded with its discovery in the field in Baldwin County, Alabama on 11/3/85. Additional discoveries were made by John Hummer and us in roadside ditches in Gulf

Figure 1. *S. flava* x *S. psittacina*. Wild material under cultivation. Green color predominates even in full sun. Photo by Phil Sheridan.

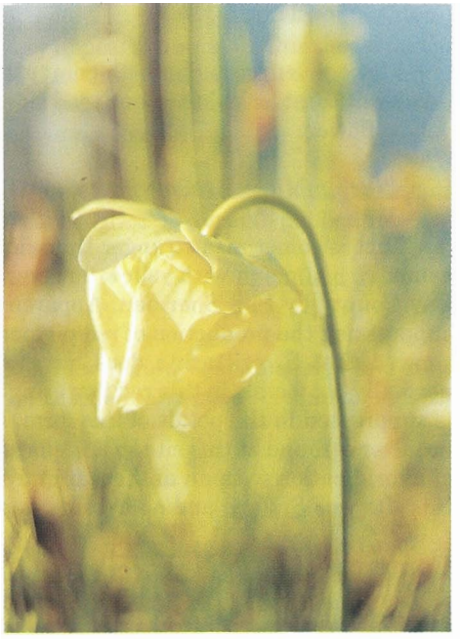

Figure 2. Flower of anthocyanin free form of *S. psittacina*. Photo by Phil Sheridan.

Figure 3. Growth point of anthocyanin free form of *S. psittacina*. Note complete lack of anthocyanin. Photo by Phil Sheridan.

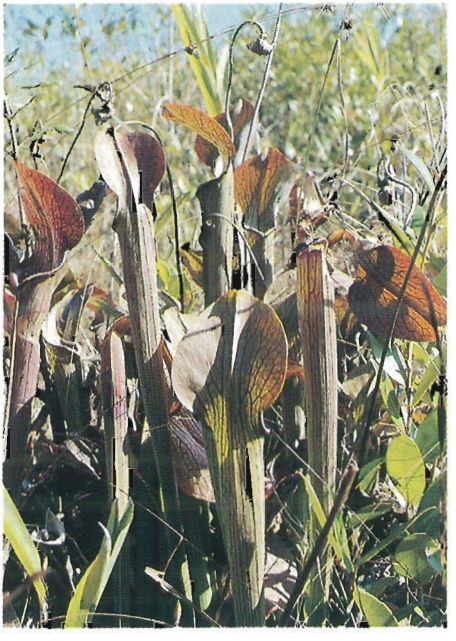

Figure 4. Robust colony of *S. rubra* (possibly ancestral *S. rubra* ssp. *gulfensis*) growing in hillside seepage bog of Marion County, Georgia 11/2/91. Photo by Phil Sheridan.

County, Florida on 5/11/87.

Flowers, leaves and growth point of this form are pure green and no anthocyanin is present. Best looked for along road sides during flowering season due to the obvious yellow flower.

S. psittacina Michx. (yellow flower, anythocyanin in leaves)

Fact is sometimes stranger than fiction and this is the case here. Plants of red veined *S. psittacina* with yellow flowers were collected on 5/12/87 at a seepage bog in Bay County by Phil Sheridan. Apparently a genetic change has occurred which is suppressing the production of red pigment in the flowers of this form. Schnell (1978) showed that S. psittacina does have yellow compounds in the petals which are normally not visible in this red flowering species. Apparently red pigment production is suppressed in the petals of this form. No plants of *S. psittacina* (anthocyanin free form) were found at this site so it is suspected that this is a mutant and not the result of hybridization with an anthocyanin free form. The only yellow flowered species at this site was *S. flava* and no hybrids were found between it and *S. psittacina*.

Comments

We have heard comments from people that the anthocyanin free forms of *Sarracenia* are less vigorous than their anthocyanin producing counterparts. In the case of *S. psittacina* this appears to be the case. *S. rubra* ssp. *gulfensis* (anthocyanin free form), however, has proved to be extremely vigorous. This tends then to challenge the statement that all anthocyanin free forms are going to be slow growing and disease prone. There is definitely a need to explore whether the presence or absence of anthocyanin is a factor in the survival of members of the genus *Sarracenia*.

We have also found that in crossing *S. rubra* ssp. *jonesii* (red form, Greenville Co., S.C.) with *S. rubra* ssp. *jonesii* (anthocyanin free, Transylvania Co., N.C.) a certain percentage of the offspring from the red form parent will be anthocyanin free and the remainder of the seedlings will contain anthocyanin. Previous experiments have shown that covered and selfed material of *S. rubra* ssp. *jonesii* used in these experiments will produce 100% anthocyanin containing seedlings. In addition the material of *S. rubra* ssp. jonesii containing anthocyanin is all vegetatively propagated from one rhizome division originally received from Fred Case. This indicates to us that the anthocyanin free form may somehow become more dominant when it is the pollen donor to a anthocyanin producing parent. It also is possible that several genes are involved in the production or suppression of anthocyanin. We will continue our research on this subject and invite others to duplicate our work and report their results.

Recently, Ron Determan of the Atlanta Botanical Garden, as part of a recovery program for *Sarracenia* in Georgia, has succeeded in raising an anthocyanin free form of *S. rubra* from wild seed. Despite our extensive field research we have not once encountered an anthocyanin free form of *S. rubra* in the inner coastal plain of Georgia where Ron got his seed material. Of even greater interest to students of the genus *Sarracenia* is that this plant, even at only three inches tall, possesses abundant areoles! These *S. rubra* from the sand hills of Georgia occur in an area where there are no other *Sarracenia* to hybridize with. It is truly remarkable to learn that once again a normally non areolate species of *Sarracenia* has been found to produce windows.

Schnell (1977) mentioned that areoles in *S. rubra* ssp. *jonesii* may be masked by prominent external venation and this discovery appears to support this thesis for the *S. rubra* complex in general. It is also possible that the genetic change which occurs to suppress anthocyanin production may also be attached to the capacity to produce areoles (witness *S. rubra* ssp. *gulfensis* anthocyanin free form).

We plan another paper to formally describe these new forms and hybrids and invite suggestions or criticisms from the reader prior to formal publication and naming.

Acknowledgements

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