

A PHOTOGRAPHIC PRIMER OF VARIANTS OF *SARRACENIA PURPUREA* L.

By Donald E. Schnell

In CPN 9:41-44 (June, 1980) we presented the first of a proposed series of color photo articles intended to aid the reader in discerning and evaluating variants of various CP species. The first article covered *S. flava* and met with considerable positive comment so we are continuing the yearly series with *S. purpurea* in this issue, and will likely next cover *S. rubra* either in another issue this year or in one next year.

The co-editors would appreciate your suggestions for ensuing editions of this series. One reader has already suggested variants of some of the *Pinguicula* spp., and of course we have had many requests for *S. purpurea* and *S. rubra*.

As in the first installment of the series, the text will be brief, at times telegraphic, and the reader is of necessity referred to more detailed references for an in-depth discussion. We will try to select reasonably available references. In the case of *S. purpurea*, I still have a few copies of reprints of my review paper on variants of the species and will gladly supply them to interested as long as they last. (See references at the end of the article.)

In my review of "published" botanical variants of *S. purpurea* (some not legitimately so), I covered nine cases of varying interest, ranging from the vigorously discussed concept of northern and southern subspecies over the years, to some extremely questionable variants mentioned only once in the literature and often representing sports or ecophenes, and the "horticultural variety Louis Burk" (LB) case on the Gulf Coast.

The photos and brief differential descriptions presented will be of what I feel are acceptable genetic variants, and two others. Var. *ripicola*, which is almost certainly not genetic, will be presented due to interest and confusion where the plants appear in fens of the northern

range, and "LB" will also be shown since it is of some interest and its status is still under study.

The numbers preceding the paragraphs below correspond to the figure numbers.

1) ssp. *venosa*. The southern subspecies (I accept ssp. separation as botanically legitimate) ranges from Delaware and New Jersey (where bogs of it frequently intermingle with the northern ssp. *purpurea* and where hybrid intermediates can be found commonly) southward. The pitchers are proportionately shorter and wider than in ssp. *purpurea*, with more flaring lids and usually covered externally by hairs.

2) Flower of ssp. *venosa*. This is most often deep red along the Atlantic coastal plain (and in inland bogs), occasionally lighter red or maroon.

3) Flower of ssp. *venosa* "Louis Burk." The flower is generally larger with light pink petals. Vegetatively, the pitchers are in the same proportion as ssp. *venosa* elsewhere but are larger (as they are in some Piedmont Carolinas bogs). Research is under way to determine the exact status of this variant, but it appears to predominate over the Gulf Coast, rather than being rare as originally thought. Discussion of this variant and its possible relationship to the partial break in species range in south Georgia can be found in reference 1.

4) Flower of ssp. *venosa* "Louis Burk" showing the very light green to nearly white umbraculate disc.

5) ssp. *purpurea*. The pitchers are proportionately longer and more narrow than in ssp. *venosa* and are usually glabrous. This is the northern ssp. as typically seen in sphagnum bogs.

6) ssp. *purpurea* f. *heterophylla*. This quite legitimate genetic variant lacks all red

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Fig. 1. *S. purepurea* ssp. *venosa* in coastal North Carolina.



Fig. 2. Flower of ssp. *venosa*.

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Fig. 3. ssp. *venosa* "Louis Burk" flower. Note pink petals and somewhat lighter sepals.



Fig. 4. ssp. *venosa* "Louis Burk" flower showing very pale to nearly white "umbrella."



Fig. 5. *ssp. purpurea* in a sphagnum bog.



Fig. 6. *ssp. purpurea f. heterophylla*.

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Fig. 7. Flower of *ssp. purpurea f. heterophylla*.



Fig. 8. *ssp. purpurea* growing in a northern marl fen as "ripicola" habitat variant.

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pigment in all growth stages (cf. the green pitcher variant of *S. flava*). It occurs rarely in some northern bogs but is being found in more areas with increased searching. The form must be clearly differentiated from shade-grown more typical ssp. *purpurea* in which red color has not developed. One should insist that putative f. *heterophylla* have yellow-green pitchers, bracts and flowers when growing in the open; all shade growing plants must remain suspect until more closely examined or grown in full light. In bogs where f. *heterophylla* is found, more typical ssp. *purpurea* is almost always present with resulting hybrids. These can be differentiated by at least fine red venation of pitchers, pink or veined petals and red pigment of leaf scales at the base of the plant rosette.

7) Flower of ssp. *purpurea* f. *heterophylla*. Note that all parts of the flower are yellow-green.

8) ssp. *purpurea* "v. *ripicola*." The error in naming this non-genetic variant is a classical example of the result of not doing meticulous transplant experiments in varying habitats, as well as not noting older literature where the work may have already been done (e.g., reference 2)! It is the growth form of ssp. *purpurea* most often seen in northern marl fens, as opposed to the "typical" growth form in acid sphagnum bogs. In the "ripicola" plants, the pitchers are quite short and brittle, often very deep red to maroon, and there are often more pitchers per rosette. When moved from their marl or sandy soil habitat to sphagnum conditions, they revert to typical ssp. *purpurea* sphagnum bog appearance in 1-3 years. Conversely, sphagnum bog growing ssp. *purpurea* plants moved to an open marl fen assume the "ripicola" characteristics.

Again, we refer interested readers to the sources below on all of these variants of minor importance. The references contain bibliographies through which one must further backtrack in or-

der to begin to gain some understanding of these plants.

References

1. Schnell, D. E. 1979. A critical review of published variants of *Sarracenia purpurea* L. *Castanea* 44:47-59. (Reprints from author. A general critical review containing bibliographic references which should be further consulted.)
2. Mandossian, A. J. 1966. Variations in the leaf of *Sarracenia purpurea* (pitcher plant). *Mich. Botanist* 5:26-35. (This is one paper of a trilogy by the author on aspects of the biology of the species in Michigan. Too often overlooked, one might criticize details or extent of some experiments and observations, but on the whole they present valuable data and observations among which are transplant experiments and other observations contradicting the concept of genetic var. *ripicola*, which Mandossian in turn was apparently not aware of.)
3. Schnell, D. E. 1978. Systematic flower studies of *Sarracenia* L. *Castanea* 43: 211-220. (A secondary reference as far as this presentation of *S. purpurea* variants is concerned, but which emphasizes some floral observations.)

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flowers of *P. bohemica* are almost white with a dark violet mark in the neck, quite the opposite of the typical colouring of *P. vulgaris*. In the light colour of its corolla *P. bohemica* resembles *P. vulgaris* f. *bicolor* (Woloszczak) Krajina (see CPN 7/2:47, 50). But there are certain clear features which distinguish *P. bohemica* from *P. vulgaris* and its forms. The most striking of these is the shape of the calyx and capsule (figure 2). *P. bohemica* has the lobes of its calyx rounded at the tip whilst *P. vulgaris* including the bicolor form has bluntly pointed lobes. The calyx of *P. bohemica* is not open but is bell-shaped and fitting closely to the

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