

## Technical Refereed Contribution

### THE LONG OVERDUE RECOGNITION OF *SARRACENIA RUBRA* SUBSP. *VIATORUM*

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#### Introduction

The complex of taxa associated with *Sarracenia rubra* Walter has long been embroiled in controversy, with many scientists having different perspectives on how the plant should be interpreted. In part, this is because the plants have an interesting, patchy distribution throughout the southeastern USA. An early classification scheme of the plants under discussion was promoted by Case & Case (1974, 1976):

*Sarracenia rubra* Walter

*Sarracenia jonesii* Wherry

*Sarracenia alabamensis* Case & R.B.Case

*Sarracenia alabamensis* subsp. *wherryi* Case & R.B.Case

Don Schnell, who I candidly observe was highly influential in my own thoughts on this, introduced a new name to recognize the plants along the Florida Gulf Coast:

*Sarracenia rubra* Walter

*Sarracenia rubra* subsp. *jonesii* (Wherry) Wherry

*Sarracenia rubra* subsp. *alabamensis* (Case & R.B.Case) D.E.Schnell

*Sarracenia rubra* subsp. *wherryi* (Case & R.B.Case) D.E.Schnell

*Sarracenia rubra* subsp. *gulfensis* D.E.Schnell

Looking at the names of scientists after the epithets, you see he did this by reducing the Case & Case “*S. alabamensis*” to subspecies status under *S. rubra*, and also transferred *S. alabamensis* subsp. *wherryi* to *S. rubra*. You can also see how even Wherry was uncertain how to deal with the *S. rubra* subsp. *jonesii* taxon, first having treated it as a species, and then as a subspecies. This is the system that Schnell has promoted throughout his career in his various popular and technical publications (Schnell 1976, 2002a; McPherson & Schnell 2011, 2013; and others).

For many years I worked for The Nature Conservancy, and during this time I founded the Conservation Program for the ICPS. While working with these organizations, I found it convenient to adopt the taxonomy widely used by many conservationists within the USA:

*Sarracenia rubra* Walter

*Sarracenia jonesii* Wherry

*Sarracenia alabamensis* Case & R.B.Case

*Sarracenia rubra* subsp. *wherryi* (Case & R.B.Case) D.E.Schnell

*Sarracenia rubra* subsp. *gulfensis* D.E.Schnell

This system suited me well for many years in my own publications (e.g., Rice 2006, 2018; and others). After leaving my position as the ICPS Director of Conservation Programs, as I no longer had to regularly liaise with conservation organizations, I began to use a hybrid system of classification, i.e.,

*Sarracenia rubra* Walter

*Sarracenia jonesii* Wherry

*Sarracenia alabamensis* Case & R.B.Case

*Sarracenia alabamensis* subsp. *wherryi* Case & R.B.Case

*Sarracenia rubra* subsp. *gulfensis* D.E.Schnell

This change in how I viewed *S. alabamensis* subsp. *wherryi* was inspired by field work during which I was impressed by how similar that taxon is to *S. alabamensis sensu stricto*. Furthermore, much of the range of *S. alabamensis* subsp. *wherryi* occurs, in broad terms, downriver of *S. alabamensis*, and that migration of propagules towards the coast is feasible. This is the system that Mellichamp & Case use in their treatment of *Sarracenia* in the eFlora of North America (Mellichamp & Case 2009).

The only additions to the nomenclature of the plants in the complex were made by McPherson & Schnell (2011), who added names to denote two anthocyanin-free forms (i.e., *S. rubra* Walter f. *luteoviridis* S.McPherson & D.E.Schnell, and *S. rubra* Walter f. *viridescens* S.McPherson & D.E.Schnell). In this work, the authors also corrected an error of protocol which required the change of “*Sarracenia rubra* subsp. *alabamensis* (Case & R.B.Case) D.E.Schnell” to “*Sarracenia rubra* subsp. *alabamensis* (Case & R.B.Case) S.McPherson & D.E.Schnell”.

#### The History of an Unresolved Issue

A final, long unresolved issue remains unaddressed regarding the *S. rubra* complex. In central Georgia, there are disjunct populations of the plant that seem to defy easy classification. Case & Case (1976) noted this group but concluded the plants fell into their concept of *S. rubra*. Sheridan & Scholl (1993) showed an image captioned “Robust colony of *S. rubra* (possibly ancestral *S. rubra* ssp. *gulfensis*) growing in hillside seepage bog of Marion County, Georgia 11/2/91”, but without supporting commentary in their text. Over several years, Sheridan and colleagues discussed this plant further (Sheridan *et al.* 1997; Sheridan & Patrick 2000), describing the communities in which it occurs, and recommended further evaluation of plants in the *Sarracenia rubra* complex.

In 2002, Schnell summarized the situation regarding the *S. rubra* complex in his authoritative treatment of carnivorous plants in the USA and Canada. In doing so, he noted in a range map (see Schnell 2002a page 165) a discontinuous population of plants in central Georgia, specifically in “Taylor County and environs.” Schnell notes that these plants “have the closest affinity to subspecies *gulfensis*, which is where I place them unless or until further studies indicate otherwise.” In their eFlora, Mellichamp & Case (2009) noted that the plants from Taylor County (and presumably elsewhere in the range segment) are “very dark maroon and very hairy externally”; they also recommended that these plants should be placed within *S. rubra* subsp. *gulfensis*.

Horticulturists—always on the lookout for something interesting and different—have long had interest in these plants, in particular those from Taylor County and Crawford County. Such plants are grown with a variety of unofficial names such as *Sarracenia rubra* “ancestral form,” *Sarracenia rubra* subsp. *gulfensis* “ancestor,” or *Sarracenia rubra* “Flint River drainage.”

The most complete treatment of these plants appeared in McPherson & Schnell (2011). In this work, the authors summarized what we know about this taxon, and compellingly argue that it displays distinct, if complicated, attributes. Despite the excellent summary on this plant’s distinguishing characteristics and range, McPherson & Schnell did not establish a name for the plant. This is particularly surprising, especially since the book (including my own *Darlingtonia* contribution in it) included names of nineteen new varieties and forms! Instead, the authors chose to use the somewhat cumbersome name “*Sarracenia rubra* ‘Incompletely diagnosed taxon from Georgia and South Carolina’” throughout the six-page treatment of the plant. This terminology has not been adopted by the

community of carnivorous plant horticulturists; however, McPherson & Schnell continued to use it in their next work (McPherson & Schnell 2013), which is essentially a distillation of McPherson & Schnell (2011). The use of single quotes in their terminology could be confusing, because in horticulture, single quotes is reserved for officially established cultivar names. However, for consistency with them, I will use it in this article despite its illegality. I ask forgiveness.

### A Step Long Overdue

Frankly speaking, there are three perspectives on how to move forward. The first is to be satisfied with current taxonomy, and simply classify *Sarracenia rubra* ‘Incompletely diagnosed taxon from Georgia and South Carolina’ as a population of a plant taxon with an existing name. This is the route taken by, for examples, Mellichamp & Case (2009) or Schnell (prior to 2011). Similarly, it might be concluded that these plants simply represents some kind of hybrid swarm—an intermediate population caused by the intermingling of other subspecies, but one that has not stabilized itself into a evolutionarily significant entity. I do not think that these plants fit these scenarios.

A second approach is to study the plants until enough data are amassed to clearly—perhaps by statistical or molecular means—be able to develop some complete and clear metric for characterizing this taxon. In this way, for example, Schnell (2002b) elevated the under-described entity, known previously as *S. minor* ‘Okee Giant’, to *S. minor* Walter var. *okefenokeensis* D.E.Schnell. Unfortunately, there is no indication that this will happen for our case in *S. rubra*. The name “*S. rubra* ‘Incompletely diagnosed taxon from Georgia and South Carolina’” has been in circulation since 2011, and “*Sarracenia rubra* ‘Ancestral’” has arguably been in use since 1993, with no resolution yet!

A third approach is that which has long been used in botany, and that is to simply construct an appropriate Latin name, select a type specimen as a voucher, describe the plant as best as is possible at the time, and let history sort out the details. Obviously, the point is not to litter the history of plant research with outmoded synonyms. However, the role of nomenclature is to serve science, and in this case, it seems that some sort of name—more clearly defined than those previously in use—could and should be coined for use.

Furthermore, I note that—from a conservation standpoint—having a plant with a name on it can be far more useful for conservation workers in their attempts to protect plants. As an example, it is far more compelling to try to promote the protection of *S. purpurea* var. *montana*, than it would be if the plant were called *S. purpurea* ‘Incompletely diagnosed taxon from Georgia and the Carolinas’!

***Sarracenia rubra* Walter subsp. *viatorum* B.Rice, subsp. nov.**

**LATIN DIAGNOSIS.** *Sarracenia rubra* subsp. *gulfensis* similis. Imprimis ascidiorum magnitudine parviore, operculo hiantiore vel sursum versus plus obliquo ascidiorumque facie externa dense pubescente differt. Planta e regione collina “Fall Line” Georgiae Carolinaeque Meridionalis adjacente.

**ENGLISH DIAGNOSIS.** Similar to *Sarracenia rubra* subsp. *gulfensis*. Differs primarily in smaller pitcher size, a lid that is more gaping or slanted upwards, and densely pubescent pitcher exteriors. A plant of the fall line of Georgia and adjacent South Carolina.

**TYPE.** Georgia, Taylor County, 7 km N of Butler near Beaver Creek, 13 September 2003, Collector: Lisa M. Krueger, Coll. # 113 (GA 221861, accession #272913 – holotype). See Figure 1.



Figure 1: *Sarracenia rubra* subsp. *viatorum* specimen at the University of Georgia Herbarium. Some portions of the image blurred for security reasons.

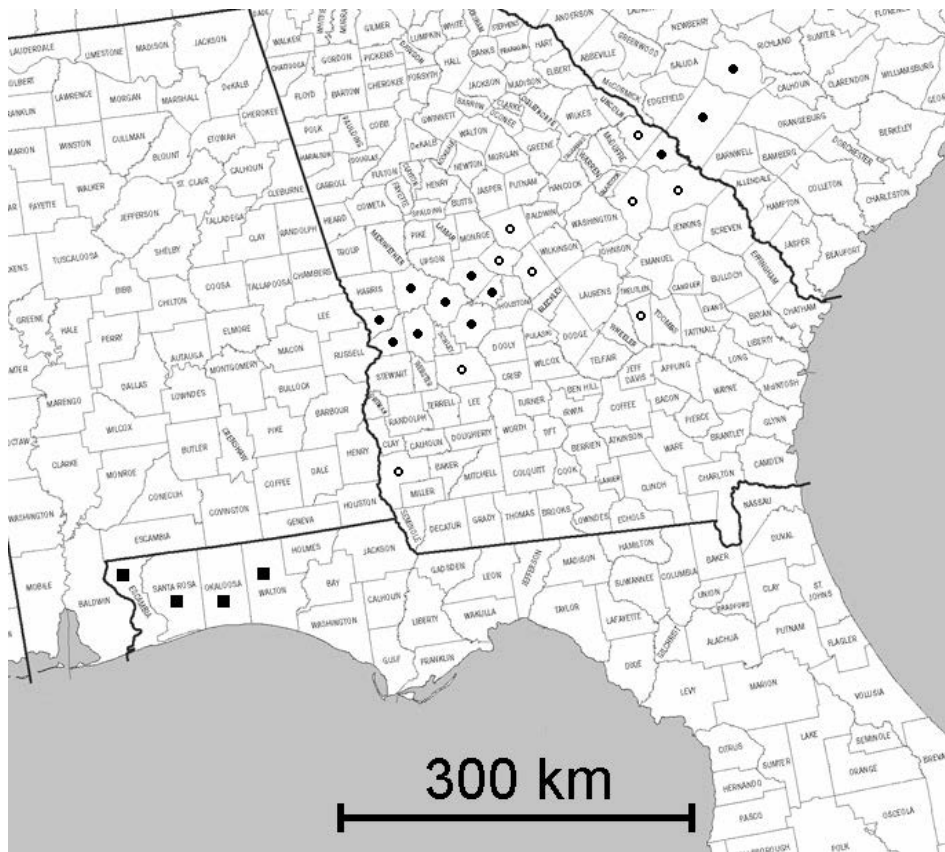


Figure 2: Range for *Sarracenia rubra* subsp. *viatorum* indicated for current (filled circles) and former (empty circles) populations. Filled squares indicate counties with *Sarracenia rubra* subsp. *gulfensis*.

**HABITAT AND RANGE.** Found primarily along the fall line sandhills of the southeast USA, ranging from far western Georgia, northeastwards approximately 400 km to Lexington County, South Carolina. Figure 2 shows the counties with extant populations (filled circles) and counties that once, but no longer have surviving populations (empty circles). It is not clear if the far northeast site in Lexington County South Carolina is *S. rubra* subsp. *viatorum*, or an intergrade with some other *Sarracenia rubra* subspecies.

**DISCUSSION.** There are several differences which separate *S. rubra* subsp. *viatorum* from the other plants in the *S. rubra* complex. In general, *S. rubra* subsp. *viatorum* is most similar to *S. rubra* subsp. *gulfensis*.

From both other *S. rubra* subspecies, *S. rubra* subsp. *viatorum* can be distinguished by the strong pubescence of the outer pitcher surface; in the other subspecies, the pitcher surfaces are at most weakly puberulent. In the field, of course, plant location is in most cases a useful tool in identifying this subspecies.



From *S. rubra* subsp. *rubra*, it differs by having pitchers that expand slowly in diameter from the ground to pitcher mouth, as opposed to having narrowly cylindrical pitchers that are of constant diameter over most of the pitcher body. The lid gapes upward at a dramatic angle of 45° or more, and is quite broad, while the lid of *S. rubra* subsp. *rubra* is closely held over the pitcher mouth, and tends to be more narrow or even straplike.

From *S. rubra* subsp. *gulfensis*—which, contrary to popular belief, is actually a very tall species—it can be distinguished by a smaller overall size (only 45 cm tall for *S. rubra* subsp. *viatorum*, instead of 60-80 cm for *S. rubra* subsp. *gulfensis*). The pitchers often tend to have a deeper maroon (i.e., brownish-red to purplish-red) coloration than those of *S. rubra* subsp. *gulfensis*.

In naming this species, the rank subspecies was chosen because the populations of this plant, in general terms, are far enough from the other occurrences of the species so that interbreeding is expected to be very low.

The name *viatorum* (“of the travelers”) denotes the separated range of this plant from the others in the species. There is no agreed-upon common name for this plant. However, in deference to horticultural usage, I propose “Ancestral pitcher plant”, in the spirit of the descriptor Sheridan used in 1993. That this plant really is ancestral to any other pitcher plant is highly speculative, at best. However, common names are a product of history and community usage, and do not necessarily reflect the best science!

**CONSERVATION ASSESSMENT.** The overall outlook for this plant in the long term is not very bright. It currently occurs in 10-11 counties in Georgia and South Carolina, while historical records place it at 9 additional counties—this does not include counties where it might have occurred, but where it simply was not collected.

In preparing a conservation review for a different work (Clarke *et al.* 2018), I surveyed conservationists across the USA and Canada, asking what their top threats to carnivorous plants were. In Georgia, conservation staff working with *Sarracenia* ranked as “very harmful threats” habitat development, exclusion of fire, changes in hydrology, invasive species; as “moderately harmful threats”, they included poaching and changes in management in right-of-way habitats. Climate change was noted as being an enormous multiplier of stresses, in particular regarding changes in fire, hydrology, and invasive species.

#### Key for *Sarracenia rubra* Subspecies

Note: writing a key for *Sarracenia* is always difficult, because there is so much variability in plant populations. I encourage the user of this key to examine all the phrases in the couplets, instead of just one, when keying their plants. This key is intended to identify plants in the wild. It will be less reliable for cultivated plants, because the appearance of cultivated plants is often modified by cultural conditions. Furthermore, plant collectors tend to select and value abnormal plants (particularly large or pigmented leaves, etc.).

**1a**—Pitcher tube cylindrical over most of its length, typically up to 30 (-40) cm tall; pitcher lid narrowly cordate to straplike, 1.5-2(2+)× as long as wide; pitcher lid usually positioned closely over the pitcher opening; a plant of the coastal plains of North Carolina, South Carolina, and southeastern Georgia.....*Sarracenia rubra* Walter subsp. *rubra*

**1b**—Pitcher tube slowly increasing in diameter over most of its length, typically up to 60 (-80) cm tall; pitcher lid broadly cordate, less than or equal to 1.5× as long as wide; pitcher lid not closely positioned closely over the pitcher opening; a plant of Florida, or the fall line region of Georgia up to central South Carolina.

## 2

**2a**—Pitcher usually up to 60-80 cm tall; pitchers externally glabrous or weakly puberulent; pitcher lid nearly horizontal or rising gently over the pitcher opening; a plant of the western panhandle of Florida (Escambia, Santa Rosa, Okaloosa, Walton Counties). .....

..... *Sarracenia rubra* Walter subsp. *gulfensis* D.E.Schnell

**2b**—Pitcher usually up to 45 cm tall; pitchers externally densely pubescent; pitcher lid gaping high above the pitcher mouth, often tilted upwards by 45° or more; a plant of the fall line of Georgia to central South Carolina. ....

..... *Sarracenia rubra* Walter subsp. *viatorum* B.Rice

I have been very cautious about entering the discussion of *Sarracenia* nomenclature—my expertise is with species from the western United States. However, putting a name on this plant was long overdue. Of course, it will be interesting to see—will the name still be in use in 30 years? Or will it be discarded to the ranks of synonymy? In any event, at least now there is appropriate nomenclature. If there is controversy regarding my choice—and no doubt there will be—my hope is that it will spur further investigation into the plant's relationships with other *Sarracenia*. Indeed, perhaps molecular methods will be able to help, much as it holds promise for detecting cryptic species in *Sarracenia alata* (Carstens & Satler 2013).

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