

GLABRESCENS VS. GLABRESCENS — THE CASE OF THE PARISH NIGHTSHADE (SOLANACEAE)

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ABSTRACT

In recent studies the *Solanum umbelliferum* Eschsch. complex has been treated as a single, polymorphic species, and various previously recognized entities have either been treated as unworthy of taxonomic recognition or have been treated as varieties of *S. umbelliferum*. In recent California floras two members of the complex characterized by more or less glabrescent herbage have been recognized. One of those entities, *Solanum parishii* A. Heller (Parish nightshade — based on *Solanum xanti* A. Gray var. *glabrescens* Parish), has been treated as a species characterized by glabrous or very sparsely pubescent herbage without any branched hairs. It has a bicentric distribution in northern California and southern Oregon and in a small area of southwestern California and northernmost Baja California. The other, *Solanum umbelliferum* var. *glabrescens* Torr., appears superficially glabrescent, but actually is puberulent with many short, 1-celled hairs and occasional branched hairs. Its distribution is in southwestern California and northwestern Baja California. However, a close examination of the type of *Solanum xanti* var. *glabrescens* revealed that it has the pubescence of *Solanum umbelliferum* var. *glabrescens*, leaving the plants that have been recognized as Parish nightshade without a validly published name at species rank or at varietal rank under *S. umbelliferum*. The type of *S. xanti* var. *spenceriae* J.F. Macbr., a trivial variety originally proposed for an unusual individual with small, white flowers (larger, blue-purple corollas are the common condition), otherwise falls within the concept of the Parish nightshade. ***Solanum umbelliferum* var. *spenceriae*** (J.F. Macbr.) D.J. Keil, **comb. nov.** is proposed (with an expanded circumscription) to accommodate the Parish nightshade.

As part of a study of the *Solanum umbelliferum* Eschsch. complex, Parish (1901) proposed several new varieties of *Solanum xanti* A. Gray. Among them is var. *glabrescens* Parish, characterized as having "Stems woody, slender, 10–15 dm. long, glabrate or above hirsutulous with short, mostly one-celled hairs; leaves smaller (2–6 cm), oblong, elliptical or lanceolate, mostly attenuate or acute at base; corolla 2 cm. wide." Parish was apparently unaware that Torrey (1857) had described *Solanum umbelliferum* var. *glabrescens* Torrey based on a similar plant from a nearby locality.

The type localities of both vars. *glabrescens* are situated between San Bernardino and San Gabriel in San Bernardino County in southwestern California. Heller (1905) collected a glabrate specimen from the *Solanum umbelliferum* complex from Shasta County in northern California, equated it with the plant described by Parish, and elevated the taxon to the species level as *S. parishii* A. Heller, proposing the epithet *parishii* since the epithet *glabrescens* was unavailable at the species rank in *Solanum*. Heller suggested that Parish's *S. xanti* var. *glabrescens* and Torrey's *S. umbelliferum* var. *glabrescens* were likely the same entity.

In a study of the California species of *Solanum*, Osgood (1937) observed that Parish's *Solanum xanti* var. *glabrescens* appeared to include specimens representing two different taxa.

"After a careful examination of the specimens which Parish included in this variety I have found two well-marked groups—*S. umbelliferum* var. *glabrescens* Torr. and *S. Parishii* Heller. The latter name being used by Heller to raise Parish's var. *glabrescens* to the rank of a species but I find that it actually serves to set off a definite portion of the group. It describes plants

which are "glabrous, with erect or ascending, wand-like branches". . . . The leaves are lanceolate-ovate, usually narrowed at the base or at both ends. The stem is longitudinally ridged, glabrous, sometimes roughened but not pubescent. . . . *Solanum umbelliferum* var. *glabrescens*, on the other hand, is minutely pubescent. The hairs are short, non-glandular, mostly simple although occasionally longer, branched hairs are to be found conspicuously mixed with the shorter unbranched ones. . . . The leaves resemble those of *S. umbelliferum*."

Prior to Osgood's study authors of California floras (Jepson 1925, Munz 1935) had accepted Parish's *Solanum xanti* var. *glabrescens* and apparently had ignored Heller's *S. parishii* and Torrey's *S. umbelliferum* var. *glabrescens*. Jepson (1943) in an uncompleted treatment of California *Solanum* did not recognize *S. parishii* as a species. Wiggins (1951) treated *Solanum parishii* A. Heller not as a renaming of Parish's *S. xanti* var. *glabrescens* but as a new species description based on Heller's Siskiyou County collection and also recognized *S. xanti* var. *glabrescens*; however, he made no mention of *S. umbelliferum* var. *glabrescens*. Wiggins's interpretation of Heller's (1905) *Solanum parishii* as a new species description has been rejected by Knapp (2013) and Keil (2018), who agreed that Heller proposed *Solanum parishii* as a nomen novum because the epithet *glabrescens* was not available for use as a specific epithet in *Solanum*.

McMinn (1939) was apparently the first author to accept Osgood's interpretation of *Solanum parishii* as a species distinct from *S. umbelliferum* var. *glabrescens*, citing Osgood's thesis as the basis for his recognition of *S. parishii*. Like Wiggins, McMinn credited Heller (1905) with having described *S. parishii* as a new species. McMinn was followed by Munz (1959, 1974) and Nee (1993, 2012) in acceptance of *S. parishii*. Munz (1959) commented: "Plants heretofore referred to *S. X.* var. *glabrescens* are to be sought under *S. Parishii* if without branched hairs, under *S. umbelliferum* var. *glabrescens*, if with some branched hairs." None of these authors apparently examined or correctly interpreted type specimens of *Solanum xanti* var. *glabrescens*. Although Osgood did not cite types in her thesis, and her list of representative specimens does not include the type collection of *S. xanti* var. *glabrescens* (Parish 4384), she likely examined specimens of that collection in CAS or US. If she did she apparently did not recognize their significance in defining Parish's var. *glabrescens*. She may not have examined the specimen of that collection deposited in JEPS that was subsequently designated as lectotype by Knapp (2013). W.L. Jepson's herbarium was housed separately from the University of California Herbarium, and Jepson may not have granted access to Osgood; she did not cite any specimens from JEPS.

In any case Osgood's concept of *Solanum parishii* would exclude the type of *S. xanti* var. *glabrescens*, which has the features Osgood used to characterize *S. umbelliferum* var. *glabrescens*: minutely pubescent with short, simple, non-glandular hairs and occasional longer, branched hairs (Fig. 1). Heller's (1905) hypothesis that Parish's *S. xanti* var. *glabrescens* and Torrey's *S. umbelliferum* var. *glabrescens* were likely the same entity is thus verified.

Knapp (2013) merged various taxa previously recognized as *Solanum xanti* A. Gray and its varieties into a polymorphic *S. umbelliferum* Eschsch. without recognition of any infraspecific taxa. Keil (2018) argued that various of the variants are worthy of taxonomic recognition and transferred to *S. umbelliferum* several varieties from *S. xanti* as well as *S. wallacei* (A. Gray) Parish and its var. *clokeyi* (Munz) McMinn. Bohs (2023) chose to follow Knapp (2013) in not recognizing varietal segregates pending more detailed taxonomic investigations of the complex. In preparation for a revision of the Jepson eFlora treatment of Solanaceae (Nee 2012b), Keil (2023) subsequently recombined *S. tenuilobatum* Parish as another variety of *S. umbelliferum*.

Still unresolved, however, is the status of the plants that have been treated [incorrectly] in various floras as *Solanum parishii* A. Heller. These plants, as distinguished by Osgood and subsequent authors, have a peculiar bicentric range with populations ranging from southern Oregon across much

of in northern California and occupying a smaller area from southwestern California into northwestern Baja California. They are essentially absent from the middle of the state — from the San Francisco Bay area to the Los Angeles area and across the state to the east.

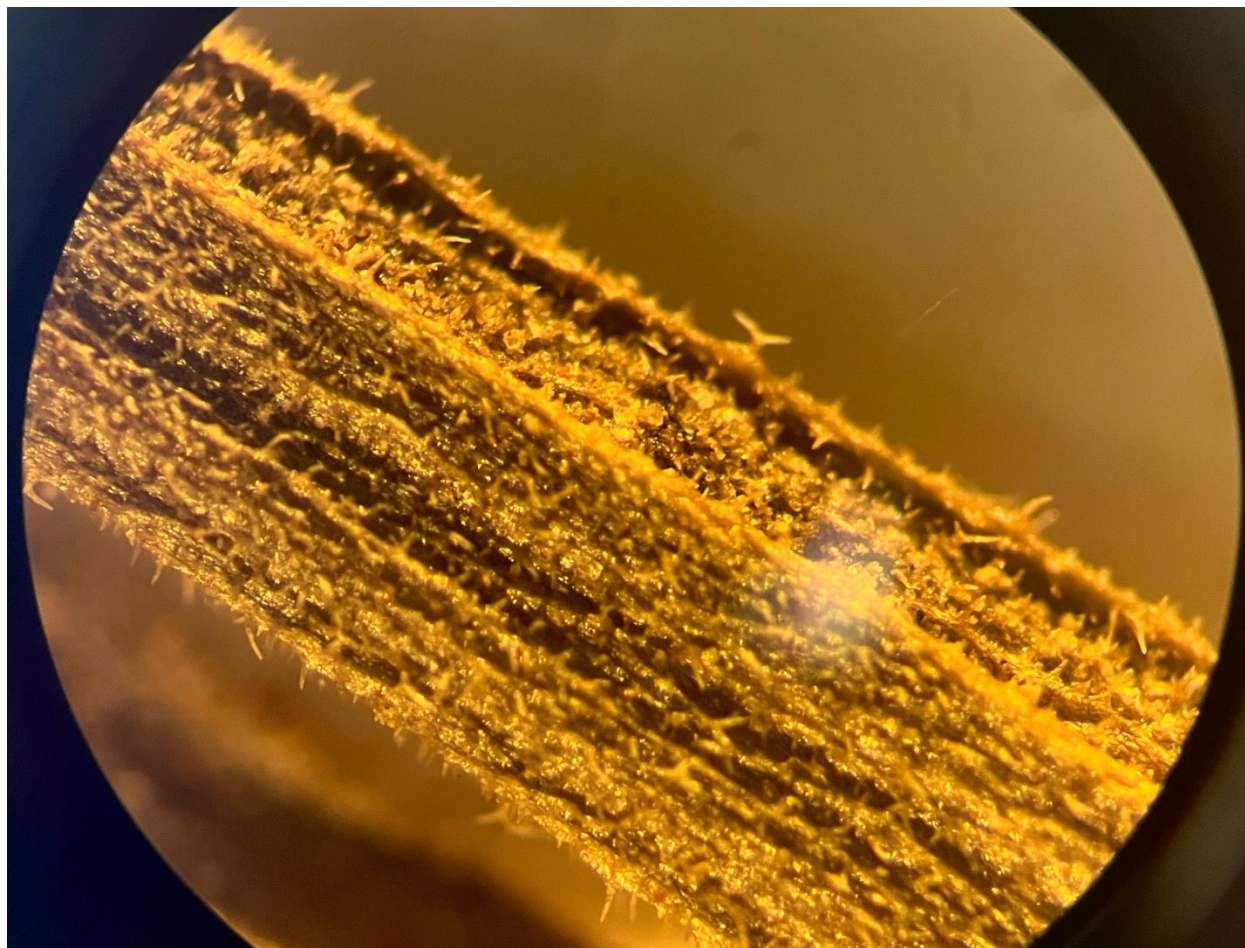


Figure 1. Photograph of stem of lectotype of *Solanum xanti* var. *glabrescens* Parish (Parish 4384; JEPS 12146) showing mixture of short unicellular trichomes and occasional larger branched trichomes. Photo by Susan Fawcett.

If the Parish Nightshade is treated as a variety of *Solanum umbelliferum*, one varietal epithet is available. MacBride (1922) published a trivial variety representing a white-flowered individual, based upon a collection from Torrey Pines, in San Diego County, California: "The aspect of the specimens is similar to that of the var. *glabrescens* Parish but the corollas are much smaller (and white), and if one may judge from the way in which the upper branches are borne the habit of the plant is much more compact than is the case with variety *glabrescens*." Occasional white-flowered individuals are known for several of the varieties of *S. umbelliferum* — these are probably the result of chance mutations affecting some step in the biosynthetic pathway involved in the production of the anthocyanic purple pigmentation of the corolla. Unusually small flowers might be a pleotropic effect of such a mutation. A comparison of specimen images (CCH2 Portal 2023) and iNaturalist images (iNaturalist 2023) of *Solanum umbelliferum* (sensu lato) from Torrey Pines State Park revealed that plants there all appear to have the features characteristic of *Solanum parishii* sensu Osgood (1937). However, none of them were white-flowered. Although it was proposed merely for an unusual individual, the varietal epithet *spenceriae* was validly published and is available for use in an expanded circumscription for the Parish nightshade. Jepson (undated) arrived at the same conclusion and had prepared to publish var. *spenceriae*

with this same expanded circumscription as a variety of *S. xanti* in his Flora of California. Accordingly the following new combination is proposed:

SOLANUM UMBELLIFERUM Eschsch. var. **SPENCERAE** (J.F. Macbr.) D.J. Keil, **comb. nov.** *Solanum xanti* A.Gray var. *spenceriae* J.F. Macbr, Contr. Gray Herb. 65: 43. 1922. **TYPE. USA. California.** San Diego Co.: Torrey Pines, near San Diego, 122 m [400 ft], 28 Mar 1919, *M.F. Spencer 1069* (holotype: GH, image!).

A question that remains unanswered is the relationship between the northern populations and southern populations that have been treated as Parish Nightshade. Do they represent a common lineage or are they separate, convergent lineages? A detailed investigation of relationships within the entire *Solanum umbelliferum* complex using modern tools is much needed.

ACKNOWLEDGEMENTS

I thank Bruce Baldwin for examining the lectotype of *Solanum xanti* var. *glabrescens* for me and Susan Fawcett for providing a close-up photograph of the stem pubescence. I thank Sandra Knapp for past discussions of the taxonomy of the *Solanum umbelliferum* complex and Bruce Baldwin for reviewing the manuscript. I thank Amy Kasameyer, Bruce Baldwin, and Nina House for providing me with a copy of the draft of W.L. Jepson's treatment of *Solanum* from the unpublished Vol. 3, Part 3 of his "A Flora of California."

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