

STUDIES IN CERTAIN NORTH AMERICAN SPECIES OF
LATHYRUS.

FREDERIC K. BUTTERS AND HAROLD ST. JOHN.

LATHYRUS VENOSUS Muhl. is a strictly North American species which is nearly confined to the eastern half of the continent, as all the records by early botanists crediting it to the Rocky Mountains or the Pacific Slope have proved to be founded on misconceptions. As the species ranges from Georgia to Saskatchewan, it is not surprising that it shows considerable variation, and collectors have sometimes noted a certain discrepancy between their different collections, and have commented on it on their labels. Thus we find T. C. Porter saying of a certain specimen, "The large stipules puzzle me!" In spite of such hints, the writers and compilers of floras generally have not recognized or discussed the variability which exists in the size and shape of the stipules, the shape of the leaflets, and the character of the pubescence. The only exception to this is the treatment by Torrey and Gray,¹ who give a general description covering the species and all its variations, and then under this describe two varieties, β and γ . Var. β is said to have "larger oblong-ovate leaflets; stipules linear-lanceolate," and its range is given, "Georgia, *Dr. Boykin*." We now know this variety from several stations from North Carolina to Texas. It has ovate leaflets, linear-lanceolate stipules, slightly pilose calyx-tubes, and often a little puberulence on the stems and leaflets.

The variety γ of Torrey and Gray is described as being "minutely downy-pubescent; . . . stipules linear lanceolate, . . . calyx and pedicels densely pubescent," and as growing from Saskatchewan to the shore of Lake Superior and Illinois, "also N. W. Coast and California, ex *Hooker*." The record taken from Hooker, crediting this variety to California and the Northwest Coast should plainly be excluded as belonging to some one, or more than one, of the large purple-flowered species of the Pacific slope, which resemble *L. venosus*, but which are amply distinct from that species. After eliminating this western element, we can say that we know the variety with linear-lanceolate

¹ Torrey and Gray, Fl. N. Am. i. 274-5 (1838).

stipules and a dense puberulence on the calyx and pedicels, and in fact throughout the plant, from West Virginia and Tennessee, north to Ontario, and west to Saskatchewan.

Variety *a* of Torrey and Gray is by inference *L. venosus* of Muhlenberg, but it is not described by Torrey and Gray, nor is any statement of its range given except in the general description and the general range of the species, which are so framed as to include all the varieties. *L. venosus* of Muhlenberg was, however, originally described as a glabrous plant with ovate obtuse leaflets, and large ovate semi-sagittate stipules. A plant corresponding entirely to this description grows from northern New Jersey to Virginia.

It can be seen that these varieties of Torrey and Gray are perfectly distinct entities, with a series of correlated characters, and with definite geographical ranges. There are in the Gray Herbarium, however, half a dozen specimens which grow within the range of some one of these entities, but which have a greater or less admixture of characters. Such a specimen is one collected by *Frank C. Gates*, no. 1682.5, June 22, 1907, in an open grassy thicket, Winnetka, Illinois. Growing within the range of var. γ of Torrey and Gray, it has the heavy uniformly distributed hirtellous pubescence of that variety, the broadly ovate leaflets of their var. β and the broad ovate-lanceolate stipules of *L. venosus* of Muhlenberg *sensu stricto*. The existence of such specimens as this has convinced the authors that the entities noted above, though for the most part easily recognizable, and possessing definite geographical ranges, should be treated as varieties rather than as species. In the following synopsis we have indicated the characters of the species and of each of the varieties, and have assigned names to the latter.

LATHYRUS VENOSUS Muhl. in Willd. Sp. Pl. iii. pt. 2, 1092 (1803); *Orobus Mühlenbergii* Alefeld, Bonplandia, ix. 146 (1861). Plant nearly glabrous: stems stout, 4-angled, ridged and striate, but not winged, climbing, attaining a length of about 1 m.: stipules ovate-lanceolate, semi-sagittate; those of the lower nodes 2–3.5 cm. long, 4–10 mm. broad; leaflets 10–12, elliptic or ovate-elliptic, mucronate, dark green above, paler beneath, with the veins prominent, 1.5–6.5 cm. long, 1–2.8 cm. wide, opposite or sub-alternate: peduncles one half to two thirds the length of the subtending leaves, 5–10-flowered: flowers 15–20 mm. long; calyx glabrous except for the ciliation on the sepals; the two upper sepals short and convergent, the three lower, linear-lanceolate; corolla purplish.

TYPE COLLECTION: "in Pennsylvania, *Muhlenberg*."

Specimens examined: NEW JERSEY: rocky banks of the Delaware River, Phillipsburg, Warren Co., June 5, 1910, *K. K. Mackenzie*, no. 4585 A; banks of the Delaware River in Warren and Hunterdon Cos., June and July 1882, *Thos. C. Porter*. PENNSYLVANIA: Bethlehem, June 8, 1873, *Thos. C. Porter*; banks of the Lehigh River, Lehigh Co., 1865, *A. P. Garber*. MARYLAND: on rocks at Great Falls of the Potomac, May 10, 1899, *Th. Holm*. DISTRICT OF COLUMBIA: alluvial ground, vicinity of Washington, May 6, 1896, *E. S. Steele*. VIRGINIA: Glasgow, May 29, 1909, *Edwin B. Bartram*.

Var. **meridionalis**, n. var., var. β of Torrey and Gray, Fl. N. Am. i. 274 (1838), a specie differt caule paulo hirtello; stipulis minoribus lineari-lanceolatis semi-sagittatis ad nodos inferiores 1–1.5 cm. longis 1.5–3 mm. latis, ad nodos superiores minimis; foliolis late ovatis obtusis hirtellis vel glabratis; pedunculis 5–18-floriferis; calyce paulo hirtello vel glabrato.

This variety differs from the species in having the stem lightly hirtellous; the stipules smaller, linear-lanceolate and semi-sagittate, those of the lower nodes 1–1.5 cm. long, 1.5–3 mm. wide, those of the upper nodes very minute; the leaflets broadly ovate, obtuse, hirtellous or glabrate; peduncles 5–18-flowered; the calyx lightly hirtellous or glabrate.

Specimens examined: NORTH CAROLINA: wooded slopes of Pisgah Mountain, June 16, 1897, *Biltmore Herbarium*, no. 1222 b; mountains, Hot Springs, June 3, 1899, *J. R. Churchill*. GEORGIA: *S. Boykin* (TYPE in Gray Herb.); *Nuttall*. LOUISIANA: banks of streams, Shreveport, April 20, 1901, *Wm. M. Canby*. TEXAS: *Wright*. Also specimens grown in the Harvard Botanical Garden, from seed collected near the French Broad River, Tennessee.

Var. **intonsus**, n. var., var. γ of Torrey and Gray, Fl. N. Am., i. 274 (1838); *L. multiflorus* Nutt. ex Torrey and Gray, loc. cit.; *L. decaphyllus* Hooker, Fl. Bor.-Am. i. 159 (1840); probably also *L. decaphyllus* Pursh, Fl. Am. Sept. 471 (1814), a specie differt planta tota hirtella; stipulis minoribus, lineari-lanceolatis semi-sagittatis ad nodos inferiores 1.2–2 cm. longis, 2.5–5 mm. latis, ad nodos superiores angustissimis; foliolis ellipticis; pedunculis 6–18-floriferis.

This variety differs from the species in being hirtellous throughout; in attaining the height of 2 m.; in having smaller stipules, which are linear-lanceolate and semisagittate, those of the lower nodes 1.2–2 cm. long, 2.5–5 mm. wide, those of the upper nodes very narrow; and in the 6–18-flowered peduncles. It differs from the var. *meridionalis* in its greater pubescence, its somewhat larger stipules, and especially in the form of the leaflets, which are elliptic instead of broadly ovate.

Specimens examined: WEST VIRGINIA: altitude 2500–3400 ft., Kates Mountain, Greenbrier Co., May 17, 1893, *A. A. Heller*. TENNESSEE: shady bank, Lookout Mountain near Chattanooga, May 18, 1911, *J. R. Churchill*. ONTARIO: hillside near Galt, June 6, 1905, *Geo. Prescott*; Point Edward, Lake Huron, June 19, 1901, *John*

Macoun, Can. Geol. Surv. no. 34,218; twenty miles up the Kaministiquia, Lake Superior, July 12, 1869, *John Macoun* no. 20. WISCONSIN: Green Bay, June 9, 1898, *J. H. Schuette*; Despere Ledge, June 30, 1882, *J. H. Schuette* (TYPE in Hb. Gray). MINNESOTA: Nicollet, June, 1892, *C. A. Ballard*; Lake City, June 25, 1883, *W. H. Manning*. MANITOBA: Lake Winnipeg Valley, 1857, *Bourgeau*. NORTH DAKOTA: thickets in Turtle Mountains, July 24, 1902, *J. Lunell*. SASKATCHEWAN: 1858, *E. Bourgeau*; Cypress Hills, June 27, 1894, *John Macoun*.

In the study of the varieties of *Lathyrus venosus* described above, it has become evident that there has been much confusion in the nomenclature of certain western species of this genus. This confusion has arisen chiefly from varying interpretations of *L. decaphyllus* and *Vicia stipulacea* of Pursh, and *L. polymorphus* of Nuttall.

Lathyrus decaphyllus Pursh, Fl. Am. Sept. ii. 471 (1814), is described as follows: "L. caule tetragono, stipulis semisagittatis linearibus, foliis 5-jugis: foliolis oblongo-ellipticis mucronatis, pedunculis 3-4 floris. On the banks of the Missouri. 2. v. s. Flowers purple, large; pods large." The plants which Pursh described in the body of his flora as from "the banks of the Missouri" were mainly those collected by Lewis and Clark on their exploring expedition, but this species is not mentioned in any of the recent editions of their Journals nor is it among the Lewis and Clark plants now deposited in the herbarium of the Academy of Natural Sciences of Philadelphia. A manuscript note of Dr. Gray's shows that the type specimen was not among the Pursh plants in the Lambert Herbarium, when he examined them. It is therefore exceedingly improbable that the type of this species is now in existence, and consequently the interpretation of it must rest entirely upon the description in Pursh's Flora. In 1818 Nuttall¹ interpreted *L. decaphyllus* Pursh as identical with *Vicia stipulacea* Pursh. There seems to be little justification for this, as the latter species has narrowly linear-lanceolate leaflets, instead of the oblong-elliptic ones attributed to *L. decaphyllus*. Following Prof. N. L. Britton,² recent American authors have applied the name *L. decaphyllus* to a low, large-flowered species of the Rocky Mountains of Colorado, New Mexico and Arizona. This species is said to occur as far north as southern Idaho, but even granting the correctness of this report, it still fails by three hundred miles to reach the

¹ Nuttall, T., Genera of N. Am. Pl. ii. 97 (1818).

² Mem. Torr. Bot. Club, v. 207 (1894).

"banks of the Missouri," which is the type location of Pursh's species. Besides the discrepancy of range, this Rocky Mountain species differs from *L. decaphyllus* as characterized by Pursh, in having elliptic-lanceolate instead of oblong-elliptic leaflets, and in very rarely possessing five pairs of leaflets. Although Pursh described his species as having only 3-4 flowers, the authors feel, on account of the other characters,—the semi-sagittate linear stipules and the five pairs of oblong-elliptic mucronate leaflets,—and on account of the type locality, that *L. decaphyllus* Pursh was in all probability identical with the plant above described as *L. venosus* var. *intonsus*. It may be noted that Hooker¹ made a similar interpretation of Pursh's species, although he failed to recognize its specific identity with the eastern form of *L. venosus*.

The only other name which has been used for the Rocky Mountain species which we have deprived of the name *L. decaphyllus*, is *L. polymorphus* Nutt.² In the original publication of this name, after the technical description, Nuttall adds, "HAB. On the grassy alluvial plains of the Missouri, from its confluence to its sources? Flowers as large as those of *Pisum maritimum*, and of a fine purple, variable however in size as well as the leaves, hence it appears to be *L. decaphyllus* PH 2. p. 471, and *Vicia stipulacea* of the same, 2. p. 739. as both these specific names are inexpressive and deceptive, I could not in candour do otherwise than reject them." Now, we have already shown that *Lathyrus decaphyllus* Pursh, and *Vicia stipulacea* Pursh are not identical. Excluding, then, Nuttall's synonym, *L. decaphyllus*, his description of *L. polymorphus*, in greater part at least, is applicable to *Vicia stipulacea* of Pursh, and we would, accordingly relegate it to the synonymy of the latter species, since we cannot reject an older specific name as "inexpressive and deceptive." As will appear below, Pursh's *Vicia stipulacea* is not the Rocky Mountain species now under discussion. It is possible that even more than two species entered into Nuttall's conception of *L. polymorphus*, but if so, we are unable to identify them, and the range given seems to preclude entirely the application of this name to the Rocky Mountain species discussed above. We are, therefore constrained to describe this well known plant as a new species.

LATHYRUS eucosmus, n. sp. — *L. polymorphus* of Torrey and Gray in part, and of later American authors, not of Nuttall; *L. decaphyllus*

¹ Hooker, W. J., Fl. Bor.-Am. i. 159-60 (1839).

² Nuttall, T., Genera of N. Am. Pl. ii. 96-7 (1818).

of Britton, Mem. Torr. Bot. Club. v. 207 (1894), not of Pursh or Hooker — *humilis*, *ramosus* saepe *decumbens pilosus* vel *saepius basim versus glabratus*, 1.5–3.5 dm. *altus*; *caule* 1–3 mm. *crasso striato* 4-angulato *haud alato*; *stipulis* *lineari-lanceolatis attenuatis semisagittatis* 5–22 mm. *longis*, 1–4 mm. *latis*, *nervosis*; *foliolis* 4–12 *subalternis elliptico-lanceolatis mucronatis* 1.5–6 cm. *longis*, 3–13 mm. *latis*, *nervosis*; *cirrhis simplicibus* vel 2–3-fidis; *ramis cum pedunculis* 1–3 *folia superantibus* 2–5-floriferis *instructis*; *floribus magnis pulchris purpureis* 1.8–3 cm. *longis*; *calyce campanulato oblique* 5-dentato, *dentibus superioribus brevibus adscendentibus*, *inferioribus attenuatis patentibus*.

Plant low and branching, often decumbent, pilose, or more frequently glabrate towards the base, 1.5–3.5 dm. tall: stem striate and 4-angled, not at all winged, 1–3 mm. in thickness: stipules linear-lanceolate, attenuate semisagittate, 5–22 mm. in length, 1–4 mm. in breadth, with prominent raised nerves; leaflets 4–12 in number, sub-alternate, elliptic-lanceolate and mucronate, the longitudinal nerves raised and prominent, leaflets 1.5–6 cm. long, 3–13 mm. wide; tendrils unbranched, or 2–3-parted: branches of the stem bearing 1–3 peduncles, which are 2–5-flowered, and exceed the leaves: flowers beautiful, large and purple, 1.8–3 cm. long; calyx campanulate obliquely 5-toothed, the upper teeth short and ascending, the lower elongate and divergent.

Specimens examined: COLORADO: Rocky Mountains, 1862, *E. Hall & J. P. Harbour*, no. 111; low lands by streams on the plains, Golden City etc., May 25, 1870, *E. L. Greene*, no. 94; Gunnison, altitude 7680 ft., July 7, 1901, *C. F. Baker*, no. 355; Sapinero, altitude 7250 ft., June 19, 1901, *C. F. Baker*, no. 181; clay hillside, altitude 5400 ft. Naturita, May 16, 1914, *Edwin Payson*, no. 312; Gato, June 18, 1899, *C. F. Baker*, no. 432; roadsides below Mancos, July 8, 1898, *C. F. Baker*, *F. S. Earle* and *S. M. Tracy*, no. 413; collected on Long's 1st expedition, *Dr. James*. NEW MEXICO: altitude 7044 ft., Santa Fe, June, 1874, *J. T. Rothrock*, no. 3; altitude 7200 ft., Santa Fe, May 4, 1897, *A. A. & E. Gertrude Heller*, no. 3658 (TYPE in Gray Herb.); 1847, *A. Fendler*, no. 115; Gray, altitude 6000 ft., June 13, 1898, *Josephine Skehan*, no. 24; Fort Wingate, 1882, *W. Matthews*, no. 18. ARIZONA: Little Colorado, *Dr. Newberry*; 1880, *Mr. & Mrs. J. G. Lemmon*.

Of the various names mentioned above, which have been tossed about from one species to another, there is but one left to dispose of, *Vicia stipulacea* of Pursh.¹ This species was described in considerable detail by Pursh, in the supplement to his Flora. The type was collected by Bradbury, presumably along the Missouri River, somewhere

¹ Pursh, F., Fl. Am. Sept. ii. 739 (1814). The original spelling is *Vicia stipulacca*, an obvious misprint, which has been uniformly quoted as *V. stipulacea*. Unfortunately the name occurs but once, in Pursh's Flora, as the supplement is not indexed. The so-called second edition of the Flora is merely an identical reprint.

between its mouth and the site now occupied by Bismark, North Dakota. The actual type specimen is now in the herbarium of the Academy of Natural Sciences of Philadelphia. There is also a small fragment of the same specimen, given to Dr. Gray many years ago, and now in the Gray Herbarium. Mr. Bayard Long has been kind enough to examine the Philadelphia specimen for us. He writes, "There are two quite similar plants, mounted on one of the old smaller-sized sheets characteristic of 'Pursh's specimen!' (as they are marked) with an original ticket '*Vicia Stipulacea*' and also pencilled on (as a copy of data on the back of the sheet) Louisiana, Bradbury'." Mr. Long gives a detailed description of the specimens, which corresponds exactly with the fragment in the Gray Herbarium, and with our conception of the species formed from Pursh's description. It is the abundant plant of the dry plains of Nebraska, Kansas, Oklahoma, Wyoming and Colorado, which has commonly passed under the name of *L. ornatus* Nutt. This plant has simple or bushily branched striate 4-angled wingless stems: stipules linear or linear-lanceolate with prominent nerves, often half the size of the leaflets, and sometimes slightly semi-sagittate, the lower lobe much shorter than the upper; the leaflets 4-10, opposite or sub-alternate, narrowly linear or linear-lanceolate, mucronate; the tendrils reduced to a mere bristle or wanting: the peduncles 2-7-flowered, exceeding the leaves; the flowers purple, large and showy, 2-3 cm. long. It is either quite glabrous, as is the type material, or densely sericeous throughout, the phase described as *L. ornatus* Nutt., var. *incanus* Smith & Rydb., and later raised by Dr. Rydberg to specific rank without any further discussion of its characters.

Lathyrus polymorphus Nutt.,¹ excluding the synonym *L. decaphyllus* Pursh, is, as stated above, and as maintained by Nuttall, himself, a synonym of *Vicia stipulacea* Pursh, but as the latter name was published at an earlier date, and is not invalidated in any way, it cannot be rejected.²

¹ Nuttall, T., *Genera of N. Am. Pl.* ii. 96-7 (1818).

² *Lathyrus stipulaceus* Le Conte in Torrey's *Catalogue of the Plants of New York*, 92 (1819), taken up by De Candolle (*Prod.* ii. 371, 1825) and Hooker (*Fl. Bor. Am.* i. 160, 1840), was later reduced by Torrey himself (*Fl. of the State of N. Y.* i. 158, 1843) to the position of a pure synonym of *L. myrtifolius* Muhl., and has been so regarded ever since. According to the International Rules, the existence of this invalid homonym cannot invalidate the use of the specific name *stipulaceus*, for the plant now under discussion. Apparently Hooker applied Le Conte's name to some plant other than the New York plant to which it was originally given, possibly to some form of *L. venosus*, but his interpretation of this name is of neither taxonomic nor nomenclatorial interest, as the name itself has obviously no validity.

Torrey and Gray, in their Flora ¹ published one of Nuttall's manuscript names, *Lathyrus ornatus*. Specimens of Nuttall's original collection are in the Gray Herbarium, and in the herbarium of the Academy of Natural Sciences of Philadelphia. They are marked in Nuttall's handwriting, "*Lathyrus* * *ornatus*, Kansa prairies." This appears in Torrey and Gray's Flora as "*Kamassa* prairies," but in the copy now in the library of the Gray Herbarium there is a marginal note made by Dr. Gray, changing *Kamassa* to *Kansa*. Mr. Bayard Long, after comparing the type specimens of *Vicia stipulacea* Pursh and *Lathyrus ornatus* Nutt. in the herbarium of the Philadelphia Academy, reports to us, "I should say that they are unquestionably identical!"

Without further discussion, we proceed to make the new combinations which are necessary:

LATHYRUS stipulaceus (Pursh), n. comb. *Vicia stipulacca* Pursh, Fl. Am. Sept. 739 (1814); *Lathyrus polymorphus* Nutt. in greater part, Gen. N. Am. Pl. ii. 96-7 (1818); *L. ornatus* Nutt. ex T. & G., Fl. N. Am. i. 277 (1838).

L. STIPULACEUS (Pursh) Butters & St. John, var. **incanus** (Smith & Rydb.), n. comb. *L. ornatus* Nutt., var. *incanus* Smith & Rydb. Bot. Sem. Univ. Nebr. pt. 21, 64 (1895); *L. incanus* (Smith & Rydb.) Rydb. Bull. Torr. Bot. Club, xxxiii. 144 (1906).

CAMBRIDGE, MASSACHUSETTS.

A PRAIRIE NEAR ANN ARBOR, MICHIGAN.

HENRY ALLAN GLEASON.

THE original land survey of Washtenaw County, Michigan, now on file in the office of the Register of Deeds, describes a tract of land about six miles north of Ann Arbor as "plains." Several other small areas are described as "prairies," and it is a matter of some botanical interest to ascertain what the original vegetation of such areas was. In every case investigated so far, the so-called prairies have been found to be bogs. Probably the word prairies was suggested to the surveyor by the considerable expanse of level bog covered thickly with *Carex filiformis*.

¹ Torrey and Gray, Fl. N. Am. i. 277 (1838).



Butters, F. K. and St. John, Harold. 1917. "STUDIES IN CERTAIN NORTH AMERICAN SPECIES OF LATHYRUS." *Rhodora* 19, 156–163.

View This Item Online: <https://www.biodiversitylibrary.org/item/14490>

Permalink: <https://www.biodiversitylibrary.org/partpdf/188295>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: Public domain. The BHL considers that this work is no longer under copyright protection.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.