

1939-05

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The Ohio Journal of Science. v39 n3 (May, 1939), 144-154

<http://hdl.handle.net/1811/3018>

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REPORTS ON THE FLORA OF OHIO. I
NOTES ON THE OHIO VIOLETS WITH ADDITIONS
TO THE STATE FLORA*

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A recent study of the violets in the Oberlin College Herbarium disclosed specimens of a number of species, varieties and hybrids from Ohio, which extend the previously known ranges in the state, have not been reported from the state, or have not hitherto been described. In this report the species already listed from the state are prefixed by the serial number used by Professor Schaffner in his "Revised Catalog of Ohio Vascular Plants," 1932, and in his later additions in the OHIO JOURNAL OF SCIENCE. Varieties or forms of these species, newly reported, have the serial number with the letter a, b, or c suffixed. Many of the plants are authenticated by Dr. Ezra Brainerd. In each such case, the county from which the specimen came is marked with an asterisk (*).

963. *Viola canadensis* L.

Professor Schaffner records this from "Eastern and Southern Ohio, northwestward to Huron, Fairfield, Highland and Hamilton." All of these counties except Huron lie South of an east-west line through Columbus. The Oberlin Herbarium extends the range northward into Muskingum,* Licking,* Lake,* Cuyahoga,* and Lorain.* H. L. Jones, on the label of the Licking County specimen, collected in 1889, wrote, "Rare in Granville."

963b. *Viola canadensis* L. var. *pubens* Farwell.

This differs from the "essentially glabrous" plant by being "hirtellous throughout." It was described by O. A. Farwell from Washington, Mich., in Papers Mich. State Acad. Sci. II: 34 (1922) 1923. It has not been reported from Ohio, but should be looked for in the northwestern part of the state.

964. *Viola eriocarpa* Schw.—*V. scabriuscula* Schw. mss.

This was described by Schweinitz (1822) from plants growing abundantly in rich meadow bottoms near Salem, North Carolina. All of the plants had densely white-villose capsules. In 1837 Wm. Darlington, Fl. Cestricea, p. 147, described this species, "growing in moist woodlands, along the Brandywine" in Pennsylvania, as having "the

*Papers from the Department of Botany, Oberlin College, No. 2.

capsule sometimes quite naked, often densely villose." Since then the capsule of *V. eriocarpa* has been described as "glabrous or tomentose," Britton, Man.; "woolly or sometimes glabrous," Britton and Brown, Ill. Fl.; "as in the preceding (*V. pubescens*)," Gray, Man. 7th ed.

Not until 1921 was the form with "ovaries and capsules glabrous" formally segregated under the name *V. eriocarpa* Schw. var. *leiocarpa* Fern. & Wieg., *Rhodora* 23: 275-276. 1921.

Professor Schaffner lists *V. eriocarpa* Schw. as of "general" distribution in Ohio, but he does not segregate var. *leiocarpa* Fern. & Wieg. from *V. eriocarpa* var. *typica*, with capsules densely villous.

964a. *Viola eriocarpa* Schw. var. *typica*.

A recent examination of *V. eriocarpa* in the State Herbarium yielded only nine specimens of this variety. These were from Ross, Warren, Delaware, Crawford, Richland, Huron, and Coshocton. To these Oberlin Herbarium adds Columbiana and Richland. There are no specimens in either herbarium from the western part of the state. The herbarium of Miss E. Lucy Braun adds Hamilton.

964b. *Viola eriocarpa* Schw. var. *leiocarpa* Fern. & Wieg.

This variety, on the contrary, has a state wide distribution. State Herbarium has it from 23 counties, and the Oberlin Herbarium from 6 other counties. Of these 29 counties, 17 are within the Appalachian plateau and the sandstone-shale region bordering it. Two counties, Franklin and Huron, lie in the transition zone, while 10 counties are in the limestone area of the western half of the State.

965. *Viola pubescens* Ait.—*V. pennsylvanica* Michx.

Aiton's description of this species (1789), Michaux's description of his *V. pennsylvanica* (1803), and Pursh's account of *V. pubescens* (1814) were all very brief, and were limited to habit and vegetative characters. They all described the plants as villose-pubescent, but none of them referred to the ovaries or capsules.

Thomas Nuttall, *Gen. N. Am. Plts.* I: 150, 1818, seems to have been the first to record the fact that some plants of *V. pubescens* have glabrous capsules, while others have capsules densely villous. He accepted the plant with smooth capsules as the type of Aiton's *V. pubescens*, and described the plant with villous capsules as a new variety under the name *V. pubescens* β *eriocarpon*. His differentiation of the two forms is as follows: "15. *V. pubescens*, *V. pennsylvanica* Mich. Leaves either very pubescent, or nearly smooth, subserrate; stipules ovate, mostly entire; fruit smooth," and " β *eriocarpon*, Fruit densely villous; stipules smaller. In fruit this would be taken for a distinct species, as the character is constant; in any other respect it does not materially differ from *V. pubescens*; both these varieties are abundant near Philadelphia."

Schweinitz in his monograph of the North American species of *Viola*, *Am. Jour. Sci.* 5: 48-81, 1822, describes *V. pubescens* as "*capsulis glabris* (Nuttall; *etiam villosis*)," and concludes that "the var. β *eriocarpon* of Nuttall is not my *eriocarpa*, but really a variety of *pubescens*."

O. A. Farwell, Papers Mich. Acad. Sci. 2: 33, 1922, treats the plant with "woolly capsules" as a mere form under the name *V. pubescens* forma *eriocarpa* (Nutt.) Farwell.

Most botanists, however, have not followed Nuttall, Schweinitz and Farwell in segregating the plant with woolly capsules as a distinct variety or form. They have been content to describe *V. pubescens* as having "Capsules glabrous or woolly," Gray Man. 7th ed.; "capsules glabrous or tomentose," Britton Manual; "capsules glabrous or sometimes woolly," Britton and Brown, Ill. Fl. 2nd ed.; while Fr. Marie-Victorien in his Flore Laurentienne, p. 281, 1935, says, "fruit glabre." On the other hand, H. D. House, N. Y. State Mus. Bull. 243-244: 50, 1923, and Bull. 254: 510, 1924, has not accepted Nuttall's and Schweinitz' concept of Aiton's species. He takes Nuttall's variety *eriocarpa* as the type, and treats the plant with glabrous capsules as the variety, giving it the name var. *peckii* House. A letter to Mr. House, asking the basis for his treatment of the two forms, elicited the following reply: "Several years ago, just how many I cannot now say, the late Dr. E. L. Greene informed me that the type of *Viola pubescens* was the form so common in the east with woolly capsules. I do not know the source of his information and rather doubt if he ever saw the type, if it still exists." Fortunately, Mr. C. A. Weatherby of the Gray Herbarium was to be in England during the summer of 1937, and kindly offered to examine Aiton's plants, preserved at the British Museum, in the hope that the type specimen of *V. pubescens* might be among them. His report, July, 1937, was as follows: "The type specimen of *Viola pubescens* Aiton, preserved at the British Museum, has pubescent ovary and capsule." *V. pubescens* var. *eriocarpa* Nutt. is, therefore, a synonym of *V. pubescens* Ait., while *V. pubescens* Nutt., and Am. auth., is a synonym of *V. pubescens* Ait. var. *peckii* House.

Professor Schaffner in his Catalog of Ohio Vascular Plants has followed the common usage and treated *V. pubescens* as a unit. However, a recent examination of the specimens referred to *V. pubescens* in the State Herbarium shows that both forms occur in Ohio.

965a. *V. pubescens* Ait. var. *typica*.

This is represented from 12 counties, viz.: Ashtabula, Lake, Huron, Wood, Lucas, Medina, Stark, Hardin, Morrow, in the northern half of the state, and from only Fairfield, Warren, Jackson, in the southern half. To the northern section the Oberlin Herbarium adds Cuyahoga, Lorain, Erie, and Richland. Univ. of Michigan Herbarium adds Hancock.

965b. *V. pubescens* Ait. var. *peckii* House.

This is represented in the State Herbarium from only three counties, viz., Franklin, Coshocton, and Scioto. The Oberlin Herbarium adds Lorain. Miss E. Lucy Braun's Herbarium adds Hamilton.

966. *Viola hastata* Michx.

This has been reported from five counties in the northeastern and eastern part of the state. To these add Trumbull,* Ashtabula,* and Lorain.* It is known in Lorain County only from one very limited

area, a few rods across, in "Bennett's Woods," Carlisle Twp., in the sandy alluvial soil of a very low rise in woods near Black River.

970. *Viola rostrata* Pursh.

Professor Schaffner says, "Rather general; but no specimens from the southwestern counties." Oberlin College Herbarium extends the range into Butler County, and has specimens from Erie, Lorain, Lake,* Columbiana,* Wayne,* and Licking.*

970a. *Viola rostrata* Pursh forma *trirostrata*, n. f., petalis lateralibus postice porrectibus vel rostratibus.

Lateral petals posteriorly lengthened or rostrate.—Occasional in open woods with the type, Russia and Amherst Townships, Lorain County.

This form was discovered in 1900 by Mr. Addison Gulick, a student in Oberlin College, in an open beech-maple grove on a terrace of Plum Creek, east of Oberlin. At that time he found five plants of *V. rostrata* with all of their flowers trirostrate, the spurs of the lateral petals being of approximately the same length as the spur of the nectary. With these were a number of plants having both trirostrate and normal flowers. One of the plants, transferred to Mr. Gulick's garden, continued to produce trirostrate flowers.

In 1904 Mr. Gulick made a more careful survey of the area and found seventeen plants with all of their flowers trirostrate, two with flowers incompletely trirostrate, that is with one lateral spur quite short, and five plants with both trirostrate and normal flowers. Since then plants with all or a part of their flowers trirostrate have been found in other sections of Lorain County.

971. *Viola rafinesquii* Greene.¹

Add Preble.

971.1. *Viola arvensis* Murr.

Add Lorain, previously reported only from Geauga.

973. *Viola odorata* L.

Add Lorain. The purple-flowered form with very long freely rooting stolons is spontaneous under hedges in Oberlin. The form with petals white, or white streaked with purple, is rather common in Oberlin lawns.

976. *Viola pallens* (Banks) Brainerd.

Add Lorain* and Trumbull.* All of the counties listed by Schaffner, except Clinton and the extreme western part of Huron, are in the eastern sandstone and shale section of the state.

977. *Viola lanceolata* L.

It has been reported from only five scattered counties. Add Lorain.*

¹Change name to *Viola kitaibeliana* Roem. and Schultes, var. *rafinesquii* (Greene) Fernald, *Rhodora* 40: 443-446. Plate 526. 1938.

980. *Viola papilionacea* Pursh.

Dr. Brainerd in annotating the North American Violets in the Oberlin College Herbarium treated as true *V. papilionacea* only those specimens which were glabrous throughout. Those which were more or less pubescent he annotated "*V. papilionacea* toward *V. sororia* in subpubescence," thus treating them as probable hybrids or hybrid derivatives of the two species.

980a. *Viola papilionacea* Pursh forma *albiflora*, n. f. petalis omnino albidis, vel petalo infimo purpureo-striato.

Petals wholly white or with the lowest one streaked with purple.—Lorain, (Ob. Coll. Herb. 88410), Cuyahoga (Ob. Coll. Herb. 80002). This should be looked for elsewhere in the state.

981. *Viola sororia* Willd.

Prof. Schaffner lists eight counties, all but Wood and Lake being in the southern half of the state. To the northern group add Lorain,* Erie, Richland.*

982. *Viola hirsutula* Brainerd.

Add Licking*. This Southern Wood Violet has been reported from only four counties, all in the central part of the state, on the edge of the Appalachian plateau.

989b. *Viola pedata* L. var. *lineariloba* DC. (*V. pedata* Curtis, *V. pedata* L. var. *concolor* Theo. Holm.).

This is in the Oberlin Herbarium from Lake* and Lorain* Counties, annotated by Dr. Brainerd "*Viola pedata* L. var. *concolor* Holm." The specimen of *V. pedata* in the State Herbarium collected by Miss Alice Griswold in open woods near Painesville, Lake County, May, 1884, is this variety. Mr. Floyd Bartley recently told the writer that he had found it in the Oak Openings of Lucas County, and in Lawrence and Scioto Counties. It is probably to be found wherever the species occurs.

— *Viola incognita* Brainerd.

Dr. Brainerd has referred two plants from Ashtabula* and Trumbull* Counties to this species. It has not previously been reported from Ohio.

988. *Viola sagittata* Ait.987. *Viola fimbriatula* J. E. Smith (*V. ovata* Nutt.).986. *Viola emarginata* (Nutt.) Le Conte.

Viola sagittata var. *subsagittata* Farwell.

Viola subsagittata Greene.

So much confusion exists concerning these five forms that it seems necessary to discuss them together and in some detail.

988. *Viola sagittata* Ait.

This was described from plants sent to England in 1775 from "Pennsylvania," probably by John Bartram, who about 1730 established a Botanic Garden on the bank of the Schuylkill River just below Phila-

delphia. Thus the habitat of the plants on which the species was based was probably low, moist ground of the Atlantic Coastal plain.

Aiton described the leaves as "subpubescent." Nuttall (1818) described them as "nearly smooth, or sometimes slightly pubescent on the upper side."

Later botanists have very generally considered typical *V. sagittata* to be the glabrous or nearly glabrous plant with mature leaves oblong-lanceolate, sagittately or hastately incised at base and with long peduncles. Habitat: "low grounds," "wet meadows and marshes," "moist banks and turfy meadows," in the Coastal plain from New England southward.

This interpretation of *V. sagittata* is well expressed by H. D. House, N. Y. State Mus. Bull. 243-244: 26 (1921) 1923, who in citing a plant of *V. sagittata* from near the Catskills said: "It is to be noted that this collection is the typical glabrous, slender form such as is found in the turfy meadows adjacent to the salt marshes of Long Island and southward."

It is probable that typical *V. sagittata* Ait does not occur in Ohio. The specimens in the State Herbarium and in the Oberlin College Herbarium, that have been examined, are more or less pubescent throughout, and should probably be designated *V. sagittata* Ait. var. *subsagittata* Farwell.

987. *V. fimbriatula* J. E. Smith (*V. ovata* Nutt.).

This has leaves equally pubescent on both sides, ovate to ovate-oblong, rather acute, crenate, often lacerately toothed at the base; flowers a "paler purple" or "bright blue" instead of the deep blue of *V. sagittata*. Habitat: barren soils, sandy fields and dry hillsides. This has been reported from nine counties in Ohio, all of them except Washington being in the northern part of the state. To these add Lorain.

986. *Viola emarginata* (Nutt.) Le Conte.

This, like typical *V. sagittata*, has leaves glabrous or slightly pubescent above, but differs in having the leaves almost triangular, the base being truncate or slightly cordate; peduncles longer than the leaves; petals deep violet-blue, frequently emarginate or bidentate.

To this Dr. Greene, Pittonia 3: 255-256, 1897, adds: "True *V. emarginata* differs from *V. sagittata* not only in the broad deltoid outline of its foliage, but also in a pronounced succulency. Specimens of *V. sagittata* under good treatment dry perfectly after three or four days, while those of *V. emarginata* require seven or eight days for drying."

The habitat and distribution of *V. emarginata* according to Britton's Manual are "fields and hillsides, New York to Virginia;" according to Gray's Manual, 7th Ed., "dry woods and hillsides, New Jersey and southward," while Dr. Greene, Pittonia 3: 313, 1898, gives the distribution "in fairly typical condition" as from New York City "southward and southwestward to Louisiana and Eastern Texas."

This succulent plant with broad, deltoid, glabrous leaves seems thus to have much the same distribution as typical *V. sagittata*, and to be limited to the Atlantic and Gulf Coastal Plain. The question naturally arises as to the status of plants from Ohio and Michigan, which have been determined as *V. emarginata*.

O. A. Farwell, Papers Mich. Acad. Sci. 2: 32 (1922) 1923, discusses several plants collected by him near Detroit, one of which at least was seen by Dr. Greene and referred to *V. emarginata*. Farwell says, "Our plants are found in sandy soils, sometimes with no other vegetation, sometimes with a sparse growth of sedge grass. They are never entirely free from pubescence and never show the broad deltoid leaf characteristic of this species, but Dr. Greene said that they were nevertheless unmistakably this species."

Dr. Greene, Pittonia, 3: 313, 1898, referring to the first of the above plants which Farwell had previously labelled "*V. ovata*," said, "The leaves are all either exactly cordate-ovate or subsagittate-oblong; but in spite of this new leaf-cut, the plant is unmistakably *V. emarginata*." In view of their morphological characters, Farwell's treatment of his plants as forms of *V. ovata*, i. e., of *V. fimbriatula*, seems to be more nearly correct, especially since Nuttall himself described *V. ovata* as having "ovate, subcordate" leaves.

A plant from Lorain County in the Oberlin Herbarium, doubtfully referred to *V. emarginata* by Dr. Brainerd, conforms well to the description of Farwell's plants, and is here considered a form of *V. fimbriatula*.

The two plants in the State Herbarium, labelled *V. emarginata*, from Lake and Cuyahoga counties are loosely villous, with peduncles of the petaliferous flowers much shorter than the triangular-ovate leaves; capsules purple. They appear to be forms of *V. fimbriatula*, or segregates of *V. fimbriatula* X *sororia*.

— *Viola sagittata* var. *subsagittata* Farwell, Papers Mich. Acad. Sci. 2: 32 (1922) 1923.

This variety, according to Farwell, has the "arrow-shaped leaves" of *V. sagittata*, but is larger and pubescent, and is found in sandy fields. His variety is based, however, on *V. subsagittata* Greene, Pittonia 3: 315, 1898.

— *V. subsagittata* Greene.

This is described by Greene as "low, the very short-petioled leaves depressed or ascending; the whole plant at time of petaliferous flowering often only two inches high, more or less sparsely hirsute-pubescent, the sepals ciliate; vernal leaves rather narrowly cordate-ovate and small, three-fourths to one and one-fourth inches long, basal lobes almost closing the sinus; corolla very large, deep violet, often one inch long and ten or eleven lines wide, all petals white at base, the lower three densely white hairy at base, the hairs not clavellate." "Common in southern Wisconsin in rather low pasture and meadowlands, quite after the behavior of true *V. sagittata* at the East and South. By the side of true *V. sagittata* this western species appears quite dwarfed in all except its corolla, this being about twice as large as that of *V. sagittata*. But the plant has the pubescence of *V. ovata*. True *V. sagittata* seems to reach Central Illinois, and even the southern peninsula of Michigan; but I have not seen it from Wisconsin, nor *V. subsagittata* from any point to the southward or eastward of Wisconsin."

In spite of the fullness and clarity of this statement, Robinson and Fernald, Gray's Manual, 7th ed., p. 583, commenting on the distribution of *V. sagittata*, say: "In Ohio and westward a pubescent form of the species is prevalent (*V. subsagittata* Greene)."

Just what should be the taxonomic and nomenclatorial treatment of the so-called "pubescent form of *V. sagittata*," which occurs on dry, open soils in Ohio and elsewhere has not yet been satisfactorily determined. For the present it seems best to refer these plants to *V. sagittata* Ait. var. *subsagittata* Farwell—*V. sagittata* Pursh.—not *subsagittata* Greene.

The following nine hybrids represented by herbarium specimens are known from Ohio. Only four of them have been previously reported from the state.

982 x 980. *X cordifolia* (Nutt.) Schw., Am. Jour. Sci. 5: 62, 1822, as a species; H. D. House, N. Y. State Mus. Bull. 254: 504, 1924, as a hybrid.

—*V. hirsutula X papilionacea* Brainerd, Rhodora 9: 98, 211-216, 1907. Hamilton* (Herb. E. Lucy Braun, Am. Midl. Nat. 15: 54, 1924); also Herb. Ezra Brainerd "from Ohio" (Vt. Agr. Expt. Sta. Bull. 239: 12, 1924). Add Lorain.*

Wherever these two species occur together a population of hybrids and hybrid derivatives may be expected, which will show segregation and recombination of all the characters of the two parents.

For use of students of the Ohio Violets Brainerd's table (Rhodora 9: 211) of the differing characters is given here:

	<i>V. Hirsutula</i>	<i>V. papilionacea</i>
Habit.....	Nearly prostrate.....	Erect
Leaves.....	Width.....	2-4 cm.....5-10 cm.
	Upper surface.....	Hirsutulous.....Glabrous
	Petioles.....	Glabrous.....Somewhat hairy
Flowers.....	Color.....	Reddish purple.....Deep violet
	Spurred petal.....	Villous.....Glabrous
Capsules.....	Length.....	6-8 mm.....10-15 mm.
	Color.....	Purple.....Green
	Number of seeds.....	20-30.....50-70
Seeds.....	Length.....	1.6 mm.....2 mm.
	Color.....	Buff.....Dark brown

Dr. Brainerd has shown that purple capsules and brown seeds are dominant over green capsules and buff seeds, and that the F hybrid is intermediate between the two parents in size of capsules and of seeds.

984 x 980. *X viola modica* House, N. Y. State Mus. Bull. 254: 500, 1924.

—*Viola palmata X papilionacea* Brainerd in herb.; Dowell, Bull. Torr. Bot. Club 37: 177, 1910; Brainerd, Bull. Torr. Club 39: 85-88, pls. 5-6, 1912; Brainerd, Vt. Agr. Expt. Sta. Bull. 239: 153-155, pls. 64a, 64b, 1924.

Dowell (l. c.) says: "This differs from *V. palmata* in the direction of *V. papilionacea* by the more entire leaves, its scant pubescence, smaller

flowers on shorter peduncles, while it resembles *V. palmata* in having irregular shallow lobes on the leaves, veins prominent, and being more or less pubescent."

Brainerd (l. c.) says: "Leaves cordate-ovate as in *V. papilionacea*, lobed after the manner of *V. palmata*, but less deeply so; the capsules from cleistogamous flowers ovoid-conical, 5-7 mm. long, or half as long as the normal capsule in either parent, containing in the 48 capsules examined an average of 4½ seeds to the capsule." Lorain* (four sheets of this hybrid and its derivatives).

In the three following hybrids, *V. palmata* X *sagittata* Brainerd, *V. sagittata* X *sororia* Brainerd, and *V. sagittata* X *triloba* Brainerd, the *sagittata* parent is the pubescent plant of dry open fields, and gravelly soils, i. e., the *V. sagittata* var. *subsagittata* of Farwell. However, it has seemed best to maintain Brainerd's terminology, until more careful studies have clarified the status and relations of *V. sagittata* Ait., *V. subsagittata* Greene and *V. sagittata* var. *subsagittata* Farwell.

984 x 988. *X viola mistura* House. N. Y. State Mus. Bull. 254: 500, 1924.

—*V. palmata* X *sagittata* Brainerd, *Rhodora* 15: 115, 1913; *Vt. Agr. Expt. Sta. Bull.* 239: 157, pl. 65, 1924.

House's diagnosis (l. c.): "Leaves ciliate and more or less pubescent, subcordate, with 6-8 acute slender lobes chiefly toward the base; capsules infertile."

Lorain* and Erie (three sheets of this hybrid or its segregates).

988 x 981. *Viola sagittata* X *sororia* Brainerd, *Vt. Agr. Expt. Sta. Bull.* 239: 193, pl. 78, 1924.

"Plants varying in leaf-outline from ovate with crenate-serrate margin, as in *V. sororia*, to lanceolate with hastate basal lobes, as in *V. sagittata*; varying also in like manner as respects other characters that differentiate the parent species."

Erie, collected with its putative parents in dry, gravelly soil, top of bluff near Birmingham.

988 x 983. *X viola caesariensis* House, N. Y. State Mus. Bull. 254: 506, 1924.

—*V. sagittata* X *triloba* Brainerd. *Rhodora* 15: 115, 1913; *Vt. Agr. Expt. Sta. Bull.* 239: 195, pl. 79, 1924; first described, *Rhodora* 8: 54, 1906, as *V. palmata* X *sagittata* Brainerd.

"Differing from *V. sagittata* in having wider pubescent leaf-blades more or less lobed near the middle, in having cleistogamous flowers with appressed ciliate auricles, and in having a brown-spotted summer capsule on much shorter peduncles; differing from *V. triloba* in having ovate-oblong leaves with coarsely toothed or incised basal lobes, and in having long slender cleistogamous flowers on ascending peduncles; in each case the difference being in the direction of qualities possessed by the other parent."

Lorain* (a single plant annotated by Dr. Brainerd, as apparently a segregate from this hybrid).

984 x 981. *X Viola peckiana* House, N. Y. State Mus. Bull. 254: 500, 1924.

= *V. palmata X sororia* House, N. Y. State Mus. Bull. 243-244: 53 (1921) 1923; idem 254: 500, 1924.

House's diagnosis (l. c.): "Early leaves broadly ovate to reniform, entire or with some of the leaves slightly lobed, somewhat pubescent above, glabrous beneath and on the petioles; later leaves softly and rather densely pubescent on the petioles and lower leaf surfaces, the blades less pubescent above, variously 3-7-lobed or nearly entire; flowers abundant, but soon withering without developing fruit; capsules all from cleistogamous flowers on short, horizontal, or deflexed and buried peduncles. Growing with *V. palmata* and *V. sororia*."

Brainerd, Vt. Agr. Expt. Sta. Bull. 239: 159, pl. 66, 1924, in discussing this hybrid, said: "About ten years ago I received from Miss E. Lucy Braun of Cincinnati, Ohio, specimens of an anomalous violet in flower, collected in 'dry woods, Hamilton County.' With this was sent a drawing of its mature leaves and fruit. The foliage in outline and pubescence is quite the same as in the hybrid here discussed." Hamilton* (herb. E. Brainerd, l. c., p. 13). Add Lorain.

980 x 981. *X Viola napae* House, N. Y. State Mus. Bull. 254: 501, 1924.

= *V. papilionacea X sororia* Brainerd in herb.; Dowell, Bull. Torr. Bot. Club 37:178, 1910.

Dr. Dowell says: "This differs from *V. sororia* in having longer petioles, thinner leaves, and less pubescence, while it differs from *V. papilionacea* in being decidedly more or less pubescent."

Hamilton* (herb. Ezra Brainerd, Vt. Agr. Expt. Sta. Bull. 239:169, 1921; herb. E. Lucy Braun, Am. Midl. Nat. 15: 54, 1934). Add Lorain.*

970 x 967. *X Viola braunii* nom. nov.

= *V. rostrata X striata* Brainerd, Vt. Agr. Expt. Sta. Bull. 239: 191, pl. 77, 1924.

Brainerd's diagnosis: "Outline of leaf-blade broadly ovate-cordate, acuminate; stipules slightly fimbriate as in *V. rostrata*; like *V. striata* in its thick, short, blunt spur and bearded lateral petals."

Dr. Brainerd described this hybrid from specimens collected by Miss E. Lucy Braun, May 27, 1917, and May 26, 1918, near Terrace Park, Hamilton* Co., Ohio. At the same time she collected both parent species. Two sheets of this hybrid from Miss Braun's collections are in the Ezra Brainerd herbarium, (l. c., p. 14), and others in the herbarium of Miss Braun (Am. Midl. Nat. 15:54. 1934).

981 x 983. *X Viola populifolia* Greene, as a species, Pittonia 3: 337, 1898; House, N. Y. State Mus. Bull. 254: 502, 1924.

= *V. sororia X triloba* Brainerd, Torr. Bot. Club. Bull. 39: 92-93, 1912; Vt. Agr. Expt. Sta. Bull. 239: 199, pl. 8, 1924.

Greene (l. c.) says of *V. populifolia*: "An acaulescent blue-flowered woodland violet akin to *V. cuspidata* Greene [= *V. sororia*, according

to Brainerd], but smaller, petioles of the early leaves densely villous-hirsute, the blade from broad cordate in the very earliest and smallest, to deltoid or deltoid-reniform in those accompanying the petaliferous flowers, notably broader than long, both surfaces, but more conspicuously the lower, hirsute-pubescent, especially along the veins; . . ."

Brainerd (l. c.) says: "The shallow and obscure lobes of the hybrid are the same as in *V. papilionacea* \times *triloba*, but the foliage is never glabrous." . . . "The leaf outline in *V. triloba* is relatively broader and less deeply cordate than in *V. sororia* (or in *V. papilionacea*), and the hybrid offspring may inherit the uncut leaves of the latter and the broad outline of the former, thus presenting a decidedly reniform leaf." Lorain.* (Three sheets.)
