STUDIES IN WESTERN VIOLETS—V

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I. A NEW SPECIES

Viola cascadensis M. S. Baker, spec. nov. Planta primum acaulescens floribus petaliferis, demum caulescens caulibus multis gracilibus procumbentibus 15 cm. longis rhizomate interdum ramoso paleaceo basibus foliorum veterium emissis et flores cleistogamos ferentibus, et radice principali et radicibus adventitiis ex parte vetustiore rhizomatis; foliis dilute viridibus glabris, laminis novis parvis ovato-cordatis, laminis postioribus elongatis, bis longioribus quam latioribus, acutioribus plus minusve acuminatis, basi plerumque truncatis vel paulum subcordatis, margine leviter dentatis præter apicem integrum, secundum petiolum erectum 1.5–8.5 cm. longum plus minusve decurrentibus, stipulis lineari-lanceolatis, integris, circa 1 cm. longis; pedunculis ex rhizomate raro foliis longioribus, 5–9 cm. longis, bracteolis insolenter parvis, prope florem vel prope medium pedunculi positis; sepalis lineari-lanceolatis obtusis, inferioribus 6–7 mm. longis, auriculis parvis similibusque; corolla dilute cæsia, 1.5–1.8 cm. longa calcar magnum prope ½ longitudine floris lateraliter compressum includenti, petalo inferiore lato, circa 8 mm. lato, petalis lateralibus et superioribus circa 4 mm. latis, lateralibus sparse capillaceo-barbatis; stylo non curvato basi, capite breviter barbato, tubo stigmatis circa ⅓ diametro capitis; capsulis florum cleistogamorum circa 7–8 mm. longis et 5 mm. diametro; seminibus fuscis, circa 1.5 mm. longis et 1 mm. diametro sine caruncula, circa 1.12 mg. gravibus, seminibus plerumque minoribus et caruncula maiore quam in *V. adunca*.

The plant during early growth producing petaliferous flowers, acaulescent, the stem or stems above ground consisting of the last annual increments, underground the annual increments of former years existing as a rootstock, occasionally branched, chaffy with the remains of old leaf bases, the plant during later growth developing numerous slender reclining branches up to 15 cm. long that bear cleistogamous flowers; the root system, originally a slender taproot, supplemented by many adventitious roots from the older portions of the rootstock; foliage light green, glabrous, the earlier leaf-blades small, ovate-cordate, and similar in outline to those of *V. adunca* Smith, the later blades elongate, sharper and more or less acuminate, often twice as long as wide, base mostly truncate to slightly subcordate, margin shallowly cut except at the tip which is entire, blade more or less decurrent on the petiole, petioles erect, 1.5–8.5 cm. long, stipules linear-lanceolate, entire, about 1 cm. long; peduncles from the rootstock rarely exceeding the leaves, 5–9 cm. long, the bractlets unusually small and variously placed from near the flower to the middle of the peduncle; sepals linear-lanceolate, obtuse, the lower ones 6–7 mm. long, the auricles small and undifferentiated; corolla pale lavender with large laterally flattened spur, 1.5–1.8 cm. from spur to end of the much-widened lower petal (about 8 mm. wide), the spur nearly one half of this length, upper and lateral petals scarcely more than half the width of the lower petal, lateral petals sparsely capillary-bearded; style without flexure at the ovary, the head shortly bearded, stigmatic tube larger

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than in *V. adunca,* about one-third the diameter of the head; capsules from cleistogamous flowers about 5 mm. wide and 7–8 mm. long; seeds brown, smaller than most seeds of *V. adunca,* with a larger caruncle, about 1 mm. wide, 1.5 mm. long without the caruncle, average weight 1.12 mg.

Type, at Oregon State College, Corvallis, Oregon, *W. H. Baker No. 5279* (early growth) and *Milo S. Baker No. 12041a* (late growth), both collected along Indian Ford Creek, 5 miles northwest of Sisters, Deschutes Co., Oregon, at 3240 ft. elevation, under *Pinus ponderosa* and *Populus tremuloides;* duplicates of *W. H. Baker No. 5279* at University of California, California Academy of Sciences, Stanford University, U. S. National Herbarium, Missouri and New York Botanical gardens, Chicago Natural History Museum, and Gray Herbarium.

This species differs from *V. adunca* Smith, probably its nearest relative, in the complete lack of pubescence, the elongate more or less acuminate leaves, the greatly widened lower petal, larger spur, lack of flexure of the style, the formation of adventitious roots from the rootstocks, and, in the most striking difference of all, two distinct stages of growth: a stemless phase during anthesis when mostly sterile petaliferous flowers are produced and a later caulescent state when only cleistogamous flowers and seeds are produced.

This apparently rare violet was first collected in 1947 by W. H. Baker at the type-locality described above. Near the last of June, 1948, the writer recollected this violet at this location and found it growing at two other similar locations a few miles distant. There is a collection represented in the herbaria of Stanford University and University of California, however, which appears to be the same species, although the plants show a faint puberulence. It was collected also in the Cascades but in Okanogan Co., Washington, at Angel's Pass, 4500 ft., by J. W. Thompson, *No. 7032,* June, 1931.

The very unusual stem development of this species requires further comment. The two large groups in the *Nomimium* section of *Viola* are caulescent and acaulescent species. As far as is known, no other species after petaliferous flowering changes from the acaulescent to the caulescent type. This strange occurrence makes the collection of the *adunca* type of violets difficult, since two collections, one in the spring during petaliferous flowering and one in later summer, are necessary to represent both phases of growth. This dimorphic growth also suggests the need for a careful re-examination of sheets previously iden-

tified as *V. adunca,* since the early stage of *V. cascadensis* closely resembles that of *V. adunca.**

2. COMMENTS ON PUBLISHED SPECIES OF VIOLA

VIOLA MCCABEIANA M. S. Baker, Madroño 5: 226 (1940). This name must be abandoned. It becomes a synonym of *V. nephrophylla* Greene. The explanation is illuminating:

In the article cited above on page 228 is a brief account of the collections of this violet. One year following the collection of this violet by McCabe *(No. 6149),* I recollected it at the type-locality, a woodland bog near Canal Flats, British Columbia. I took also several transplants which I kept under observation in my garden at Kenwood, California, during the next few y[redacted] On page 229 of the Madroño article is a figure of *V. McCabeiana* which was growing in the bog at Columbia Lake. The characters that led me to announce this as a new species are clearly shown in that photograph, namely, the elongate and sharply acuminate later leaves and the slender, elongate rootstock; neither of these characters had I ever observed in *V. nephrophylla.*

The next year, after replanting in my Kenwood garden, my transplants took matters into their own hands by sloughing off the lower portion of their rootstocks and thickening up the remaining portions until they resembled the rootstocks of genuine *V. nephrophylla.* Not content with this transformation, these transplants remodeled the outline of their later leaves until they also looked like those of *V. nephrophylla.*

In short, the two characters which I relied on to establish a new species turned out to be environmental rather than genetic. When the Columbia Lake transplants found themselves exposed to the sky and sunlight in the rich loam of my Kenwood garden, away from the woodland bog, they promptly reverted to their long-established characters and demonstrated, much to my chagrin, that *V. McCabeiana* is an impostor.

VIOLA COGNATA Greene, Pitt. 3: 145 (1896). In Madroño 3: 232 (1936), I expressed the opinion that this species should be reduced to subspecific rank. At the present time, after observing transplants in my garden for several years from two widely separated localities (British Columbia and Colorado), I am con-

*There has recently come to my attention a sheet of J. H. Sandberg and J. B. Leiberg, *No.* 33, collected in Spokane Co., Washington, and described in 1910 by Prof. E. L. Greene as *V. verbascula* (Leafl. Bot. Obs. 2: 32). These plants resemble *V. cascadensis* in leaf outline, lack of pubescence, and flower structure, but one plant shows considerable stem development though still in petaliferous flower. There is no way of learning whether these plants show two distinct phases of growth as does *V. cascadensis,* so it is impossible to determine whether one or two species are represented.