Two new species of Viola (Violaceae) from the Intermountain West, U.S.A.

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Holmgren, Noel H. (New York Botanical Garden, Bronx, NY 10458-5126). Two new species of Viola (Violaceae) from the Intermountain West, U.S.A. Brittonia 44: 300-305. 1992.—Viola lithion and V. frank-smithii are rock-dwelling endemics that belong to the North American perennial, caulescent, simple-leaved, blue-, purple-, or white-flowered group of species. Viola lithion, from the White Pine and Pilot mountain ranges of eastern Nevada and adjacent Utah, belongs to section Chamaemelanium subsection Canadenses. It most closely resembles the reniform-leaved, Olympic Mountain V. flettii, together with which it possibly shares an ancestry with the widespread and allopatric V. canadensis. Viola frank-smithii, restricted to the Logan Canyon drainage of the Bear River Range in northern Utah, belongs to section Rostellatae subsection Rosulantes. It comes closest morphologically to V. howellii of the Coast Range, but likely evolved from the widespread V. adunca or a common ancestor.

Key words: Violaceae, Viola, western North America.

We expect to find North American violets in well developed, often fine-textured soils in shady woods and seasonally moist meadows. Their presence in cracks and crevices of rock outcrops is rare, and until recently was known only in Viola flettii Piper, which is endemic to alpine sites in the Olympic Mountains of Washington. Powell and Wauer (1990) recently described V. guadaluensis, a new discovery restricted to a dolomite outcrop in the Guadalupe Mountains of Trans-Pecos Texas. This Culberson County, Texas endemic belongs to the V. nuttallii Pursh complex (sect. Chamaemelanium Ging. subsect. Nuttallianae M. Baker) with its characteristic caulescent habit and yellow flowers. It seems ironic, just two years later, to follow their amazing discovery with the introduction of two more rock-dwelling species.

These new species are also caulescent, but have blue to violet flowers. They are both distinguished by their perennial, caulescent habits, simple leaves, and blue to purple flowers. In the interior mountains and valleys of western United States, these characteristics are shared with V. adunca Smith and V. canadensis L. West of the Cascade-Sierran axis, V. howellii A. Gray, V. ocellata Torr. & Gray, V. cuneata S. Wats., and V. flettii also fall into this mold. Clausen's (1964) infrageneric classification places these species into two sections. The new species V. lithion, with V. canadensis, V. ocellata, V. cunea, and V. flettii comprise subsection Canadenses W. Becker of section Chamaemelanium. Viola frank-smithii belongs with V. adunca and V. howellii in subsection Rosulantes Borbás of section Rostellatae Boiss.

Viola lithion N. Holmgren & P. Holmgren, sp. nov. (Fig. 1A–D)

species saxicola, habitus perenni caulescenti, foliis simplicibus basi cordatis, petalis caeruleis vel purpureo-violaceis necnon calcar brevi V. flettii Piper similis, sed foliis ovato-cordatis vel -truncatis, longioribus quam litoribus, laete viridibus (nec reniformibus, litoribus quam longioribus, purpurascenti viridibus), petalis caeruleis vel pallide violaceis (nec purpureo-violaceis), necnon petalo calcarato 5.5-11 (nec 12-14) mm longo diversa.

Caulescent, perennial herb, 5-15 cm tall, the caudex sometimes elongating and branching, stolons lacking; herbage glabrous or the petioles sometimes finely puberulent; stems elongating to 11 cm; petiole 1-10 cm long, longest at the base of the stem; stipules membranous, lanceolate, 2-7 mm long, attenuate or acute, fimbriate-toothed or occasionally entire; leaf blade broadly ovate or deltate, sometimes broadly so, 1-2.5 (2.9) cm long, 0.6-2.2 (2.6) cm wide, the cauline leaves tending to be more