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PLANT PORTRAIT

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1159. *Viola valderia* All.

Violaceae

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Summary

Viola valderia is illustrated and discussed. It belongs to the polyploid complex of *V. calcarata*. It grows on mainly silicicolous gravel substrates. A detailed description is provided, with notes on its cytology and habitat. Despite its narrow distribution and the few habitats where it occurs, it has no particular threats and consequently it is listed as Least Concern in the IUCN Red List.

INTRODUCTION

Viola currently comprises 694 accepted species and 162 hybrids (POWO, 2025). The genus mainly occurs in the temperate zones of both hemispheres and in the mountain systems of the tropics at high elevations (Marcussen et al., 2022). The Mediterranean area of Europe is one of the main centres of diversity of the genus. *Viola valderia* was originally described by the botanist Carlo Allioni from a specimen growing on the gravel bank of the torrent at the foot of Rocca di San Giovanni near Terme di Valdieri in Piedmont, NW Italy (Allioni, 1785). Indeed, the specific name refers to Valdieri, the nearby town where it was first described. The common names of the species are *Pensée de Valdieri* or *Violette de Valdieri* in French and *Viola di Valdieri* in Italy.

Morphologically, the species is similar to *V. cenisia* L., but differs in the scape length, the number and shape of stipule laciniae (Plate 1159). In fact, it has been suggested that *V. cenisia*, *V. valderia* and *V. nummularifolia* Vill. (another species endemic to the Maritimes Alps and Corsica) are vicariant (Lebreton, 1972). Furthermore, the separation between *V. corsica* Nyman, endemic to Corsica, and *V. valderia* has also been hypothesized to result from a vicariance event (Deleuil, 1974). Regarding cytogenetics, *V. cenisia* and *V. valderia* have the same chromosome number $n = 10$; *V. nummulariifolia* has the basal number $n = 7$ (Küpfer, 1971) and *V. corsica* the basal number $n = 52$ (Hühn et al., 2023). It is worth noting that *V. nummulariifolia* belongs to the subsection *Pseudorupestres*, different to the others

FIGURE 1 Representative photo of the ecology and morphology of *Viola valderia*. Photograph Gabriele Casazza.

(Marcussen et al., 2022). Moreover, *V. corsica* is an allopolyploid sister of the group formed by *V. aethnensis* (DC.) Strobl subsp. *aethnensis*, V. *calabra* (A. Terracc.) Ricceri & Moraldo, *V. etrusca* Erben, *V. nebrodensis* C. Presl and *V. ucriana* Erben & Raimondo, species occurring in central and southern Italy (Hühn et al., 2023).

Recent molecular evidence suggests that *Viola valderia* belongs to the *Viola* section *Melanium* subsection *Bracteolatae* (Marcussen et al., 2022; Yockteng et al. 2003). Within the section, it was assigned to the *V. calcarata* species complex, a group formed by large-flowered plants, with dimorphic leaves, pinnately or palmately divided stipules, and thin and long ascending scapes. This complex is distributed across the Alps, the Italian Peninsula and the main Mediterranean islands (i.e. Corsica, Sardinia and Sicily). In particular, *V. valderia* was supposed to form a group together with *V. bertolonii* Pio, *V. calcarata* L. subsp. *calcarata*, *V. calcarata* subsp. *cavillieri* (W.Becker) Negodi, *V. calcarata* subsp. *villarsiana* (Schult.) Merxm. and *V. ferrarinii* Moraldo & Ricceri, on the basis of plastid and nuclear haplotypes, and their geographical distribution (Hühn et al. 2023).

Viola valderia is one of the species characteristic of the *Androsacetalia alpinae* Br.-Bl. in Br.-Bl. et Jenny 1926 referable to the habitat 8110 EUNIS, listed in the Annex I of the Habitat Directive, and to the habitat 61.1 CORINE Biotopes (EC, 2013) (Figure 1).

CULTIVATION

The species is cultivated in the Giardino Botanico Valderia, named after *Viola valderia*, near Terme di Valdieri (Cuneo, Piedmont). The seeds are conserved at the Seed Bank of the South-western Alps (Carasso et al., 2012). It has occasionally been cultivated in the United Kingdom, though it is not clear whether it is grown there at the present time. References suggest that it requires acidic soil in well-drained conditions in full sun (Farrer, 1919; Beckett & Grey-Wilson, 1994).

PLATE 1159 *Viola valderia* ALESSANDRO INFUSO

NOMENCLATURE AND DESCRIPTION

Viola valderia All. in Fl. Pedem. 2: 98 (1785). The drawing of the species is in the figure 3 of the table 24 of the third volume.
Homotypic synonyms:

Viola cenisia subsp. *valderia* (All.) Bonnier & Layens in Tabl. Syn. Pl. Vasc. France: 37 (1894).

Viola cenisia var. *valderia* DC. in Prodr. 1: 302 (1824).

Viola cenisia var. *pubescens* Gaudin in Fl. Helv. 2: 218 (1828).

Viola gracilis subsp. *valderia* (All.) Nyman in Consp. Fl. Eur.: 88 (1878), nom. illeg.

Heterotypic synonym:

Viola cenisia var. *vestita* Gren. & Godr. in Fl. France Corse 1: 186 (1848).

A long-lived *perennial herb* 5–20 cm high. *Stem* erect and densely haired. *Leaves* the lower leaves ovate to elliptic, usually shorter than 1 cm, with a long petiole, the upper leaves elliptic to lanceolate, sometime crenate. *Stipules* like the leaves but smaller and with (2-)4–7 laciniae at the base, with median lobe larger than the lateral ones. *Peduncles* 4–7 cm. *Flowers* 2–2.5 cm, bright violet, lateral petals oblong-obcordate, merged to the uppers and sometimes overlapping them, lower petal triangular with smoothed angles. *Spur* 7–10 m, slender, slightly curved, greatly exceeding calyx appendages. Figure 2.

CYTOLOGY. 2n = 20. *Viola valderia* is a diploid species within the generally polyploid *V. calcarata* complex (Hühn et al., 2023).

PHENOLOGY. Flowering over a relatively long period, beginning in April and ending in July.

DISTRIBUTION. The species is endemic to the Maritime and Ligurian Alps. The species mainly occurs in the Argentera-Mercantour massif (Casazza et al., 2008). The distribution range extends eastwards near the Monte Frontè in the Ligurian Alps, westwards to the Colle de

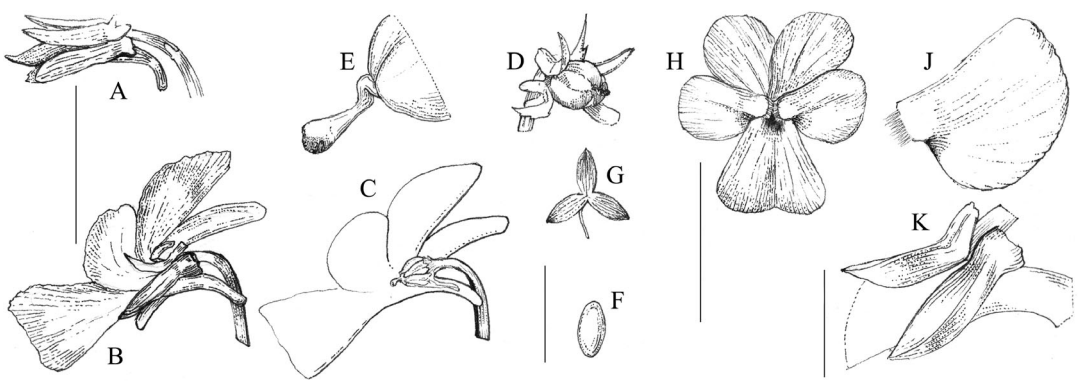

FIGURE 2 *Viola valderia*. A, flower in bud; B, lateral view of flower; C, flower dissected to show anthers and ovary; D, capsule; E, style; F, seed; G, open capsule; H, flower; J, lateral petal; K, calyx. Scale bars A, B, C, D, 1 cm; E, F, 0.2 cm; G, H, 2 cm; J, K, 0.5 cm. Drawn by Alessandro Infuso.

la Bonnette and southwards near Point de Ventabren in the Roya Valley. The northern limit is still unclear, with unconfirmed reports of the species from Val Maira – more northerly than the Colle de la Bonnette - but the species has never been rediscovered here.

HABITAT. *Viola valderia* is a pioneer thermophilous species growing on gravel habitat such as edges of paths and banks of the streams, and occasionally on rock crevices. It grows mainly on siliceous substrates but has also been recorded also on calcareous ones (Martini, 1984). It occurs from 1100 to 2600 m.

CONSERVATION. *Viola valderia* is considered Least Concern both in France (UICN France, FCBN, AFB & MNHN, 2018) and Italian (Rossi et al., 2020) Red List. The species has no particular threats, however it may be negatively affected by future climate change (Dagnino et al., 2020).

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