BioOne COMPLETE

Ranunculus veronicae (Ranunculaceae), a new species from W Crete (Greece)

Author: Böhling, Niels

Source: Willdenowia, 30(2) : 245-250

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.30.30203

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

NIELS BÖHLING

Ranunculus veronicae (Ranunculaceae), a new species from W Crete (Greece)

Abstract

Böhling, N.: *Ranunculus veronicae (Ranunculaceae),* a new species from W Crete (Greece). – Willdenowia 30: 245-250. 2000. – ISSN 0511-9618.

Ranunculus (sect. *Ranunculastrum*) *veronicae,* showing some similarities with *R. subhomophyllus,* is described as new to science and illustrated. The early flowering species is known only from a single population in the westernmost part of the island of Crete, where it grows at low altitude on schistose rock under *Platanus orientalis* trees.

When carrying out ecological field work in W Crete in early spring 1998, a rich population of more than a hundred plants of an enigmatic *Ranunculus* were found near Kambos, Eparchia Kissamos, Nomos Chania (Fig. 1), which turned out to represent an undescribed species. It is not so much surprising to discover a new taxon in this season of the year, since the early spring flora of Crete is still little explored. Searching for further localities of the new taxon had not been successfull, which thus remains a rare, very local buttercup. Local endemism is not an uncommon feature of the Cretan flora, which shelters over 139 endemic species (Turland & al. 1995: xii) increasing in number steadily (see, e.g., Böhling & al. 2000).

Ranunculus veronicae N. Böhling, **sp. nova**
Holotypus: Greece, Crete, Nomos Chania, Eparchia Kissamos, between Kambos and Keramoti, 35°23'N, 23°34'E, on schistose rock in NW exposition under a tree of *Platanus orientalis,* alt. 370-380 m, 13.3.1998, *Böhling 7066* (B; isotypi: UPA, herb. Böhling). – Fig. 2-3.

Differt a *Ranunculo subhomophyllo* (Halácsy) Vierh. radicibus tuberosis anguste ovato-fusiformis, longioribus; planta omnino patenter pilosa; foliis inferioribus 3-5-lobatis, lobis late cuneatis, crenatis, obtusis, lobis laminarum infimarum imbricatis; petalis lineari-oblongis, angustioribus, extus profunde cupreis.

Slender perennial herb, 3-9 cm tall, patent-pubescent, not glabrescent, with fibrous and oblong-fusiform, 1.5-3 cm long tuberous roots. *Stock* neither swollen nor densely and persistently fibrous, prophylls pubescent outside. *Basal leaves* suborbicular to somewhat reniform, palmately

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

divided 1/2-1/3 to base into 3(-5) broadly cuneate, obtuse, crenate, overlapping lobes; blades 1-3 cm long, 1.5-4 cm wide, with soft, patent, 1-2 mm long hairs on both sides. *Stem leaves* much smaller, more deeply divided to trisect. *Stems* 1-3, simple or with 2(-4) branches, (1-)2(-3)-flowered. *Flowers* 0.9-1.6 cm in diameter. *Sepals* 5, de(-re)flexed at anthesis, c. 2.5 mm long, with membranous margin up to 0.5 mm wide and brownish-suffused tip. *Petals* yellow, linear-oblong, 5.5-7 mm long, 2.5-3 mm wide, suffused brownish-red outside (similar to *Ranunculus cupreus* Boiss. & Heldr.). *Fruiting heads* 6-7.5 mm long, 6-7.5 mm wide, subglobose to broadly ovate. *Nutlets* 3.5 mm long (including beak), body suborbicular, flat, 2.5 mm wide, broadly winged, glabrous; beak 1-1.25 mm long, hooked.

Ecology

Ranunculus veronicae grows in crevices and stony soil pockets of steep schistose rock under a canopy of *Platanus orientalis*. The soil is free of carbonates and the site sporadically flooded by rain runoff producing a small rivulet relief. The exposure is towards NW and open to the sea. Grazing by sheep and goats is prevented by the steep slope and crumbling substrate. The local plant community (plot size c. 5 m²) is dominated by the new species covering c. 15 % of the surface. Accompanying species are *Aetheorhiza bulbosa* subsp. *microcephala* Rech.f., *Allium subhirsutum* L., *Asplenium ceterach* L. and *Selaginella denticulata* (L.) Spring (each covering 5-10 %), as well as *Anthemis chia* L., *Arisarum vulgare* Targ.-Tozz., *Cerastium 'deschatresii'* (an annual, dwarfish Cretan endemic awaiting description), *Crocus* sp., *Euphorbia peplus* L., *Geranium lucidum* L. and *Scaligeria napiformis* (Spreng.) Grande (< 5 % coverage each). Epilithic mosses and lichens are frequent. The combination of species indicates a somewhat ruderal and moderately nitrogenous site with relatively high air moisture. Western Crete is known to be the most humid and oceanic part of the island.

The new hemicryptophyic buttercup produces leaves in early winter, flowers from February to March (April), fruits from late February to April and withers subsequently to invisibility (dormance) during summer to autumn. Using the time span from late winter until full foliation of the *Platanus* canopy, which strongly shades the plants when developed, *R. veronicae* occupies an ecological niche similar to that of Central European springtime geophytes in deciduous forests (viz. *Ranunculus ficaria* L., *Anemone nemorosa* L., *Allium ursinum* L., *Arum maculatum* L., *Scilla bifolia* L.). The shading by the *Platanus* canopy may be an advantage for the delicate plants, being otherwise damaged by more intensive drought or heat, or replaced by competitors. This strategy corresponds to that of the W Cretan endemic *Scilla cydonia* Speta (*S. bifolia* agg.) in *Castanea sativa* forests on schistose substrata as own observations revealed.

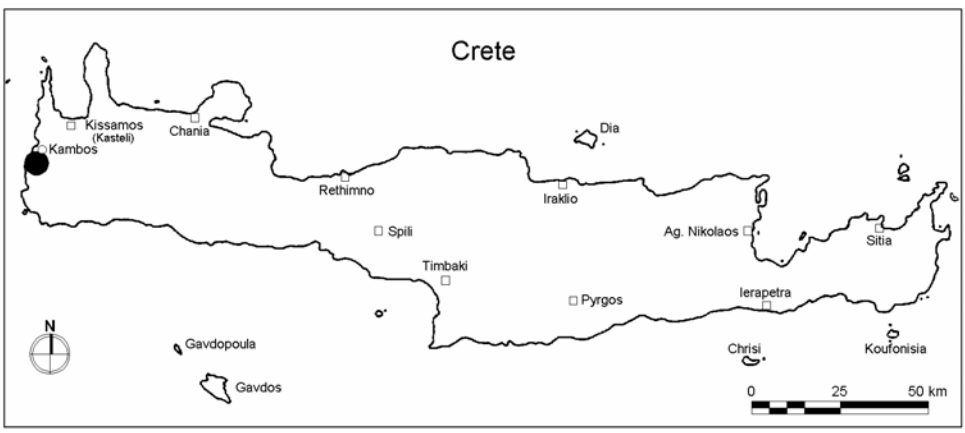


Fig. 1. Distribution of *Ranunculus veronicae*.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Fig. 2. *Ranunuculus veronicae* – plants of the holotype sheet *(Böhling 7066)* at B.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use



Fig. 3. *Ranunculus veronicae* – plants at the locus classicus near Kambos, Crete. – Photograph 13.3.1998 by N. Böhling.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Relationship

The new taxon belongs to *Ranunculus* subg. *Ranunculus* sect. *Ranunculastrum* DC. (Tutin & Akeroyd 1993). It is similar and probably next to *R. subhomophyllus,* which was described first but inadequately by Halácsy (1908: 2) as a variety of *R. chaerophyllos*. A detailed diagnosis was given later by Vierhapper (1935: 131) when rising the taxon to species level. The conclusion of Vierhapper that Halácsy's variety is a clearly distinct species and not only a variant of *R. chaerophyllos* has generally been accepted since (Tutin 1964, Davis 1965, Strid 1986, Greuter & al. 1989, Tutin & Akeroyd 1993) and is doubtlessly correct as my own studies (B, herb. Greuter, herb. Böhling) revealed. In contrast, Vierhapper's (1935: 131) division of *R. subhomophyllus* into three subspecies has not been accepted by Rechinger (1943: 190), who pointed out that the variation is continuous and the differences stressed by Vierhapper (plant and flower size, branching, calyx posture) are the result of differences in habitats and developmental stages. Later authors confirmed Rechinger's view (Tutin 1964, Davis 1965, Strid 1986, Greuter & al. 1989, Tutin & Akeroyd 1993).

The new species differs from *Ranunculus subhomophyllus* in its longer, oblong-fusiform root tubers, patent-pubescent stems and pedicels, the less deeply divided, patent-pubescent leaves with broad, crenate, obtuse lobes and its narrow, dorsally distinctly copper-coloured petals. The most striking character for separating both taxa is the indumentum of petioles, leaf blades, stems and pedicels: in *R. subhomophyllus* it is lacking or sparsely short-lanuginose, in *R. veronicae* it is always dense, distinctly longer and patent-pubescent. In *R. subhomophyllus* the middle leaf lobules are clearly longer than the lateral ones, whereas in *R. veronicae* the middle lobules are not or only scarcely longer, resulting in obtuse lobes.

Ecologically, *Ranunculus subhomophyllus* is quite different too. It is a species of rocky limestone slopes distributed in the higher mountains of Crete, Karpathos (but questioned by Turland & al. 1995: 133), Peloponnisos, Ikaria and Samos (distributional data kindly communicated by A. Strid, 30.9.1999). Strid (1986: 220) gives its altitudinal range as from 1100 to 2300 m but apparently omitted the collection *Rechinger 3876b* made on Samos at 900 m altitude (Rechinger 1943: 190). In Crete, *R. subhomophyllus* is present between 1300 and 1700 m according to Turland & al. (1995: 133), own collections, however, were made at 1800-1850 and 1950 m.

Evidently, the new species is not a mere ecological modification of *R. subhomophyllus:* it differs in sound morphological characters, no intermediates between the Cretan *R. subhomophyllus* and *R. veronicae* are found, and both are sharply separated in their distribution by a well accessible and explored gap of 900 altitudinal meters (*R. veronicae* occurring below 400 m, Cretan *R. subhomophyllus* above 1300 m altitude).

Ranunculus veronicae clearly differs also from all other species close to *R. subhomophyllus. R. incomparabilis* Janka from the mountains of the central Balkan peninsula has more deeply incised, glabrous leaves with acute lobes, and sepals appressed to the petals at anthesis (isotypus at B). From *R. thasius* Halácsy of the N to central Aegean the new species is separated by its patent-pubescent leaves, obtuse leaf lobes, few-flowered inflorescences, deflexed sepals, shorter petals and hooked achenes. Both are species of siliceous crevices and ledges, which was confirmed by own observations of *R. thasius* in nature (four collections from Naxos, Cyclades; herb. Böhling). *R. cadmicus* Boiss. from the Turkish mountains differs in being ± glabrous and having narrower leaf lobes, linear upper stem leaves, wider petals and larger flowers. The taxonomic problems in this difficult group are pointed out by Davis (1965: 181, 182) and Strid (1986: 220). However, the type of indument, shape of leaf blades and petals and petal colour of *R. veronicae* are not found in any of the related species mentioned above.

Two other buttercups, *Ranunculus cupreus* and *R. creticus* L., flower simultaneously with *R. veronicae* in the Cretan lowlands, but neither of them in direct contact to the new species. Remarkable is the new species' similarity in floral parts with the bipinnatisect-leaved *R. cupreus,* and in shape and indumentum of the vegetative parts (except their size!) of *R. creticus*.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Additional material investigated
Crete, type locality, 29.6.1999, *Böhling 10290,* withered, dry (dormant) plants (resprouting in glasshouse culture but starved by drought later); type locality, 3.1.2000, *Böhling 10641,* subsequently cultivated in the Botanic Garden Berlin-Dahlem, fruiting specimen of 1.3.2000, *Böhling* (B). The cultivated plants show no relevant differences to the material from the wild, except the roots tubers becoming longer (up to 4.5 cm) and more cylindrical.

Acknowledgements

The discovery of the new species is a side product of the project "Indicator values of the vascular plants of the S Aegean" headed by Prof. W. Greuter and Dr Th. Raus, Botanic Garden and Botanical Museum Berlin-Dahlem, and funded by the Deutsche Forschungsgemeinschaft (DFG; Gr 676/7). Special thanks are due to Dr Th. Raus and a second, anonymous referee for valuable comments on the manuscript and to Prof. W. Greuter for enabling access to his herbarium.

I dedicate *Ranunculus veronicae* to my wife who bore, together with our children Berit and Till, with great patience my long-time absences during field work for the project in 1998-2000.

References

Böhling, N., Greuter, W. & Raus, Th. 2000: *Trifolium phitosianum (Leguminosae),* a new annual clover species from Crete. – Bot. Chron. **13:** 37-44.

Davis, P. H. 1965: *Ranunculus*. – Pp. 146-197 in: Davis, P. H. (ed.), Flora of Turkey and the East Aegean Islands **1.** – Edinburgh.

Greuter, W., Burdet, H. M. & Long, G. 1989: Med-Checklist **4.** – Genève & Berlin.

Halácsy, E. 1908: Conspectus florae Graecae, Suppl. **1.** – Lipsiae.

Rechinger, K. H. 1943: Flora aegaea. Flora der Inseln und Halbinseln des Ägäischen Meeres. – Akad. Wiss. Wien Math.-Naturwiss. Kl. Denkschr. **105(1).**

Strid, A. 1986: *Ranunculus* L. – Pp. 210-225 in: Strid, A. (ed.), Mountain flora of Greece **1.** – Cambridge.

Turland, N. J., Chilton, L. & Press, J. R. 1995: Flora of the Cretan area. Annotated checklist and atlas, ed. 2. – London.

Tutin, T. G. 1964: *Ranunculus* L. – Pp. 223-238 in: Tutin, T. G., Heywood, V. H., Burges, N. A., Valentine, D. H., Walters, S. M., Webb, D. A. (ed.), Flora europaea **1.** – Cambridge, etc.

— & Akeroyd, J. R. 1993: *Ranunculus* L. – Pp. 269-287 in: Tutin, T. G., Burges, N. A., Chater, A. O., Edmondson, J. R., Heywood, V. H. Moore, D. M. Valentine, D. H., Walters, S. M. & Webb, D. A. (ed.), Flora europaea, ed. 2, **1.** – Cambridge, etc.

Vierhapper, F. 1935: *Ranunculus subhomophyllus* (Hal.) Vierhapper, nova comb. – [In: Vierhapper, F. & Rechinger, K. H., Bearbeitung der von I. Dörfler gesammelten Blüten- und Farnpflanzen]. – Österr. Bot. Z. **84:** 131-132.

Address of the author:
Dr Niels Böhling, Römersteinstr. 9, D-73230 Kirchheim unter Teck, Germany; e-mail: niels.boehling@t-online.de

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use