

## The distribution of *Cardamine matthioli* (Brassicaceae) in Greece

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**ABSTRACT:** During a study of the Haussknecht Herbarium in Jena (JE) the voucher specimen, documenting the record of *Cardamine pratensis* L. by HAUSSKNECHT from Greece: Mts. Karava and Ghavellu (Voutsikaki), was located. The specimen is identified as *C. matthioli* MORETTI and represents, together with another verified specimen from the vicinity of Megdova lake, the most southern limits of its distribution in Greece and the most southern occurrence for a member of the *C. pratensis* group in Europe. Some notes on other members of this complex in the southern part of the Balkan Peninsula are provided.

**KEYWORDS:** Balkan Peninsula, Brassicaceae, *Cardamine*, *Cardamine matthioli*, *Cardamine pratensis* group, Cruciferae, Greece

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According to STRID (1986: 261), the only representation of the *Cardamine pratensis* group in Greece, is the collection of *C. matthioli* MORETTI from a locality near Vlasti, N of Siniatsikon, in the north-central part of Greece. The specimen cited (Macedonia, Nomos Kozanis, Eparchia Eordeas: Meadow by the village of Vlasti, c. 1 100 m, 25. 6. 1970, *Strid* 441, C), is indeed of this taxon. This same record underlies the documentation for the existence of *C. pratensis* subsp. *matthioli* (MORETTI) NYMAN in Greece as published by JALAS & SUOMINEN (1994: 163).

The record by HAUSSKNECHT (1893: 107): [Nomos Karditsis, Eparchia Karditsis] "in alpinis ad rivulos m. Ghavellu et Karava P.D. [Pindus Dolopicus]", cited also by HALÁCSY (1900: 55), was considered by STRID (1986: 261), as he had not seen the material in JE, to refer to *C. raphanifolia* subsp. *barbareoides* (HALÁCSY) STRID.

During a study of the Haussknecht Herbarium in Jena (JE) in connection with a revision of the Mediterranean representatives of the genus *Cardamine*, the first author located the specimen, documenting the above-mentioned record by Haussknecht from Mts. Karava and Ghavellu (Voutsikaki). The plant was originally identified as *Cardamine pratensis* L. The printed text on the label reads as follows: "C. Haussknecht. Iter Graecum 1885. Agrapha (Dolopia veterum): in reg. super. Pindi summi montis Karáva alt. 5500-6500' substratu schistoso. dieb. 1-3. Jul." It was also hand-annotated: "m. Ghawellu i alp." The only specimen on the sheet clearly represents *C. matthioli* with its distinctive leaf shape (segments horizontally spreading, the lowermost ones slightly ascending) and appressed hairs on the rosette leaves. The plant was collected in fruit and without any flowers. The fruits are slender, typical of *C. matthioli*. It is not clear if the plant was collected on Mt. Karava (where HAUSSKNECHT collected on 1 July) or on Mt. Voutsikaki (Ghavellu) (where he was on 3 July, *fide Flora Hellenica* database). Nevertheless, according to our data (HAUSSKNECHT 1893: 107 and *Flora Hellenica* database, 1999) he probably found this taxon on both mountains.

G. SFIKAS in his unpublished manuscript (The flora of vicinity of Megdova lake, 1997) cited another record for the *C. pratensis* group. His material "Flora Graeca, *Cardamine pratensis*, Lake of Megdova, region Krioneri, 30. 4. 1996, G. Sfikas (herbarium G. Sfikas, Athens) [Nomos Karditsis, Eparchia Karditsis, vicinity of Megdova lake (Plastiras Dam)]" is identical with *C. matthioli*. This record, together with Haussknecht's collection, represent the most southern documented localities of this taxon in Europe (cf. JALAS & SUOMINEN 1994: 163 & Fig. 1).

The *Cardamine pratensis* group in the southern part of the Balkan Peninsula (Bulgaria, southern part of the Federal Republic of Yugoslavia and Bosnia and Hercegovina, F.Y.R.M., Albania, Greece, Turkey-in-Europe) is represented by the following species: *C. matthioli*, *C. rivularis* SCHUR, *C. penzesii* ANČEV & MARHOLD, and possibly *C. pratensis* L. and *C. majovskii* MARHOLD & ZÁBORSKÝ.

*Cardamine matthioli* is the most widely distributed member of the group in this area. The map provided in JALAS & SUOMINEN (1994: 163) probably indicates its actual distribution quite accurately, although some of the data referring to *C. pratensis* (JALAS & SUOMINEN 1994: 162) certainly should be ascribed to *C. matthioli*; e.g., a recent revision of the group for Bulgaria (MARHOLD & ANČEV, in prep.) shows a complete absence of this species for country, all previous records having been based on a misidentification with either *C. matthioli* or *C. penzesii*.

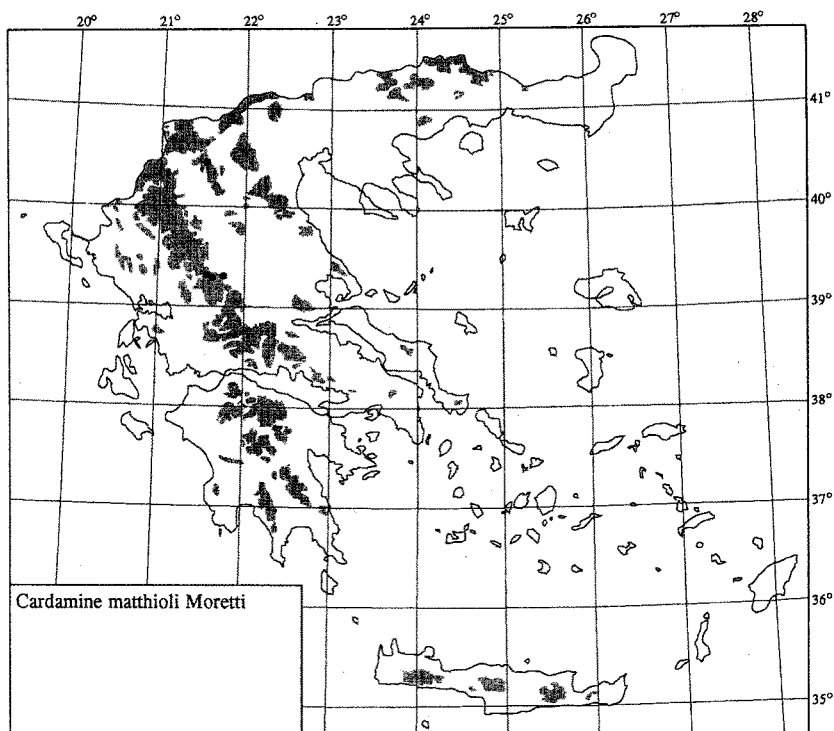


Fig. 1. Distribution of *Cardamine matthioli* MORETTI in Greece.

*Cardamine rivularis* is restricted to the Bulgarian mountains and southern Carpathians in Romania and as detailed in MARHOLD (1995, 1996) does not occur in the Eastern Carpathians and the Alps (in contrast to JALAS & SUOMINEN 1994: 164). Its occurrence in Greece has not yet been reported but cannot be completely ruled out bearing in mind the nearby localities of *C. rivularis* in the Bulgarian Rodopi.

*Cardamine penzesii* (MARHOLD & ANČEV 1999) is a local endemic in the Black Sea coast area of Bulgaria and Turkey. All records of *C. matthioli* and *C. uliginosa* M. BIEB. from Turkey-in-Europe, as well as *C. dentata* SCHULT. and some records of *C. pratensis* from Bulgaria should be referred here.

The existence of *Cardamine majovskii*, an autotetraploid derivative of *C. matthioli*, was not confirmed by chromosome counts in the southern part of the Balkan Peninsula but its presence cannot be entirely disregarded. The data on *C. pratensis* for this area (JALAS & SUOMINEN 1994: 162) requires confirmation, as at least some of the data is now known to represent *C. matthioli* or *C. penzesii*.

Recent molecular systematic studies (FRANZKE 1999) shows that the diploid *C. rivularis* and the local endemic *C. penzesii* represent, together with *C. crassifolia* POURR. from the Pyrenees, the most basic members in the whole group. *C. matthioli* is postulated to be more advanced.

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