



On the identity of *Carduus euboicus* (Asteraceae) from Mt Dirphys, Evvia, Greece

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Abstract

Carduus euboicus is shown to be a distinct species well-separated from other Greek species of the genus by its skeletal habit with few and reduced leaves, greyish-winged stem, depressed-globose solitary capitulum with short involucre bracts and compressed achenes with a \pm sessile pentagonal apical prominence. It bears some morphological similarity to the Balkan endemic *C. candicans* as well as *C. litigosus* from Italy and France but is not closely related to either. It is the sole Greek endemic of the genus being restricted to Mts Dirphys and Xirovouni on the island of Evvia but has been treated as a form of *C. nutans* in the recently published checklist of the Greek flora.

Introduction

The latest synopsis of vascular plants of Greece states that *Carduus euboicus* Franco (1975: 49) is “a dubious species known only from the type (Evvia, near Steni), disregarded, it may be a form of *C. nutans*” (Dimopoulos & al. 2013: 267).

Thus, *C. euboicus* was summarily dismissed by the compilers of this recently published work (Dimopoulos & al. 2013). There are two reasons why a species is reported as dubious. First, the species has been so rarely collected that there is scanty material available for study in herbaria. In general, herbivores seldom browse, and plant collectors usually avoid, ferociously spiny plants. Second, even when plants are collected in quantity, they are misidentified because there are no authentic specimens available for comparison. Examination of the type material is unavoidable in this case.

The genus *Carduus* Linnaeus (1753: 820) comprises c. 90 species, centred mainly in the Mediterranean area of the Old World with c. 10 species recognized in Greece. The account of *Carduus* for *Flora Europaea* was prepared by João do Amaral Franco, professor of botany at Lisbon. He described *C. euboicus* as a new species based on a specimen collected by Oleg Polunin in the summer of 1970 from Mt Dirphys on the West Aegean island of Evvia (Franco 1975). A description was provided in Latin, and the holotype cited, “near Steni, Euboea, iv–viii 1970, *O. Polunin* 9967 (LEI)”.

One important character which would throw some light on the affinities of this taxon was missing from the description—this was the umbo or apical prominence of the achene, whether stipitate or sessile, entire or pentagonally lobed. *Carduus euboicus* has a \pm sessile 5-lobed apical prominence.

Carduus euboicus was next collected on 7 May 2000, on a roadside slope 2 km NE of the village of Steni on Mt Dirphys at 950 m by Prof. Sven Snogerup (Lund), 30 years after Oleg Polunin’s discovery. It was photographed by Kostas Polymenakos (Athens) in the same locality ten years later, on 9 May 2010. More recent surveys by Aris Zografidis in the spring of 2013 revealed the plants were still flourishing.

Taxonomic relations and conclusions

Franco (1975) did not state the affinities of his new species but it is noteworthy that he placed it next to *C. litigiosus* Nocca & Balbis (1821: 99) in his taxonomic treatment (Franco 1976) as he had never seen mature achenes of *C. euboicus*, the Polunin gathering being only in the flowering state and there was no other material available to him except that specimen which he designated as the type. *Carduus litigiosus*, a taxon native to Italy and France, indeed shows some similar characters including a 5-lobed apical prominence but we consider the affinities of *C. euboicus* do not lie with taxa in the West and Central Mediterranean.

A number of Evvian endemics do have geographically disjunct affinities, e.g., *Asperula ophiolithica* Ehrend. (Ehrendorfer & Schönbeck-Temesy 1975: 153) which has its nearest relatives far away in Anatolia. One interesting aspect, in the South Aegean region, there is only a single species of *Carduus* in the Kiklades — *C. pycnocephalus* Linnaeus (1763: 1151), and only one other species on Crete — *C. argentatus* Linnaeus (1771: 280). Thus the South Aegean does not seem to be a centre of origin for *Carduus*. Although the seeds are wind-dispersed, they are relatively heavy with a high oil content, and would probably not have crossed the seas for great distances. We should look nearer home for a possible affinity.

Carduus tmoleus is common in the Greek mountains but has not been found on Mt Dirphys despite careful searching by A.Z. With its bushy, subglabrous habit and swollen, smooth achenes with entire apical prominence, it bears no resemblance to *C. euboicus*.

A more suitable candidate could be *C. candicans* Waldstein & Kitaibel (1801: t. 83). This species has rather similar-looking capitula and achenes with a 5-lobed apical prominence. However, its achenes are swollen and ± smooth, not flattened and minutely verruculose as in *C. euboicus*. *Carduus candicans* also has other distinguishing features such as narrower phyllaries, a shorter pappus and smaller corolla. Although it is a Balkan (+ Romanian) endemic, in Greece it occurs only in the centre and north of the country and is absent from southern Greece, including the S Aegean islands (Crete and the Kiklades). It is also absent from Evvia which is a W Aegean island. If one does not wish to categorize *C. euboicus* as an isolated species like the Evvian endemic *Verbascum limnense* Fraas (1845: 191), then it is likely that its affinities lie in the Balkans. The Balkan element (with 67 species) makes up 3.65% of the native flora and these 67 species occur mainly in the central mountains of the island. Even if *C. candicans* and *C. euboicus* are not closely related, some Balkan species might have been their common ancestor since the phytogeographical composition of the flora documents a Balkan element.

Carduus euboicus had unfortunately been overlooked by Trigas & Iatrou (2006) in their report of 39 taxa from Evvia, with 18 restricted to Mt Dirphys and the nearby mountains in central Evvia. Their work may partly have given support to the view that *C. euboicus* was just a form of *C. nutans*. We conclude that *C. euboicus* is a good and distinct species of *Carduus* and the sole Greek endemic in the genus. Our paper serves to resurrect it.

Acknowledgements

We thank Dr Richard Gornall (Leicester) for sending several digital images of the holotype kept at LTR.

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