



The rediscovery of *Biebersteinia orphanidis* Boiss. (Geraniaceae) in Greece

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Biebersteinia orphanidis was considered extinct from Greece and Europe as it had not been collected since Orphanides' type collection of 1851. Its rediscovery is reported here from a mountain close to the classical locality. The species serves as a distinct phytogeographical link between the floras of Greece and Anatolia. In Greece, at least, it grows in a critically low number of individuals. Data on the species habitat and population status are given, and potential threats to its survival are discussed.

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INTRODUCTION

The genus *Biebersteinia* Stephan is a small, predominantly Asiatic genus which comprised five species when monographed by Knuth (1912). Boissier (1854) described *B. orphanidis*, the only representative of the genus found in Europe, based on collections that the Greek botanist Th. Orphanides made in 1851 on Mt. Killini (N Peloponnisos, Greece). In ATHU, where an almost complete set of Orphanides' botanical collection is kept, two specimens of *B. orphanidis* are found. The first, Orphanides No 292, was collected on 6/18 June 1851 in the *locus classicus* of "Mt. Ziriae (Killini) loc. dict. tou pouliou o ochthos". A second collection was made a few

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days later, on 25 June 1851 and given no number. The area was identical but the explanatory designation "prope Livadi" was added to the locality. Duplicates of these original collections are kept today in several European herbaria (Persson, 1989), suggesting that Th. Orphanides may have felt so much excitement over his discovery, that possible injuries to the plant population were overlooked.

After this sole collection of a *Biebersteinia* member from the European region, no other record of the species was ever made from Greece or elsewhere in Europe. Despite Orphanides' detailed labels, the only known population of *B. orphanidis* on Mt Killini was never seen again, even by early botanists like Heldreich (Persson, 1989) and Maire & Petitmengin (1908) who searched for it in vain. As a result, the species was considered extinct or presumably extinct from Europe (Dimopoulos, 1993; IUCN, 1982; Persson, 1989; Strid, 1986; Webb, 1968).

Davis (1967) also reported the same species at a few Anatolian localities, thus indicating a distinct phytogeographical link between the Greek and the Anatolian floras, although it is not the only existing example of such a distribution (Strid, 1993). Its known localities nearest to the *locus classicus* are those of south-central Anatolia, some 1200 km away.

On the mountains of N Peloponnisos, apart from the many endemic species, some other taxa exist which depict disjunct patterns of distribution, mainly with Asia, thus giving the area a special phytogeographical interest. Among them are *Adonis cyllenea* Boiss., Heldr. & Orph. (its presence in Anatolia is in need of confirmation), *Arnebia densiflora* (Ledeb.) Ledeb., *Centaurea amplifolia* Boiss. & Heldr., *Cyathophylla chlorifolia* (Poir.) Bocquet & Strid, *Tripodion graecum* (Boiss.) Lassen, *Solenanthus stamineus* (Desf.) Wettst.

THE REDISCOVERY

Biebersteinia orphanidis was rediscovered on 12. vi. 1994 on a mountain close to Mt Killini. The authors have decided not to reveal its exact locality for conservation reasons until adequate steps have been taken for its protection. Further observations on its populations were made during three later field trips on 30.vi.1994, 18.xi.1994 and 18.v.1995. Voucher specimens of the species are kept in ATHU and UPA.

In total, five populations were located during our field trips. The first and largest one was growing along the border of a doline at *c.* 1400 m altitude, in a clearing of *Abies cephalonica* J.W. Loudon forest (Fig. 1). About 120 individuals were counted, all growing close to each other in an area of a few square metres. A precise estimate of plant numbers was rather difficult, as more than one fruiting stems and/or sterile rosettes were produced by each rhizome. In this locality the species was growing with *Pteridium aquilinum* (L.) Kuhn, *Vicia tenuifolia* Roth subsp. *tenuifolia*, *Marrubium cylleneum* Boiss. & Heldr., *Poa bulbosa* L. s. l., and *Adonis cyllenea*. The second 'population' consisted of a solitary individual found in an adjacent doline, only a few metres south of the first locality. A third population was discovered on the mountain crest at around 1650 m. This locality had a southern exposure and was estimated to host about 60 individuals. The plants were growing rather far apart from each other on a small plateau or shallow doline. Approximately 100 m to the west of the third locality, a small population of some 10 plants was found. Finally, a single individual was noticed growing *c.* 800 m east of the third population.

Of the plants that were seen in fruiting stage, in many cases the fruiting stem was missing as a result of grazing. The species, however, could be easily recognized by its sticky leaves, among other features, exuding a characteristic pungent smell when crushed.

B. orphanidis grows on calcareous or dolomitic substrates. Soil samples taken from



Figure 1. *Biebersteinia orphanidis* in its natural habitat (photograph taken on 18. v. 1995 by D. Vassiliades).

the margin of the doline hosting the first population, showed a weak alkaline reaction (pH 7.2) and a sandy-clayey composition, rich in organic substitutes, inorganic cations and available phosphorus.

Our enthusiasm for the rediscovery of a species believed lost for 143 years from Europe was succeeded by our apprehension for its future survival. During our first visit, herds of goats were chewing fruiting stems of *B. orphanidis*; had the herd been left undisturbed all the stems and leaves of the plants would have gone within 3 or 4 minutes. By our second visit, 18 days later, only remnants of leaves had been left, without a single fruiting stem existing; only a few seeds were collected from the ground around the plants.

Obviously, *B. orphanidis* employs no survival strategy against herbivorous animals other than that of rhizome summer dormancy: it has no thorns, no poisonous or bitter compounds, at least to goats, no adaptation to vertical, inaccessible rocks. Likewise, it is vulnerable to the attentions of unscrupulous botanists. Its populations reported here are therefore definitely threatened and may be the last, if the species is not to be reassigned under the Extinct category of IUCN for Greece and Europe.

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