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THOMAS RAUS

Found and lost – *Staphyleaceae* in Greece

Abstract

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The angiosperm family *Staphyleaceae* , represented in the Flora Hellenica area by just one genus and species, *Staphylea pinnata,* was not known to occur in Greece until recently. Alas, its single known Greek population is definitely destroyed. As a consequence, the status of extinction in Greece has to be attributed to the family, genus and species as long as a reconfirming collection is wanting.

Key words: floristics, Red List, endangered plants, extinct plants.

Introduction

In the summer of 1989, during phytocoenological field work in the deciduous forests north of Drama (E Makedonia, Greece), the young German forest ecologist Jörg Petermann discovered a population of a woody plant species with imparipinnate leaves different from those which he knew in the genera *Fraxinus* and *Sambucus*. A collection of leaves sent to the present author for identification turned out to represent *Staphylea pinnata* L. *(Staphyleaceae),* a species, genus and family until then not known from Greece (Ball in Tutin & al. 1968: 242, Peruzzi & al. 2004: 541); the characteristic bladder-like fruits of the species were also observed in the field, but not collected (Petermann, in litt.).

Staphylea pinnata – an addition to the flora of Greece

Details of this interesting floristic addition to the flora of Greece were published twice (Kirchhoff & Petermann 1992, Petermann 1997). The locality is an E-exposed slope in a side valley entering the Nestos valley from the south, situated c. 2 km southwest of Pappades (41°21'N, 24°28'E), c. 4 km east of the bridge where the road Drama-Sidironero crosses the Nestos river, c. 45 km away from the N Aegean coast.

The collection necessitates an entry in the forthcoming volume 4 of Flora Hellenica, following the editorial rules published in volume 1 of that work (Strid in Strid & Tan 1997: ix-xi). Since

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the original herbarium material from Greece consists of leaves only, a description is provided based on several collections of vernal, flowering and fruiting material of *S. pinnata* from S Germany, Slovakia, Hungary and Bulgaria available at B.

Specimen seen. – GREECE: Ostmakedonien, Nomos Drama: Nestos-Tal, Mischbestand aus *Ostrya carpinifolia, Carpinus orientalis, Tilia tomentosa* u.a., O-Exposition, 360 m, 18.7.1989, *Petermann 1986* (B). – In addition to the label information, Petermann (1997: 123) also mentions *Acer campestre* L., *Castanea sativa* Mill., *Cornus mas* L., *Corylus avellana* L., *Crataegus monogyna* Jacq., *Fraxinus ornus* L., *Quercus frainetto* Ten. and *Sorbus torminalis* (L.) Crantz as woody species accompanying *Staphylea pinnata* in this place.

Staphylea pinnata L., Sp. Pl.: 270. 1753. – Described from Italy and Switzerland. – Lectotype (Peruzzi & al. 2004: 541): Herbarium Clifford: 112, *Staphylea* 1 (sheet labelled "D") (BM).

Deciduous shrub of c. 1.5-5 m. *Branches* opposite, terete, green and hairy when young, brown and shiny when mature. *Leaves* opposite, stipulate, with c. 5-10 cm long petiole, imparipinnate, with 2-3 pairs of nearly sessile lateral leaflets, terminal leaflet stalked. *Leaflets* 5-7, hairy, thin and delicate when young, glabrescent and nearly leathery at maturity, ovate-oblong, c. 5-10 cm long, 2-2.5 times as long as wide, acuminate at the apex, dark green above, bluish green below, margins finely serrate. *Inflorescence* a terminal, oblong, 5-12 cm long, usually drooping panicle of 5-15 flowers, born on axillary shoots; flower stalks with stipule-like bracts. *Flowers* radiate, bisexual, with spicy fragrance. *Sepals* 5, deciduous, imbricate, basally united, 6-8(-14) mm long, erect, ovate, glabrous, petaloid, whitish, yellowish or pinkish with purple tips, more or less connivent and enclosing the petals. *Petals* 5, free, imbricate in bud, 6-10 mm long, erect, oblong-spathulate, whitish or yellowish, c. 1.5 times as long as sepals. *Stamens* 5, about as long as petals, inserted below a 5-lobed nectary disc. *Ovary* superior, partially embedded in the disc, with 2-3 cells, placentation axile. *Styles* 3 or 4, fused; stigmas capitate. Fruit a conspicuous 2(-3)-celled, almost spherical, membranous, inflated, bladder-like capsule, 25-40 × 40-45 mm, rounded below, notched at the apex, light green, wrinkled and tinged pink at maturity, remaining soft and pliable when ripe, the ripe carpels united in their lower half and splitting from the apex along the inner suture of the free part. *Seeds* 1-few per carpel, nearly spherical, umbonate, c. 10 mm in diameter, pale brown, glabrous, shiny. – Chromosome number: $2n = 26$ (Foster 1933, Tischler 1950).

Habitat. – Thermophilous deciduous forest and secondary shrub in moist and mild mesoclimate of stream valley, on fresh though shallow, sandy (siliceous) forest soil at low altitude, c. 360 m. Flowering (May-)June.

Rare in NE Greece, now probably extinct. Known from a single collection in a tributary valley of the central portion of the Nestos valley, c. 25 km NE of Drama; site irreversibly flooded by an artificial lake.

Distribution. – Central, S and SE Europe, SW Asia; from E France (Alsace) to Armenia, southwards to Calabria, NE Greece and Syria (Hess & al. 1977: 683, Davis 1967: 520, Kirchhoff & Petermann 1992: 43, Petermann 1997: 123).

The *Staphyleaceae* are a small family of trees and shrubs of warm-temperate regions of the northern hemisphere, tropical SE Asia, the West Indies, Central and South America as far south as Peru (Takhtajan 1997: 300); for the whole range of the family see the map in Heywood 1978: 190); including the genus *Staphylea* of 9-11 species with a disrupted Arcto-Tertiary distribution in temperate Eurasia and America (Spongberg 1971), most of them cultivated for their flowers and attractive fruits, which are ornamental through the summer and autumn (Cullen & al. 1997). *S. pinnata* is a chiefly European species, with capsules that do not become brittle and papery when ripe but remain soft and pliable, unlike those of the Asian and North

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American species. They fall with the leaves without shedding their seeds, which are not released until the capsules eventually decay. The seeds are about the size of an average pea and are the largest in the genus. They are of ethnobotanical interest, because locally used as rosary beads where the autochthonous ranges of the plant and of resident Roman Catholics meet (Weaver 1980: 93).

Staphylea pinnata – extinct in Greece?

Staphylea pinnata was discovered in Greece in 1989 during ecological field work for a joint project of professors P. Smiris, Department of Forestry and Natural Environment, University of Thessaloniki/Greece and C. Lienau and H. Mattes, Institute of Landscape Ecology, University of Münster/Germany, aiming at the documentation of the ecosystems bound to be flooded by the artificial lake then being constructed to eventually fill the major part of the Greek portion of the Nestos valley (Pantzartzis 1977, Kirchhoff & Petermann 1992). The mightiest of the three dams in this hydroelectrical system, in a place named Thisavros (Nomos and Eparchia of Drama, NE Greece), is 160 m tall, resulting in the formation of a large artificial lake covering the Greek population of *S. pinnata* to a maximum depth of 24 m – too much for the plants to survive! Therefore, *S. pinnata* is now extinct in Greece owing to industrial impact and before the species, with its single known Greek locality and coincident southernmost occurrence on the Balkan Peninsula, came to its own right as "rare" and "threatened" in a relevant national Red-Data-Book of Greece (now "extinct" instead).

However, *Staphylea pinnata* is widespread in Bulgaria except the Strandža Mts (Andreev & al. 1992: 759), though scattered in the south. Its southernmost localities are found in the surroundings of the towns of Melnik and Petrič and by the village of Kulata in the SW part of the country, not far from the Greek border checkpoint of Promachonas where the river Strimonas enters the Greek territory, and in Mt Sturgach neighbouring Mt Slavianka (Ali Botuš) which is situated just at the Bulgarian border with Greece (A. Petrova, in litt.). Thence the locality of the species in adjacent Greek Makedonia discovered by Petermann was not surprising and a rediscovery of *S. pinnata* in suitable habitats south of the Greek-Bulgarian border is not unlikely. According to Spongberg (1971: 201), both the capsules and the individual seeds of *Staphylea* are floating, probably an adaptation to water dispersal, which would be in accordance with a presumed stream-bound distribution of *S. pinnata* in N Greece. Future floristic field work should concentrate on the forested (non-flooded) sections of the valleys of the rivers Axios, Strimonas, Nestos and Evros, in order to rediscover the species in Greece and to gain precise knowledge of its southern distribution limits on the Balkan Peninsula.

Concluding remarks

Within the *Rosidae-Sapindales* (Hutchinson 1973: 446), the *Staphyleaceae* form a small family of woody plants of temperate and tropical regions of Eurasia and the Americas, with five genera (Spongberg 1971: 196, Cronquist 1981: 789), or three (viz. *Euscaphis, Staphylea, Turpinia*) if the subfamily *Tapiscioideae* (with the two genera *Huertea* and *Tapiscia*; Mabberley 1997) is excluded as *Tapisciaceae* (Spongberg 1971: 197, Takhtajan 1997: 300). Species numbers range from 22 (Takhtajan 1997) to c. 50-60 (Spongberg 1971, Heywood 1978, Cronquist 1981, Cullen & al. 1997) depending on the circumscription of the family and its infrageneric taxa. In the Flora Hellenica area the nearest relatives are *Aceraceae, Hippocastanaceae* and *Sapindaceae* (the latter with a single representative, *Cardiospermum halicacabum* L., a naturalised "curiosity" in Greece; Webb in Tutin & al. 1968: 239, Böhling in Greuter & Raus 2000: 240). Relationships of the family with *Celastrales,* or *Cunoniaceae* in particular, as reviewed by Spongberg (1971: 197) and still mentioned by Heywood (1978: 190) and Mabberley (1997: 680) have not been confirmed (Kubitzki 2004).

Because there is only a single species of *Staphylea (Staphyleaceae)* in the flora of Greece, there is no need of a description of family and genus in the relevant volume of Flora Hellenica according to the editorial rules (Strid in Strid & Tan 1997: x). Necessary, however, is an inser-

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tion of *Staphyleaceae* into the key to the families of angiosperms (Snogerup in Strid & Tan 1997: 18-26). As a family of woody land plants; leaves opposite, not ericoid, cladodes wanting; flowers actinomorphic with calyx distinct from corolla; petals free and less than 10, not spurred; stamens less than twice as many as petals, staminodes wanting; ovary superior and carpels united over at least half of their length, the family has to be placed as 241A. *Staphyleaceae* (= leaves pinnate) alongside 241. *Celastraceae* (= leaves entire) in the key (Snogerup in Strid & Tan 1997: 25).

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