

***Legousia snogerupii* (Campanulaceae), a new species from southeastern Kiklades, Greece**

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Abstract

Legousia snogerupii (Campanulaceae) from the islands of southeastern Kiklades, Greece is described as a species new to science and illustrated by photographs. It bears some morphological similarity to and had previously been confused with *L. speculum-veneris* which is absent from the area. Its affinities are, however, closer to *L. pentagonia*, rather common in the Kiklades. Morphological characteristics and information on ecology and distribution are provided and the three taxa compared.

Introduction

In the spring of 2012 a botanical investigation was made by G. Sfikas of some small uninhabited islets in the Kiklades. On 7 April, he visited Ofidoussa to the west of Astipalaea (Nomos Dodekanisou, Eparchia Kalimnou). The floristic (phytogeographical) region Kiklades, used here and in subsequent mention, is as defined for the *Flora Hellenica* project (Strid & Tan 1997). Thus not only the C Aegean islands (Kiklades proper) are included but also some islands on the western fringe of the Dodecanese. The results of these island visits have not been completely evaluated by Sfikas, and this work has been deferred to a later date. Suffice it to mention that a species of *Legousia* was found which attracted by its unusual flower colour. Sfikas sent photographs and plant samples to Kit Tan at Copenhagen for identification. Unknown to him, the plant had already been collected on the island by H. Runemark and B. Nordenstam, more than fifty years earlier, on 12 May 1960. Runemark, professor of botany at the University of Lund, identified the specimens first as *Legousia pentagonia* (L.) Druce (1908: 46) but later considered them to be *L. speculum-veneris* (L.) Chaix (in Villars 1786: 338), thus indicating that even for an experienced taxonomist, some degree of uncertainty had existed before coming to a taxonomic conclusion.

In late May 2014, B. Biel visited the northeastern part of the island of Amorgos (Nomos Kikladon, Eparchia Thiras) which lies ca. 41 km NW of Ofidoussa and found the same species. The plant caught his attention by virtue of the unusual corolla colour, which was almost a *Myosotis*-blue instead of deep violet-purple as frequent in Greek members of the genus. The habit was lax with long, flexuous, erect-ascending or completely prostrate stems depending on whether the plants were growing in open phrygana or shaded *Quercus* scrub. He realized that the plant possessed a combination of other characters which were not met with in any currently known taxon. No other species of *Legousia* was noted to occur in the direct vicinity. We decided to name our plant *Legousia snogerupii* to commemorate Prof. Sven Snogerup (1929–2013) who, since 1957, had contributed tremendously to the floristic exploration of the Aegean area particularly the Kiklades, in collaboration with Prof. Runemark and others from the Lund school. His joint-collection with Runemark is designated as the holotype. Although grown in cultivation, the plant prepared as a voucher specimen does not differ greatly from other plants collected in the wild except that it is more branched at the base.

Description of the species

Legousia snogerupii Biel & Kit Tan, **sp. nov.** Figs. 1–2, 4–5.

Type:—GREECE. Nomos Kikladon, Eparchia Thiras: island of Amorgos, large E-exposed cliff precipices of Krikelas, 650 m, 36°54'N, 26°03'E: seed collected in the wild, 4 July 1958, *Runemark & Snogerup 12293*; specimen cultivated in the Botanical Garden of the University of Lund under accession no. R1729-2, 29 April 1959, *Runemark* (holotype LD!).

Herbaceous, ± glabrous annual 10–20 cm tall. Stems simple or branched from base, lax, slender, flexuous, trailing-prostrate to erect-ascending, 15–35 cm long, narrowly and longitudinally ridged, glabrous or with a few short spreading hairs. Lower leaves with up to 20 mm long petioles, spatulate to broadly obovate, blade entire, not undulate, 10–25 × 6–12 mm, glabrous or sparsely aculeolate; upper cauline leaves ± sessile, ovate- to oblong-elliptic, 5–20 × 2–8 mm. Flowers few, always solitary in leaf axils, pedicellate to 10 mm. Calyx 5-fid, lobes 8–12 mm, nearly equalling or shorter than ovary at anthesis, linear-lanceolate, acuminate, patent in flower and fruit, slightly thickened at margins, glabrous, scabrid-aculeolate or with a few bristles at apex. Corolla broadly campanulate, longer than calyx lobes, 10–15(–18) mm long, (10–)15–21 mm across (in cultivation to 25 mm), 5-lobed, divided to ⅓ or ½, white; apical third (or less) sky-blue or bluish-mauve; lobes obtuse-rounded, apiculate-mucronate, glabrous or with a few scattered hairs. Stamens 5, filaments short, anthers free. Ovary cylindrical, (6–)10–15 mm at anthesis, 3-locular, ± glabrous; style puberulent; stigmas 3. Capsule erect, cylindrical, 15–20 × 2.5–3.6 mm, not narrowing at apex, glabrous, green suffused purple, dehiscent by 3 subapical upward-curving valves. Seeds numerous, flattened, elliptic-ovoid, 1.3–1.4 × 0.8 mm, light brown, smooth, shiny.

The new species differs from both *Legousia speculum-veneris* and *L. pentagonia* by its lax habit with slender, flexuous, trailing stems (see Fig. 1), and always solitary flowers with blue and white corollas. From the first species it differs by its fewer, larger, broadly campanulate corollas, longer pedicels and capsules not narrowed at apex (Fig. 4); from *L. pentagonia*, by the ± glabrous calyx lobes which are already patent-spreading in flowering state, and the glabrous ovary (Fig. 2). *Legousia speculum-veneris* has a more erect habit, shorter pedicels, deep violet-purple subrotate corolla (limb flat-spreading), glabrous (or more rarely, densely hispid-pubescent) calyx and ovary and capsules narrowed at the apex (Fig. 3). The calyx lobes in *L. pentagonia* are erect-ascending at anthesis, the stems, calyx and ovary usually hispid (rarely glabrous), with characteristic long white hairs, and the capsules are not narrowed at the apex. The morphological characters of the three species are compared in Table 1, and a key to the species is provided below.

TABLE 1. Comparison between *Legousia snogerupii*, *L. pentagonia* and *L. speculum-veneris*.

Characters	<i>L. snogerupii</i>	<i>L. pentagonia</i>	<i>L. speculum-veneris</i>
Stems	flexuous, trailing-prostrate or erect-ascending, ± glabrous	erect or erect-ascending, hispid-pubescent	erect or erect-ascending, glabrous or hispid-pubescent
Flowers	few, solitary, axillary	solitary or in a panicle	solitary or, more often, in a panicle
Calyx lobes	patent in flower, ± glabrous, nearly equalling or shorter than ovary at anthesis	erect-ascending in flower, glabrous or pubescent, with long translucent hairs, c. ½ as long as ovary at anthesis	erect-ascending in flower, glabrous or pubescent, ± equalling ovary at anthesis
Corolla	broadly campanulate, white-edged sky-blue	broadly campanulate, deep violet-purple with white centre	subrotate, lilac or deep violet-purple with white centre
Ovary	± glabrous, without long translucent hairs	hispid-pubescent or with long translucent hairs	± glabrous or hispid-pubescent, without long translucent hairs
Capsule	15–20 mm, not narrowed at apex	20–35 mm, not narrowed at apex	10–15 mm, narrowed at apex
Seed length	1.3–1.4 mm	0.8–1 mm	1.1–1.2 mm



FIGURE 1. *Legousia snogerupii*: holotype (Runemark & Snogerup 12293).



FIGURE 2. *Legousia snogerupii* and *L. pentagonia*: showing differences in corolla, calyx and ovary.



FIGURE 3. *Legousia speculum-veneris* from northern mainland Greece (Strid & Kit Tan 31344); arrow indicating capsule narrowed at apex.



FIGURE 4. *Legousia snogerupii*: capsule, not narrowed at apex.

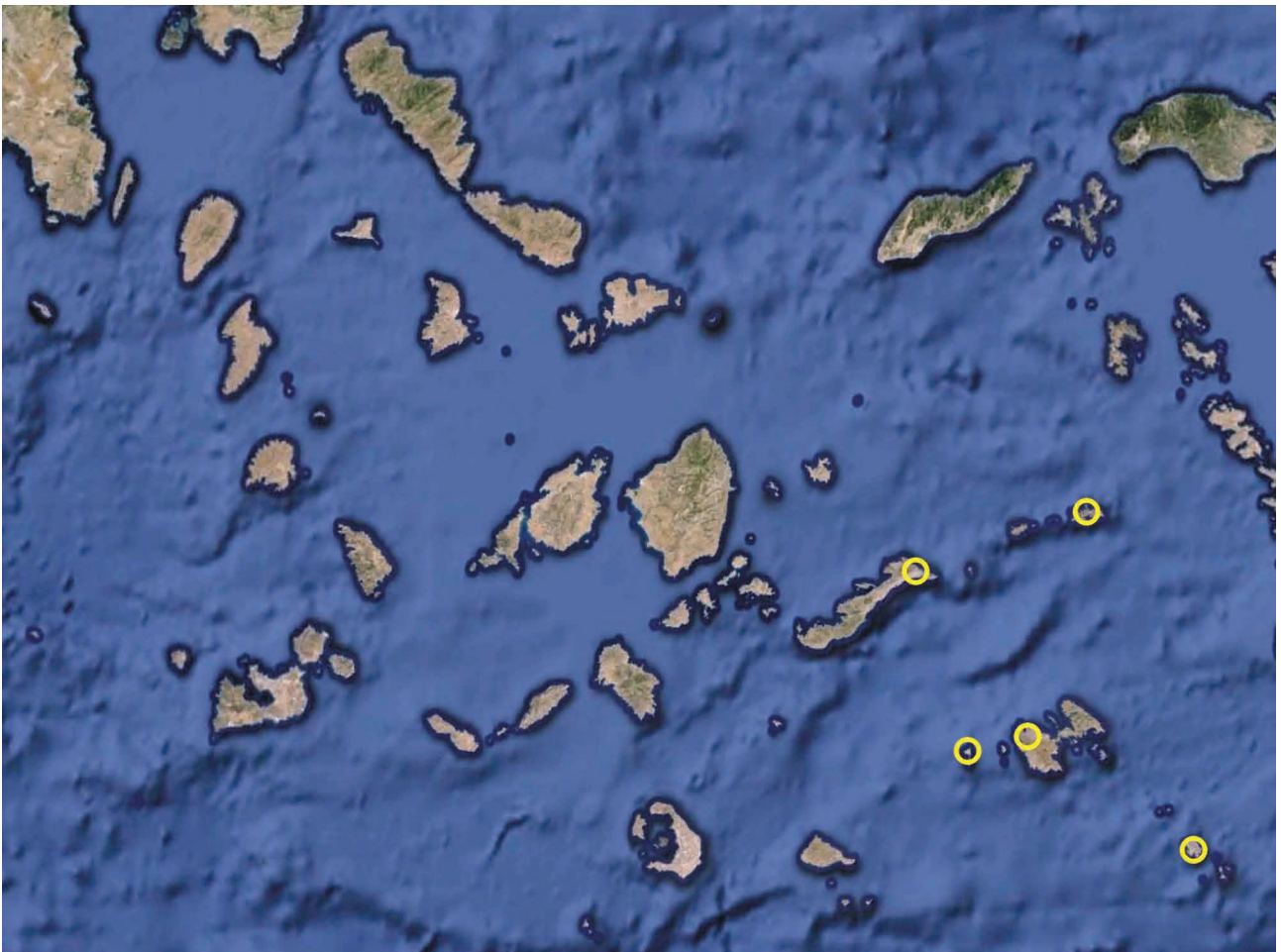


FIGURE 5. *Legousia snogerupii*: distribution map.

1. Corolla sky-blue with white-central eye more than half the diameter of corolla; flowers always solitary on leaf axils; stems slender, flexuous, trailing *L. snogerupii*
- Corolla lilac or deep violet-purple with white-central eye less than one-third the diameter of corolla; flowers usually forming panicle, rarely solitary; stems erect or erect-ascending 2
2. Corolla broadly campanulate; calyx lobes c. ½ as long as ovary at anthesis; ovary hispid-pubescent or with long translucent hairs; capsule 20–35 mm long, not narrowed at apex *L. pentagonia*
- Corolla subrotate; calyx lobes ± equalling ovary at anthesis; ovary glabrous or hispid-pubescent, without long translucent hairs; capsule 10–15 mm, narrowed at apex *L. speculum-veneris*

Chromosome number

2n = 20 (Runemark, unpubl. data), same as reported by several authors for *L. pentagonia*, *L. hybrida* and *L. speculum-veneris* (see Contandriopoulos 1972: 88, Moore 1982: 229, Davis & al. 1988: 327).

Additional specimens examined

All *Legousia* records in the Kiklades substantiated by a herbarium voucher have been checked as far as possible. It is not our intention to publish a revision of the genus in Greece as that would be left to the future author for the relevant volume of *Flora Hellenica*. The following specimens, however, are *L. snogerupii*, and these specimens are cited as paratypes. For the time being, the specimens collected by Biel are kept in his private herbarium at Höchberg (herb. Biel). The specimens deposited at LD have been originally named *L. pentagonia* and re-determined by Runemark in 2008 as *L. speculum-veneris*.

Nomos Kikladon, Eparchia Thiras. AMORGOS: SE of Tholaria, phrygana and scrub in valley, along marked path, 50 m, 36°54' N, 25°59' E, 28.05.2014, *Biel* 14.129!; ENE of Lagadha, narrow stream gorge with *Quercus* scrub along marked path, 470 m, 36°54' N, 26°01' E, 29.05.2014, *Biel* 14.143! & 14.144!; ENE of Lagadha, phrygana with *Quercus* scrub on rocky slope above Monastery of Ag. Ioannis Theologos, 505 m, 36°55' N, 26°01' E, 29.05.2014, *Biel* 14.154!; ENE of Lagadha, slope with *Quercus* scrub and phrygana by stone wall, 520 m, 36°54' N, 26°01' E, 31.05.2014, *Biel* 14.180!

Nomos Dodekanisou, Eparchia Kalimnou. ASTIPALEA: Panormos, garigue, 36°35' N, 26°17' E, 12.04.1966, *Runemark & J. Persson* 22752 (LD!) sub nom. *L. pentagonia* (re-determined by Runemark as *L. speculum-veneris*); E of Panormos, the promontory of Doma, hard limestone, 36°36' N, 26°17' E, 30.05.1960, *Runemark & Nordenstam* 15053 (LD!, also as cult. specimen R6071-1); Baia di Caminacia, limestone-schist, garigue, 0–100 m, 36°31' N, 26°18' E, 13.05.1960, *Runemark & Nordenstam* 14020 (LD!); LEVITHA: the W part of the island, hard limestone, garigue, 37°00' N, 26°27' E, 13.04.1966, *Runemark & J. Persson* 22803 (LD!); OFIDOUSSA: garigue, hard limestone, 36°33' N, 26°09' E, 12.05.1960, *Runemark & Nordenstam* 13856 (LD!) sub nom. *L. pentagonia* (re-determined by Runemark as *L. speculum-veneris*); W of Astipalea, hard limestone, 50 m, 36°33' N, 26°09' E, 07.04.2012, *Sfikas* 14080 (herb. Sfikas!); SIRINA: the NE part of the island, 36°21' N, 26°42' E, 9.05.1967, *Runemark & Bentzer* 28466 (LD!); the NW part, N-exposed cliffs, hard limestone and scree, 36°21' N, 26°40' E, 14.05.1960, *Runemark & Nordenstam* 14235 (LD!, also as cult. specimen R6069-2); shore N of the village, in a ravine, 36°20' N, 26°41' E, 2.05.1958, *Runemark & Snogerup* 7371 (LD!).

Ecology, distribution and conservation status

The plants flower from April to May with fruits well-developed by May and June. In semi-shaded *Quercus* scrub the plants are lax with flexuous, long, semi-prostrate stems but in sunny, open phrygana on rocky slopes they are slightly more erect and with shorter stems. Other plants noted or collected in the close vicinity include *Allium pallens* subsp. *pallens*, *A. subhirsutum*, *Anacamptis sancta*, *Anogramma leptophylla*, *Blackstonia perfoliata*, *Centaurea raphanina* subsp. *raphanina*, *Cichorium pumilum*, *Crepis zacintha*, *Crucianella angustifolia*, *Drimia maritima*, *Galium amorginum*, *Hordeum bulbosum*, *Melica rectiflora*, *Nigella damascena*, *N. doerfleri*, *Ophrys lutea* subsp. *galilaea*, *Orchis anatolica*, *Ornithogalum* sp., *Orobanche pubescens*, *Pallenis spinosa*, *Papaver purpureomarginatum*, *Quercus coccifera*, *Silene colorata*, *S. corinthiaca*, *S. italica*, *Teucrium divaricatum* and *Umbilicus horizontalis*.

Legousia speculum-veneris is wide-ranging, occurring in N Africa, C and S Europe, Cyprus, Turkey, W Syria, N Iraq and Caucasia. Within the phytogeographical region Kiklades it occurs only on the large island of Andros which is close to mainland Greece. It is apparently absent from the C Aegean and all records of this species in the Kiklades (other than on Andros) refer to other taxa. *Legousia pentagonia* is native to S Balkans, Turkey, W Syria, Georgia, N Iraq, W Iran and is naturalized in Spain and France, occurring in dry open places and fields. It is fairly widespread in the C Aegean, together with *L. hybrida* (L.) Delarbre (1800: 47). *Legousia snogerupii* occurs in small

isolated populations on the southeastern Kikladean islands at altitudes from sea level to 650 m and has not been noted on mainland Greece or Anatolia. The discovery of new populations on neighbouring islets would necessitate extensions to the distribution, but it is very likely that *L. snogerupii* remains restricted to the southeastern Kiklades (Fig. 5) and can be considered an Aegean endemic. According to Damboldt (1978: 85), some collections from Turkey show a combination of characters which may indicate hybridization between *L. pentagonia* and *L. speculum-veneris*. However, the distinguishing features of *L. snogerupii*, viz., the lax habit with slender flexuous stems, always solitary flowers, and particularly the sky-blue and white corollas — these are unique and unlikely to be of hybrid origin as they do not exist in *L. pentagonia* or *L. speculum-veneris*. Without following IUCN threat categories (IUCN 2011) it is obvious *L. snogerupii* is neither threatened nor endangered on these outlying islands situated far from the regular tourist track.

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References

- Contandriopoulos, J. (1972) Contribution à l'étude cytotaxinomique des Campanulacées du Proche-Orient, III. *Bulletin de la Société Botanique de France* 119(1–2): 75–93.
<http://dx.doi.org/10.1080/00378941.1972.10839008>
- Damboldt, J. (1978) *Legousia* Durande. In: Davis, P.H. (Ed.) *Flora of Turkey and the East Aegean Islands* 6. Edinburgh University Press, Edinburgh, pp. 83–86.
- Davis, P.H., Mill, R.R. & Tan, Kit (Eds.) (1988) *Flora of Turkey and the East Aegean Islands* 10. Edinburgh University Press, Edinburgh, 590 pp.
- Delarbre, A. (1800) *Flore d'Auvergne* ed. 2. Riom & Clermont, 891 pp.
- Druce, G.C. (1908) *List of British plants, containing the Spermatophytes, Pteridophytes and Charads*. Clarendon Press, Oxford, 204 pp.
- IUCN (2011) *IUCN red list categories and criteria*, ver. 9.0. IUCN Species Survival Commission.
- Moore, D.M. (1982) *Flora Europaea check-list and chromosome index*. Cambridge University Press, Cambridge, 423 pp.
<http://dx.doi.org/10.1017/CBO9780511735493>
- Strid, A. & Tan, Kit (Eds.) (1997) *Flora Hellenica* 1. Koeltz Scientific Books, Koenigstein, 547 pp.
- Villars, D. (1786) *Histoire des Plantes de Dauphiné* 1. Chez l'auteur & chez les libraires, etc., Grenoble, 467 pp.