

# Contributions to the bulb flora of Ilias (NW Peloponnese, Greece): *Amaryllidaceae*, *Araceae* and *Aristolochiaceae*

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**Abstract.** The bulb flora of prefecture (nomos) Ilias in NW Peloponnese, Greece is documented with an emphasis on its distribution within the administrative unit. Families, genera and species are presented in alphabetical order. Each taxon is accompanied by a photograph, description, habitat, ecology and distribution dot map. This is the second contribution of the series and deals with three families — the Amaryllidaceae comprising four genera, *Galanthus*, *Narcissus*, *Pancratium* and *Sternbergia*, the Araceae comprising three genera, *Arisarum*, *Arum* and *Biarum*, and the Aristolochiaceae with its own genus *Aristolochia*.

**Key words:** Amaryllidaceae, Araceae, Aristolochiaceae, *Arisarum*, *Aristolochia*, *Arum*, *Biarum*, *Galanthus*, *Narcissus*, *Pancratium*, *Sternbergia*, distribution maps, Greece, NW Peloponnese

## Introduction

Approximately a hundred species of bulb plants belonging to 14 families occur in nomos Ilias. This is the second contribution in the series (Giannopoulos & al. 2021) and deals with the family Amaryllidaceae which comprises four genera, viz., *Galanthus*, *Narcissus*, *Panocratium* and *Sternbergia*, and the Araceae comprising three genera, *Arisarum*, *Arum* and *Biarum*. The dicotyledonous family Aristolochiaceae is also included as it has underground storage organs and aerial parts which die down in the dry months.

## Material and methods

Keys to the species, photographs, short descriptions, habitat, ecology, and distribution maps are provided for the taxa. The general range within and without the prefecture is also indicated. The presentation in alphabetical order as well as other matters follows that adopted in the first publication of the series (Gianno-

poulos & al. 2021). Unqualified measurements refer to length or height. Two taxa are Greek endemics.

## Results and discussion

### AMARYLLIDACEAE

Glabrous, bulbous, scapose perennial herbs. Leaves all basal. Flowers hermaphrodite, in an umbel or solitary. Perianth segments petaloid. Stamens 6. Ovary inferior, 3-locular.

1. Corona present ..... 2.
- Corona absent ..... 3.
2. Corona adnate to upper part of stamens .....  
..... *Panocratium*
- Corona free from stamens ..... *Narcissus*
3. Perianth segments yellow, all similar and without  
green markings ..... *Sternbergia*
- Perianth segments white, inner segments with green  
markings ..... *Galanthus*

***Galanthus* L.*****Galanthus reginae-olgae* Orph.**

Bulb spheroidal to ovoid, 1.5–2.5 cm. Leaves appanate in vernation, linear-oblongate, recurved at maturity; adaxial surface green to glaucescent with glaucous median stripe. Inner perianth segments emarginate, with green deltoid mark near apex. Anthers apiculate. Capsule globose to subglobose.

From Greek *gala* “milk” and *anthos* “flower”, alluding to the milky white colour; specific epithet in honour of the former queen of Greece.

1. Autumn-flowering. Leaves absent or partially developed at anthesis . . . . . subsp. *reginae-olgae*

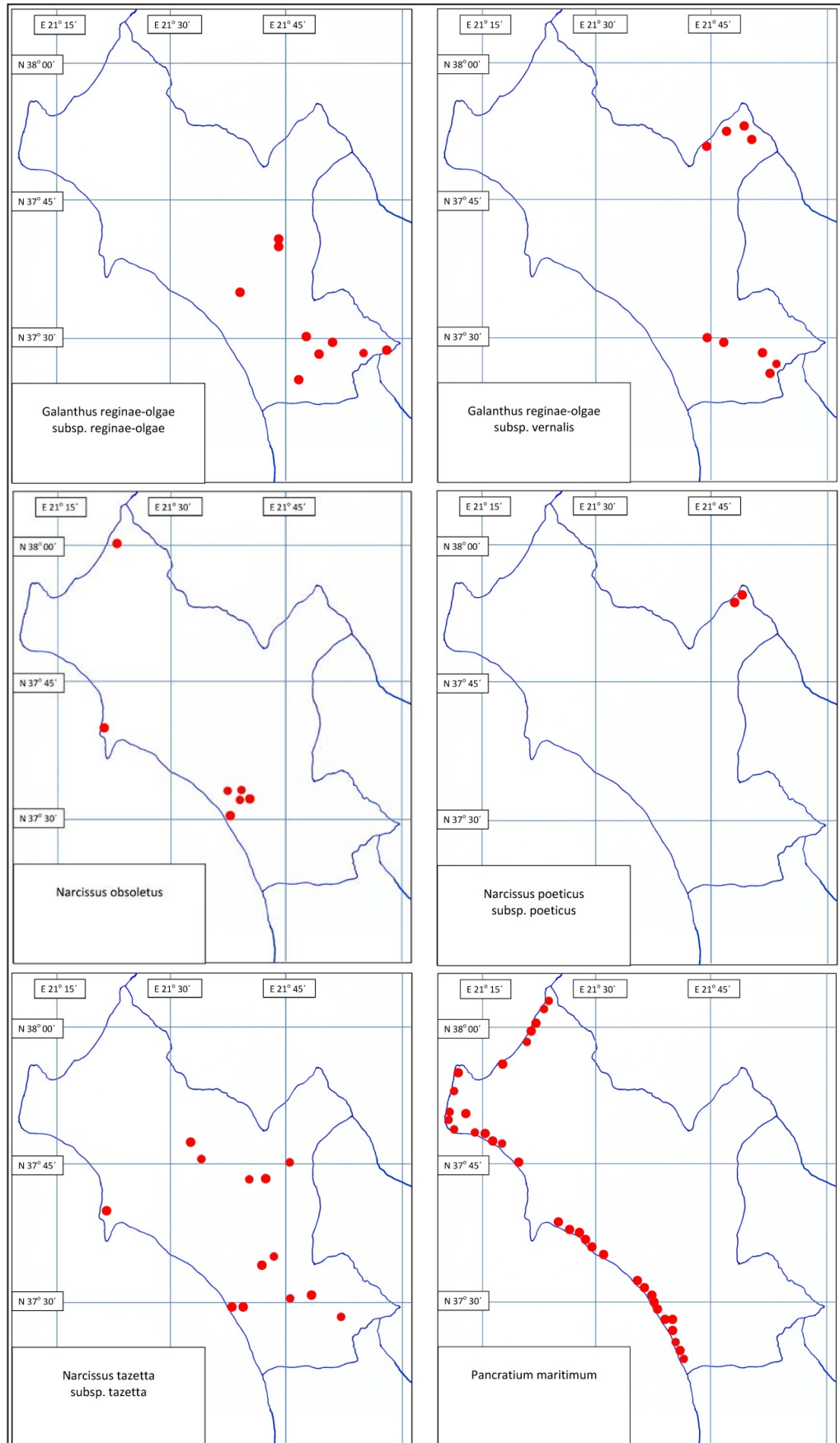
– Usually spring-flowering. Leaves well developed at anthesis . . . . . subsp. *vernalis*

***Galanthus reginae olgae* Orph. subsp. *reginae-olgae* (Figs. 1:1 & 3)**

South and central parts of Ilias. Woodland, grassy slopes, damp and shady places, on limestone, 530–1150 m. Flowering September to November. Endemic to Greece.



**Fig. 1.** *Galanthus* and *Narcissus* species in nomos Ilias:  
 1, *G. reginae-olgae* subsp. *reginae-olgae*  
 2, *G. r.* subsp. *vernalis*  
 3 & 4, *N. obsoleteus*  
 5, *N. poeticus* subsp. *poeticus*  
 6, *N. tazetta* subsp. *tazetta*.



**Fig. 3.** Distribution of *Galanthus*, *Narcissus* and *Pancratium* species in nomos Ilias.

*Galanthus reginae-olgae* subsp. *vernalis* Kamari  
(Figs. 1:2 & 3)

Resembling *G. r.* subsp. *reginae-olgae*, differing by flowering time and leaf development.

South and northeastern parts of Ilias. Deciduous or *Abies* woodland, rocky slopes and valleys, 700–1330 m. Flowering January to March. Central Balkans (North Macedonia, Albania).

### ***Narcissus* L.**

1. Autumn-flowering. Leaves absent or poorly developed at anthesis ..... *obsoletus*  
– Spring-flowering. Leaves well developed at anthesis ..... 2
2. Flowers solitary ..... *poeticus*  
– Flowers in an umbel of 3–7. .... *tazetta*

*Narcissus obsoletus* (Haw.) Steud.

[syn.: *N. serotinus* auct.] (Figs. 1:3–4 & 3)

Leaves linear, cylindrical, ± glaucous. Scape slender, 10–25 cm. Flowers 1(–3), fragrant. Perianth segments elliptic-lanceolate, 10–15 mm, white, patent or reflexed; corona short, orange to yellow.

North and southcentral Ilias. Coastal and stony inland places, siliceous alluvial flats, 5–260 m. Flowering September to December. Scattered in coastal Mediterranean areas.

An allotetraploid derived from *N. serotinus* L. s. str. and *N. elegans* (Haw.) Spach.

*Narcissus papyraceus* Ker Gawl. with large snow-white flowers is planted as ornamental in gardens, flowering from December to February, but is not native.

*Narcissus poeticus* L. subsp. *poeticus* (Figs. 1:5 & 3)  
Leaves flat, glaucous. Scape 20–40 cm, longer than leaves, compressed. Flowers solitary, fragrant. Perianth segments white or pale cream, patent, overlapping; corona short, yellow with red-crenulate margin.

Northeastern part of Ilias. In small populations on mountain slopes and meadows, 1760–1940 m. Flowering in June. Central and South Europe.

*Narcissus p.* subsp. *radiiflorus* (Salisb.) Baker with narrower perianth segments occurs on Evvia and mainland Greece.

*Narcissus tazetta* L. subsp. *tazetta* (Figs. 1:6 & 3)  
Bulb ovoid, large (usually 3–4 cm wide). Leaves flat, linear, 6–10 mm wide, obtuse. Scape 20–45 cm, longer

than leaves. Flowers in an umbel of 3–7. Perianth segments broadly elliptic-ovate, white; corona pale to deep orange-yellow.

Widespread in central and southern parts of Ilias. Damp meadows, fields and pastures, 3–600 m. Flowering from late December to March. Cultivated as ornamental (daffodil) for centuries in the Mediterranean region.

*Narcissus t.* subsp. *aureus* (Loisel.) Baker has been reported from the island of Rodos.

### ***Pancratium* L.**

*Pancratium maritimum* L. (Figs. 2:1 & 3)

Bulb large, ovoid, with a long neck. Leaves appearing after anthesis, linear, sometimes twisted, 12–20 mm wide, glaucous, subfleshy. Scape solitary, 10–30 cm, stout, compressed. Flowers 3–8 in a lax umbel, large, white, with a conspicuous corona adnate to lower part of filaments. Capsule obovoid-trigonal; seeds triquetrous, 10–12 mm, black.

All along the coast except in areas affected by building development, on maritime sand just above high tide mark, scattered in ruderal places, at river mouths, drained lakes, etc., 0–5 m. Flowering April to July. Mediterranean region eastwards to SW Asia.

### ***Sternbergia* Waldst. & Kit.**

1. Leaves absent or poorly developed and scape 1–2 cm long at anthesis ..... *colchiciflora*  
– Leaves well developed and scape more than 4 cm long at anthesis ..... *lutea*

*Sternbergia colchiciflora* Waldst. & Kit.

[syn.: *Amaryllis citrina* (Herb.) Sm.] (Figs. 2:2 & 4)

Bulb broadly ovoid, with blackish, papery tunics. Leaves appearing after anthesis, 4–8, linear, often twisted, dark green. Scape very short and underground at anthesis, later elongating to elevate the capsule slightly above ground. Perianth segments oblong-oblancheolate, c. 2–4 mm wide, lemon yellow. Seeds olive-brown to blackish, with large, fleshy, white strophiole.

Northeastern part of Ilias. Dry stony and rocky slopes, 1410 m. Flowering in September. South Europe, extending northwards to Hungary.

*Sternbergia lutea* (L.) Ker Gawl. ex Spreng.

[incl.: *S. sicula* Tineo ex Guss.] (Figs. 2:3 & 4)

Leaves developing at or just after anthesis, linear, bright green. Scape well developed, at least 4 cm at anthesis,

later elongating and usually curved. Perianth segments elliptic-oblong, 4-15 mm wide, bright yellow. Seeds without strophiole.

Widespread in central and southern parts of Ilias. Rocky and stony phrygana, open woodland, often near habitation, 100-1452 m. Flowering September to November. Mediterranean region.

A widely distributed, autumn-flowering species which has been referred to both *S. lutea* and *S. sicula*. The latter is characterized as having comparatively narrower leaves and perianth segments.

ARACEAE

Glabrous perennial herbs with tuberous rootstock. Leaves all basal. Flowers often unisexual, arranged on spadix enfolded by large spathe. Perianth segments sepaled or absent. Ovary superior, 1-3-locular. Fruit a berry.

- 1. Spathe margins free at base but overlapping; berries orange-red ..... *Arum*
- Spathe margins connate at base forming a closed tube; berries white or pale green ..... 2.



Fig. 2. *Pancratium* and *Sternbergia* species in nomos Ilias: 1, *P. maritimum* 2, *S. colchiciflora* 3, *S. lutea*.

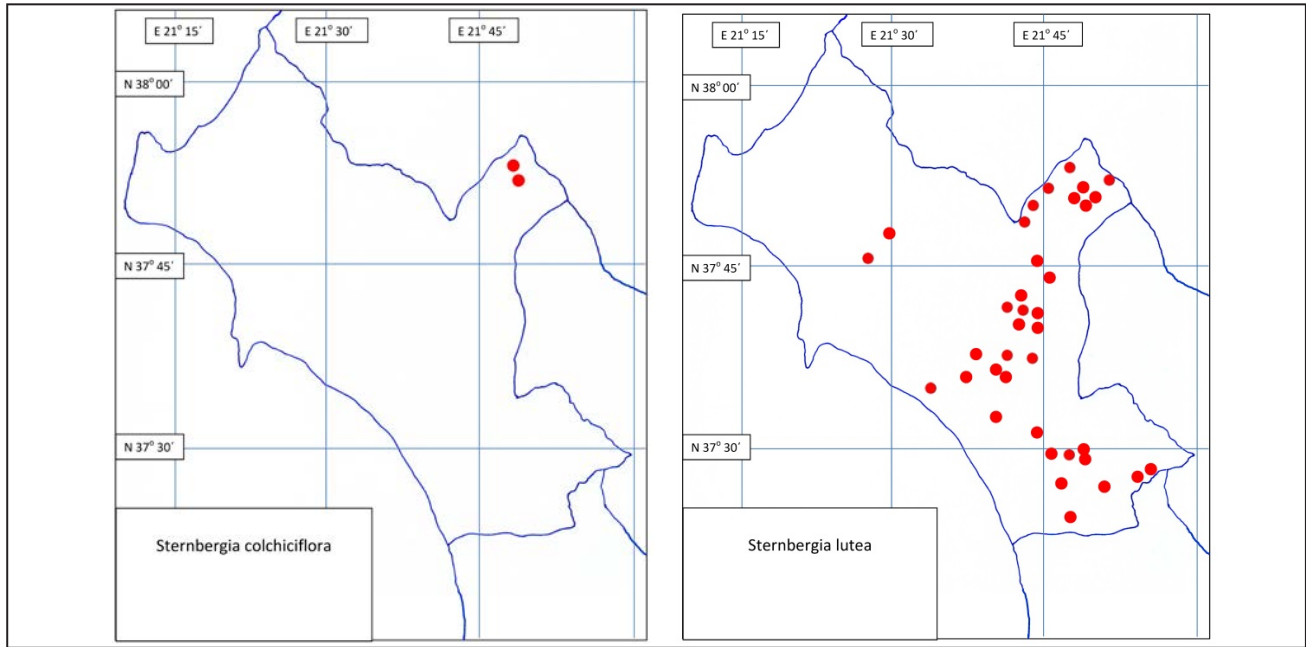


Fig. 4. Distribution of *Sternbergia* in nomos Ilias.

- 2. Male and female flowers contiguous on spadix . . . . . *Arisarum*
- Male and female flowers not contiguous on spadix . . . . . *Biarum*

**Arisarum** Mill.

*Arisarum vulgare* O. Targ. Tozz. subsp. *vulgare* [syn.: *Arisarum sibthorpii* Schott] (Figs. 5:1 & 6)

Rootstock tuberous. Leaves basal, long-petiolate; lamina cordate or hastate-sagittate at base. Spathe tube greenish-white, longitudinally striped green to reddish-purple; limb cucullate, green to purplish-brown. Spadix cylindrical, exerted and forwardly bent, greenish to reddish-brown. Female flowers 4–6, contiguous with the more numerous male flowers. Sterile flowers absent. Berries greenish.

South and central parts of Ilias. Grassy slopes, phrygana, fields, on limestone, sea level to 500 m. Flowering October to November. Mediterranean region.

A winter-flowering species common in olive groves in Greece. *Arisarum* v. subsp. *simorrhinum* (Durieu) Maire & Weiller is restricted to the West Mediterranean (Spain and N Africa).

**Arum** L.

Rootstock tuberous. Leaves basal, long-petiolate; lamina hastate to sagittate at base. Inflorescence usually foetid, attracting fly pollinators. Flowers densely ar-

ranged, comprising four types — female (pistillate) flowers below, zone of sterile flowers (pistillodes), male (staminate) flowers and another zone of sterile flowers (staminodes) above. Spadix cylindrical-clavate, differentiated into basal part (stipe) and expanded distal part (appendix). Berries orange-red.

A genus of c. 23 species, mainly distributed in the Mediterranean area and SWAsia, with centre of diversity in Greece (Boyce 1993).

- 1. Tuber vertical-discoid. Male flowers purplish to purplish-pink . . . . . *cylindraceum*
- Tuber horizontal-rhizomatous. Male flowers yellow . . . . . *italicum*

**Arum cylindraceum** Gasp.

[syn.: *Arum alpinum* Schott & Kotschy] (Figs. 5:2 & 6) Inflorescence without scent. Spathe pale green or suffused purple without; tube usually pale purple within; limb narrowly ovate-lanceolate, acuminate. Female flowers pale yellow; male flowers purplish to purplish-pink. Spadix slender, purplish.

Northeastern part of Ilias (Mts Lambia and Skiadvouni). Stony limestone slopes, 1210–1450 m. Flowering April to mid-June. Mediterranean Europe.

**Arum italicum** Mill. subsp. *italicum* (Figs. 5:3 & 6)

Inflorescence foetid. Spathe pale green on both surfaces; limb broadly ovate, acuminate. Female flowers cream, the male yellow. Spadix stout, cream or yellow.



Fig. 5. Araceae taxa in nomos Ilias: 1, *Arisarum vulgare* subsp. *vulgare* 2, *Arum cylindraceum* 3, *A. italicum* subsp. *italicum* 4, *Biarum rhopalospadix* 5, *B. tenuifolium* subsp. *tenuifolium*.

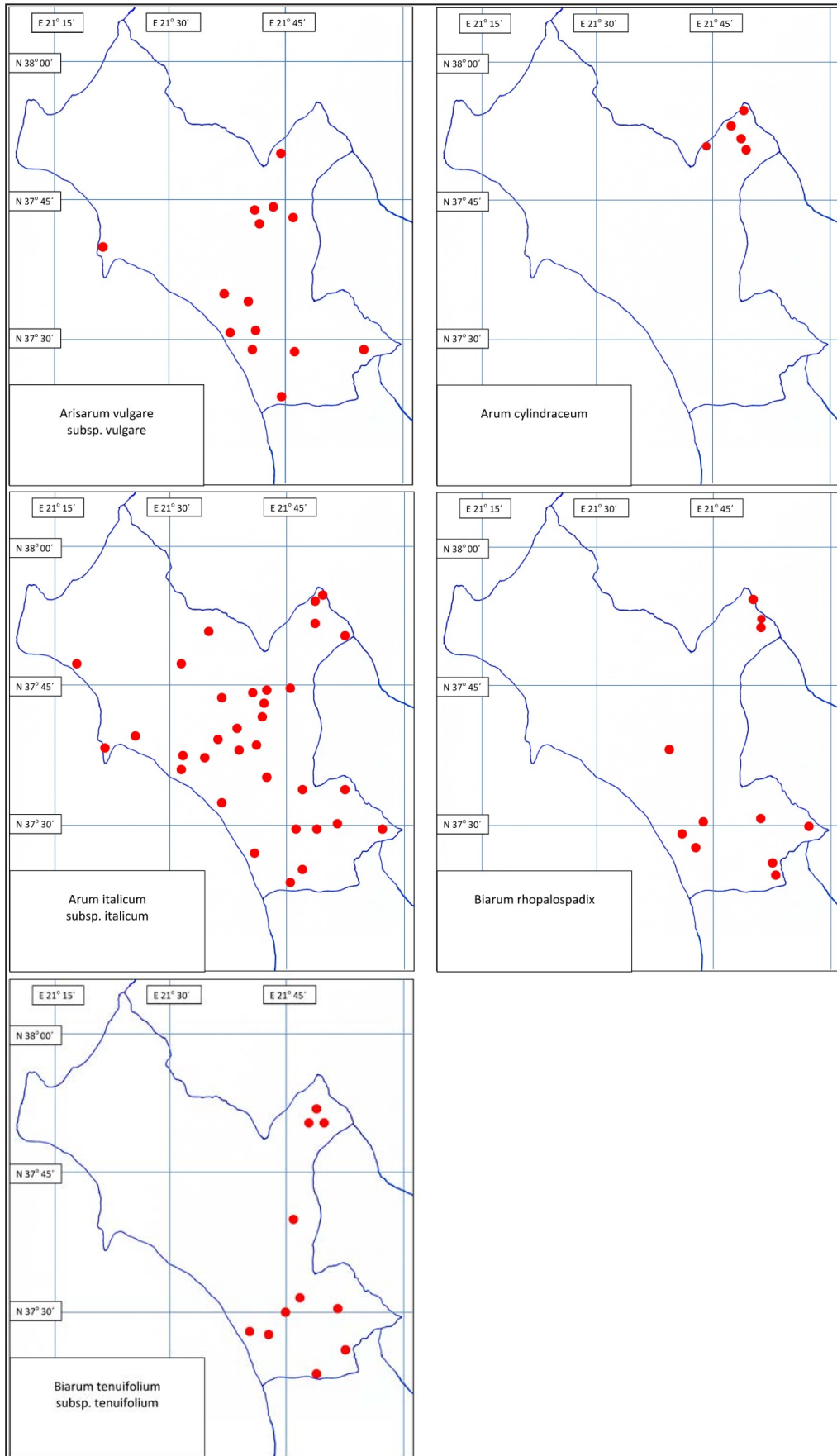


Fig. 6. Distribution of *Araceae* in nomos Ilias.



Widespread in Ilias except in the northwest. *Platanus* woodland, olive groves, fields, damp places at roadsides, drained lake areas, ruderal ground near habitation, on limestone, sea level to 800 m. Flowering April to May. Widespread in Central and South Europe.

***Biarum* Schott**

Tuber discoid to depressed-globose. Scape short, subterranean. Leaves entire, cuneate or truncate at base, often undulate at margin, appearing with or after the inflorescence; lamina narrowly elliptic to oblanceolate. Spathe tube cylindrical, subterranean, whitish; limb much longer than tube, apiculate, erect or recurved. Spadix slender, equalling or longer than spathe. Male and female flowers not contiguous. Berries white.

1. Usually spring-flowering. Sterile flowers absent above male flowers ..... *rhopalospadix*

- Usually autumn-flowering. Sterile flowers present above male flowers ..... *tenuifolium*

***Biarum rhopalospadix* K. Koch**

[syn.: *B. spruneri* Boiss.] (Figs. 5:4 & 6)

Spathe limb purplish-maroon to purplish-black within, sometimes greenish at apex. Spadix purple to dull green. Female flowers in a globose cluster; male flowers in a cylindrical zone; sterile flowers (staminodes) absent from zone above male flowers.

South, central and northeastern parts of Ilias. Ravines, stony phrygana, olive groves, limestone and compacted *terra rossa*, 30-1100 m. Flowering in April but has also been observed flowering in October. Endemic to Greece.

***Biarum tenuifolium* (L.) Schott subsp. *tenuifolium***

(Figs. 5:5 & 6)

Spathe limb purple within or sometimes greenish towards apex. Spadix purple, dull green to greenish-yellow. Sterile flowers present both above and below the male zone.

South, central and northeastern parts of Ilias. Rocky and grassy slopes, limestone scree, 200-1452 m. Flowering in autumn, September to October. Balkans and Italy.

*Biarum tenuifolium* is a complex species aggregate with two centres of diversity, one in the West Mediterranean, the other in the East, mainly in the Balkans. It

is divided into six subspecies, four of which occur in Greece (cf. Boyce 2008).

ARISTOLOCHACEAE

***Aristolochia* L.**

Perennial herbs with annual leafy stems. Rootstock present. Leaves cordate. Flowers axillary, zygomorphic, comprising swollen basal utricle, middle tube and terminal limb. Stamens 6, adnate to form gynostemium. Ovary inferior, 6-locular. Fruit a 6-valved septical capsule; seeds numerous.

1. Leaves petiolate. Perianth limb shorter than tube . . . . . *elongata*

- Leaves sessile or subsessile. Perianth limb equalling or longer than tube . . . . . *rotunda*

***Aristolochia elongata* (Duch.) E. Nardi**

(Figs. 7:1 & 8)

Rootstock elongate, oblong-cylindrical, simple or branched. Leaves petiolate, not amplexicaul. Perianth tube gradually broadened towards middle; limb triangular-lanceolate, shorter than tube, striate or tinged purple, greenish or brownish-purple within.

East and southeastern parts of Ilias. Damp places in oak forest, scrub, olive groves, stony and rocky ground, 100-780 m. Flowering April to June. Balkans (Greece and S Albania).

***Aristolochia rotunda* subsp. *insularis* (E. Nardi &**

Arrigoni) Gamisans (Figs. 7:2 & 8)

Rootstock elongate, simple or with fascicles of elongated units. Leaves sessile or subsessile, amplexicaul. Perianth tube straight; limb elliptic-ovate, equalling or longer than tube, striate purple, dark brown within.

Mainly north and central parts of Ilias, more widely distributed than *A. elongata*, and not in southeast where the latter occurs. Phrygana, olive groves, fallow fields, damp sandy and clayey ground, limestone, 25-100 m. Flowering late March to April. Central and East Mediterranean region (Corsica to Greece).

*Aristolochia r.* subsp. *rotunda* with a globose rootstock is apparently restricted to Northeast Greece.

*Aristolochia sempervirens* L. also occurs in northern Ilias but has no conspicuous rootstock. It is an evergreen, woody climber with perennial leafy stems which do not die down in the hot dry months to an underground storage organ.

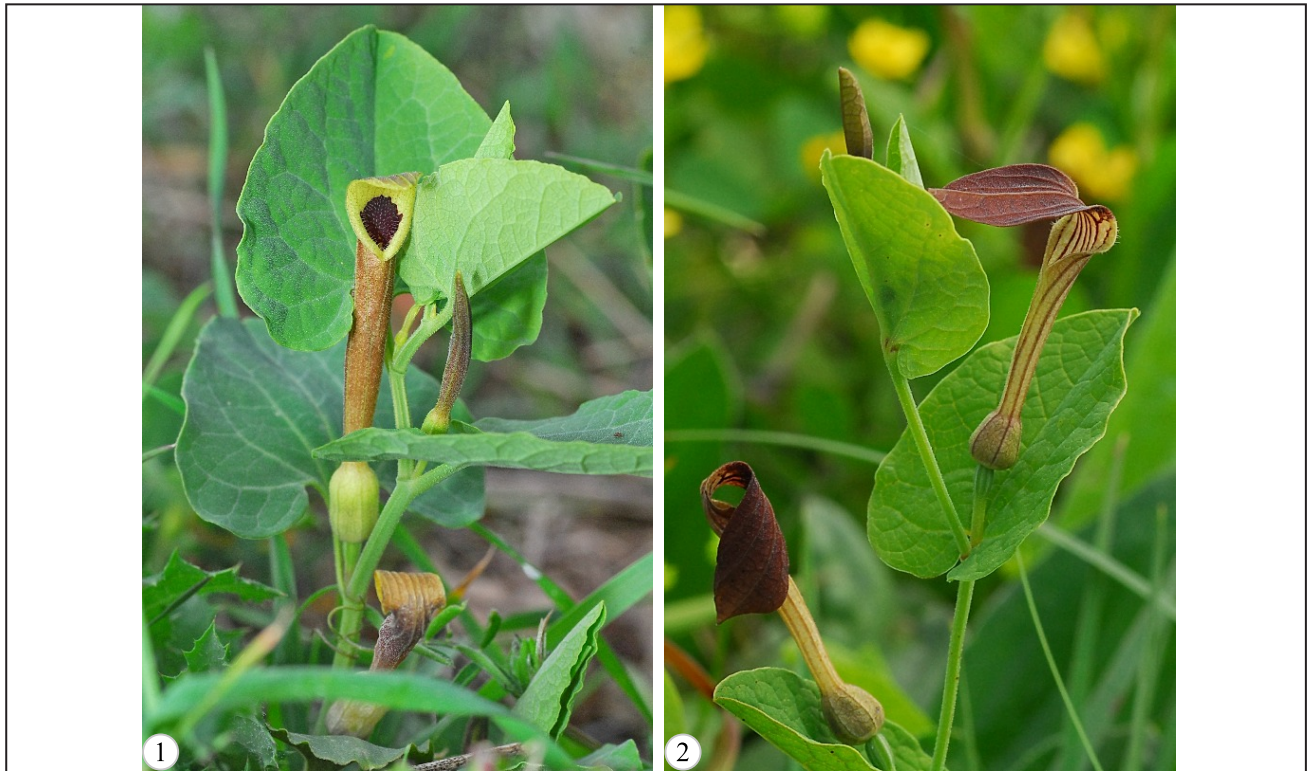


Fig. 7. *Aristolochia* taxa in nomos Ilias: 1, *A. elongata* 2, *A. rotunda* subsp. *insularis*.

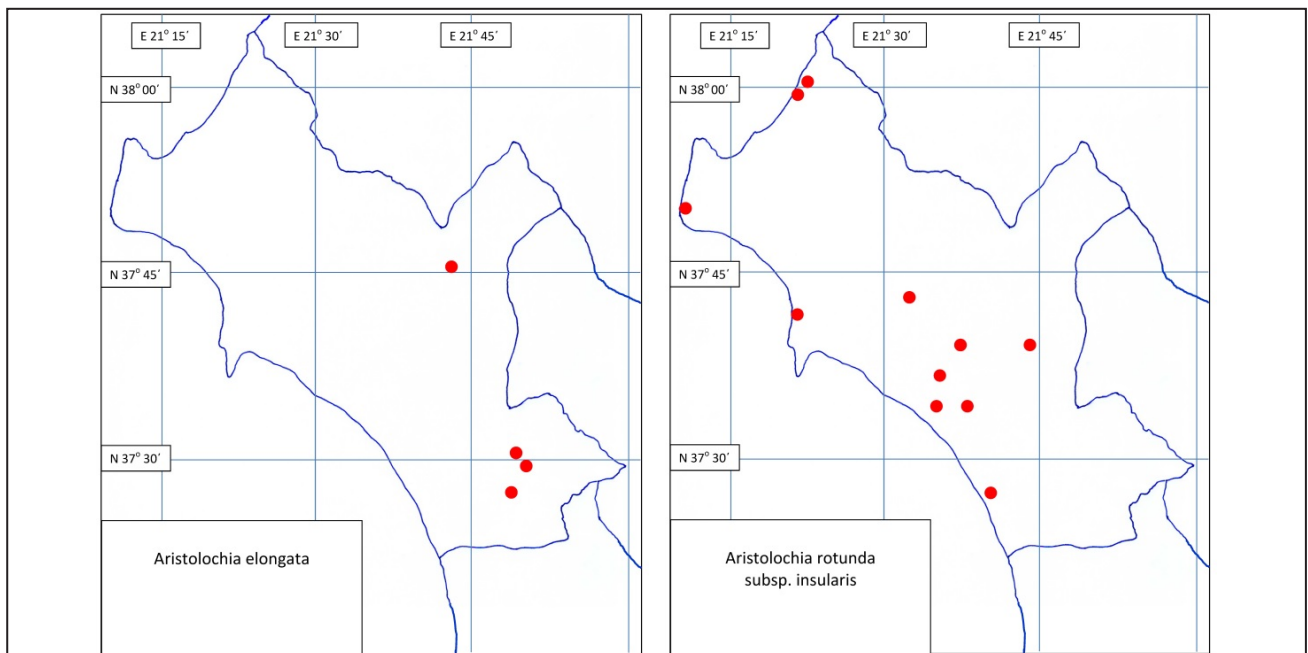


Fig. 8. Distribution of *Aristolochia* in nomos Ilias.

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