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FLORA AND VEGETATION OF THE ISLAND OF KALAMOS (IONIAN SEA, GREECE) – FLORISTIC ANALYSIS AND PHYTOGEOGRAPHICAL ASPECTS

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Abstract

The floristic investigation of the Ionian island of Kalamos resulted in the addition of 275 specific and infraspecific taxa, which are reported here, to a present total of 502 taxa. For each newly recorded taxon local distribution and habitat types are presented. *Convolvulus pentapetaloides* and *Malcolmia graeca* subsp. *hydraea* are reported for the first time from the Ionian islands. Some of the new records concern rare taxa in Greece or regional endemics, which are, therefore, chorologically significant, such as *Alkanna corcyrensis*, *Stachys ionica*, *Heptaptera colladonioides*. A brief description of some of the vegetation types of the island is given. The results of floristic analysis and phytogeographical aspects demonstrate the pronounced Mediterranean character of the island's flora.

Keywords: Ionian islands, biodiversity, phytogeography, native taxa, adventive taxa, Mediterranean.

Izvleček

Na otoku Kalamos smo s floristično raziskavo odkrili 275 novih taksonov na nivoju vrste in nižje ob do sedaj že poznanih 502 taksonih. Za vsak novo odkrit takson predstavljamo lokalno razširjenost in habitatni tip. Taksona *Convolvulus pentapetaloides* in *Malcolmia graeca* subsp. *hydraea* smo na ionskih otokih našli prvič. Nekatere nove najdbe so redki taksoni ali lokalni endemiti, kot so *Alkanna corcyrensis*, *Stachys ionica*, *Heptaptera colladonioides* in so horološko pomembni. Podali smo tudi kratek opis nekaterih vegetacijskih tipov otoka. Rezultati floristične analize in fitogeografskih vidikov kažejo izrazito mediteranski značaj preučevanega rastlinstva.

Ključne besede: ionski otoki, biodiverziteta, fitogeografija, domorodne vrste, tujerodne vrste, Mediteran.

1. INTRODUCTION

The Ionian island of Kalamos has a special phytogeographical position as it is very close to Akarnanian coasts (Sterea Ellas) (Figure 1). Administratively, the island belongs to the prefecture of Levkada. It has a longitudinal shape, covering an area of 25 km^2. The highest peak, on Mt Vouni, reaches an altitude of 745 m. The biggest part of the island is covered by limestones. Old talus cones, scree and marine deposits with thin brackish intercalations occupy a small peripheral zone mainly in the eastern part of the island (IGME 1994). Climatic data are available from the nearby meteorological station of Levkada (38°50'N, 20°43'E, alt. 2 m). According to the climatic diagrams by Emberger (1955, 1959) and Sauvage (1963) the bioclimate of Kalamos is humid with mild winter. The dry period, according to the ombrothermic diagram by Bagnouls & Gaussen (1957), lasts approximately four months, from mid May to mid September. The island's population according to the 2011 census is 496 people, all concentrated in the villages Kalamos and Episkopi. The first results concerning the flora and vegetation of the island were presented in Baliousis & Yannitsaros (2010). Previous floristic information includes five taxa indicated on the dot maps of the two published volumes of "Flora Hellenica" (Strid & Tan 1997, 2002). Including the results of this study the flora of the island comprises now 502 taxa. The present pa-

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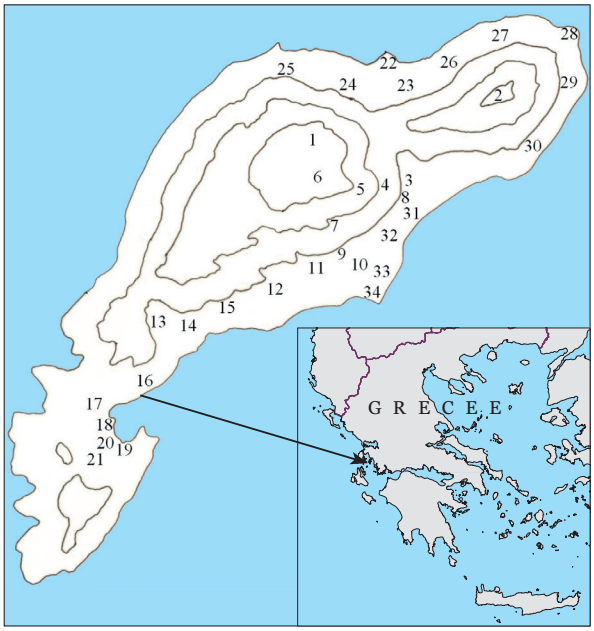

Figure 1: Geographical position of Kalamos in Greece and a map of the island. Numbers indicate the collecting localities referred to in the list of localities and habitats.

Slika 1: Geografski položaj otoka Kalamos v Grčiji in zemljevid otoka. Številke nakazujejo položaj popisnih mest in so enake kot v seznamu lokalitet in habitatov.

per aims to reveal the vascular plant diversity of a small Ionian island, to describe its vegetation pattern and the characteristics of its flora.

2. MATERIAL AND METHODS

The present study is based on collections and field observations made by the author in autumn of 2010 and spring of 2011. All specimens are temporarily kept in his personal herbarium. For identification, Tutin et al. (1968–1980, 1993), Davis (1965–1985), Strid & Tan (1997, 2002) were used. Nomenclature follows mainly Dimopoulos et al. (2013), Strid & Tan (1997, 2002), Greuter et al. (1984, 1986, 1989), Greuter & Raab-Straube (2008), Tutin et al. (1968–1980, 1993) and Davis (1965–1985). The life-form categories follow Raunkiaer (1934). The classification used for the chorological analysis is in accordance with Pignatti (1982), with slight modifications. Additional information concerning the geographical distribution range of several taxa was extracted from Greuter et al. (1984, 1986, 1989), Greuter & Raab-Straube (2008), Davis (1965–1985), Strid & Tan (1997, 2002), Tan & Iatrou (2001), Phitos & Damboldt (1985). Taxa determined only at genus level or with an indeterminate distribution range were excluded from the chorological analysis.

The families, genera, species and subspecies are listed within the major taxonomic groups in alphabetical order. Transliteration of localities is in accordance with "Flora Hellenica" (Strid & Tan 1997, 2002). With a few exceptions, only taxa new for the investigated area appear in the catalogue given below.

List of localities and habitats (Figure 1)

01. Mt Vouni, 745 m.
02. Mt Xilokastro, 677 m.
03. ESE foot of Mt Vouni, close to Agios Georgios chapel, stony slopes with abandoned olive groves, limestone, 100–200 m, 13. 4. 2011.
04. ESE slopes of Mt Vouni, *Quercus coccifera* L. scrub, limestone, 200–350 m, 13. 4. 2011.
05. ESE slopes of Mt Vouni, rocky places with remnants of *Phillyrea latifolia* L., *Quercus coccifera* scrub, limestone, 350–600 m, 13. 4. 2011.
06. Southern parts of summit Vouni, open rocky places, limestone, 600–709 m, 13. 4. 2011.
07. Southern slopes of Mt Vouni – stony-rocky places with phrygana *Salvia fruticosa* Mill. and scattered individuals of *Phillyrea latifolia*, *Quercus coccifera*, *Olea europaea* L. subsp. *europaea*, *Pistacia lentiscus* L., limestone, 200–550 m, 13. 4. 2011.
08. Between Kalamos village and Agios Georgios chapel, road margins and road cuttings, 60–100 m, 13. 4. 2011.
09. Southern foot of Mt Vouni, close to Agios Nikolaos chapel, open rocky slopes with *Salvia fruticosa* and remnants of macchie, limestone, 200–250 m, 14. 11. 2010.
10. c. 0.5 km ESE of Agios Nikolaos chapel – a: olive groves, b: road margins, 80–100 m, 14. 4. 2011.
11. c. 0.3 km WSW of Agios Nikolaos chapel – a: open rocky slopes with *Salvia fruticosa* and sparse *Pistacia lentiscus*, *Olea europaea* subsp. *europaea*, limestone, 100–200 m, 14. 11. 2010; b: margins of a dirt road, 80 m, 14. 4. 2011.
12. Agios Gerasimos chapel, margins of a dirt road, 150 m, 14. 11. 2010, 14. 4. 2011.
13. Between Agios Gerasimos and Kefali settlement – a: macchie with *Phillyrea latifolia*, *Quercus coccifera*, *Pistacia lentiscus*, *Olea europaea* subsp. *europaea* and locally abun-

dant *Arbutus unedo* L., limestone, 0–200 m, 14. 11. 2010, 14. 4. 2011; b: stony openings of macchie, limestone, 0–200 m, 14. 11. 2010.
14. Concrete water tank, 130 m, 14. 11. 2010, 14. 4. 2011.
15. Between concrete water tank and Agios Gerasimos – a: dirt road; b: road cuttings, 100–200 m, 14. 11. 2010, 14. 4. 2011.
16. Between Kefali and concrete water tank – a: dirt road; b: road cuttings 0–100 m, 14. 11. 2010, 14. 4. 2011; c: vertical limestone cliffs, 100 m, 14. 11. 2010.
17. Kefali settlement, terraced olive groves, 5–20 m, 14. 11. 2010, 14. 4. 2011.
18. SSE of Kefali, rocky coast and margins of macchie, 0–2 m, 14. 4. 2011.
19. SSE of Kefali, margins of pebbly beach, 14. 4. 2011.
20. S of Kefali settlement, open scrub with *Phillyrea latifolia*, *Pistacia lentiscus*, *Quercus coccifera*, *Olea europaea* subsp. *europaea*, *Arbutus unedo* and phrygana *Cistus salviifolius* L., limestone, 0–100 m, 14. 4. 2011.
21. S of Kefali – a: vertical limestone cliffs, 100 m, 14. 4. 2011; b: stony-rocky places at the base of limestone cliffs, 80 m, 14. 4. 2011.
22. Port of Episkopi, disturbed places, 0–10 m, 15. 4. 2011.
23. Episkopi – a: road margins; b: abandoned fields and waste ground; c: damp openings of *Cupressus sempervirens* wood; d: stone walls; e: dry stone walls; f: olive groves, 10–150 m, 13. 11. 2010, 15. 4. 2011.
24. Between Episkopi and Katsarou – a: *Pinus halepensis* Mill. wood; b: dirt road on the way to Panagia chapel; c: shady margins of a dirt road; d: limestone boulders; e: shady margins of a scree; f: open macchie in abandoned terraced fields, 100–200 m, 15. 4. 2011; g: macchie with *Quercus ilex*, *Arbutus andrachne*, limestone, 200–500 m, 15. 4. 2011.
25. Locality called Katsarou, 150–200 m.
26. Between Episkopi and Castle – a: mixed forest with *Pinus halepensis*, *Cupressus sempervirens*, 30–80 m, 13. 11. 2010; b: shady road cuttings; c: shady road margins, 60 m, 13. 11. 2010, 15. 4. 2011.
27. Episkopi castle – a: damp-wet places near a spring; b: olive groves; c: road margins; d: ruins of Episkopi castle, 50–100 m, 13. 11. 2010, 15. 4. 2011.
28. Agios Konstandinos chapel, 0 m.
29. Eastern foot of Mt Xilokastro – a: *Pinus halepensis* forest; b: damp shady road margins; c: damp shady road cuttings on the way to Agios Konstandinos chapel; d: mixed macchie with *Quercus ilex*, *Fraxinus ornus*, *Cotinus coggygria*; e: vertical limestone cliffs, 40–200 m, 13. 11. 2010, 15. 4. 2011.
30. Southern foot of Mt Xilokastro, near the locality Kardiako – a: *Pinus halepensis* forest, 0–150 m, 13. 11. 2010; b: road margins, 60–100 m, 15. 4. 2011; c: steep rocky slopes with sparse *Pinus halepensis* wood, limestone, 100–200 m, 13. 11. 2010.
31. On the way to Mirtia beach – a: dirt road and paths; b: road cuttings, 0–40 m, 12. 4. 2011.
32. Between Kalamos village and the crossroad to Mirtia beach, road margins, 50 m, 12. 4. 2011.
33. Kalamos village – a: street margins and disturbed places; b: olive groves; c: weeds of gardens; d: stone walls; e: dry stone walls, 0–50 m, 12. 11. 2010, 15. 11. 2010, 11. 4. 2011, 16. 4. 2011.
34. Agrapidia – a; seasonally flooded fallow fields; b: margins of pebbly beach, 0 m, 12. 11. 2010, 16. 4. 2011.

Collecting dates

12. 11. 2010 (Bal. 5010–5014)
13. 11. 2010 (Bal. 5015–5045)
14. 11. 2010 (Bal. 5046–5062)
15. 11. 2010 (Bal. 5063–5067)
11. 14. 2011 (Bal. 5072–5081)
12. 14. 2011 (Bal. 5082–5134)
13. 14. 2011 (Bal. 5135–5265)
14. 14. 2011 (Bal. 5266–5372)
15. 14. 2011 (Bal. 5373–5502)
16. 14. 2011 (Bal. 5503–5531)

3. RESULTS

List of taxa

The following abbreviations are used: *Bal.* = E. Baliousis; *obs.* = field observation; *phot.* = photograph. Names of taxa not native to the investigated area are set in square brackets.

PTERIDOPHYTA

Aspleniaceae

Asplenium onopteris L. – 29c, *Bal. 5023;* 24g, *Bal. 5383.*

Dennstaedtiaceae

Pteridium aquilinum (L.) Kuhn subsp. *aquilinum* – 26b, *Bal. 5038.*

Dryopteridaceae

Dryopteris pallida (Bory) Maire & Petitm. subsp. *pallida* – 29d, *Bal. 5022.*

Pteridaceae

Adiantum capillus-veneris L. – 27a, *Bal. 5037.*
Anogramma leptophylla (L.) Link – 23d, 24d, *Bal. 5397.*

SPERMATOPHYTA

Gymnospermae

Cupressaceae

Cupressus sempervirens L. f. *horizontalis* (Mill.) Voss – 26a, *Bal. obs.*
Juniperus phoenicea L. – 20, *Bal. obs.*

Ephedraceae

Ephedra foeminea Forssk. – 6, *Bal. 5180.*

Angiospermae – Dicotyledones

Aizoaceae

[*Carpobrotus edulis* (L.) N.E.Br.] – 33a, *Bal. obs.*

Anacardiaceae

Cotinus coggygria Scop. – 29d, *Bal. 5031;* 24g, *Bal. obs.*

Apiaceae

Anthriscus tenerrimus Boiss. & Spruner – 6, *Bal. 5159;* 29b, *Bal. 5494.*
Daucus involucratus Sm. – 5, 6, *Bal. 5167;* 16b *Bal. 5370.*
Helosciadium nodiflorum (L.) W.D.J. Koch – 27a, *Bal. 5492.*
Heptaptera colladonioides Margot & Reut. – 18, *Bal. 5297.*
Malabaila aurea (Sm.) Boiss. – 7, *Bal. 5228.*
Orlaya daucoides (L.) Greuter – 5, *Bal. 5197.*
Scandix pecten-veneris L. – 3, 4, 5, *Bal. 5192.*
Tordylium apulum L. – 3, 5, 7, 8, *Bal. 5158.*
Tordylium officinale L. – 3, 7, *Bal. 5252;* 17, *Bal. 5329.*
Torilis africana Spreng. – 31a, *Bal. 5130;* 5, *Bal. 5209;* 21b, *Bal. 5361.*
Torilis nodosa (L.) Gaertn. – 17, *Bal. 5320.*
Torilis pseudonodosa Bianca – 21b, *Bal. 5362;* 23a, *Bal. 5450.*

Aristolochiaceae

Aristolochia elongata (Duch.) E. Nardi – 5, 6, *Bal. 5160.*

Asteraceae

Aetheorhiza bulbosa (L.) Cass. subsp. *microcephala* Rech. f. – 18, *Bal. 5288.*
Anthemis chia L. – 31a, *Bal. 5120;* 6, 7, *Bal. 5166.*
Anthemis arvensis L. s.l. – 17, *Bal. 5333.*
Bellis perennis L. – 17, *Bal. 5348.*
Bellis sylvestris Cirillo – 29a, *Bal. 5020;* 23c, *Bal. 5043;* 12, *Bal. 5054.*
Calendula arvensis (Vaill.) L. – 33b, *Bal. 5011;* 15a, *Bal. 5057.*
Crepis fraasii Sch. Bip. s.l. – 4, 5, *Bal. 5195;* 20, *Bal. 5290;* 26a, b, *Bal. 5489.*
Crepis neglecta L. subsp. *neglecta* – 16a, *Bal. 5283;* 23b, *Bal. 5451.*
Crepis rubra L. – 30b, *Bal. 5495.*
Crepis sancta (L.) Bornm. – 5, *Bal. 5156.*
Crupina crupinastrum (Moris) Vis. – 5, 7, *Bal. 5147.*
[*Erigeron sumatrensis* Retz.] – 27c, *Bal. 5036.*
Filago aegaea Wagenitz subsp. *aristata* Wagenitz – 7, *Bal. 5155.* – The finding of this taxon in the island of Kalamos and recent data from the Greek mainland (Baliousis & Yannitsaros 2011) suggest that it has a more widespread distribution, especially in the area between Aegean and Ionian Sea. It is very likely that the taxon is present at least in the mainland opposite the island of Kalamos.
Filago pygmaea L. – 15a, 16a, 17, *Bal. 5311;* 22, *Bal. 5463.*
Hyoseris scabra L. – 17, 19a, *Bal. 5304.*
Leontodon tuberosus L. – 33b, 34a, *Bal. 5012;* 12, 17, *Bal. 5055.*
Matricaria chamomilla L. – 33a, *Bal. 5075.*
Rhagadiolus stellatus (L.) Gaertn. – 7, *Bal. 5232;* 33b, *Bal. 5080;* 23f, *Bal. 5449.* – The last two specimens were initially determined as *Rhagadiolus edulis* Gaertn. which according to Dimopoulos et al. (2013) is a synonym.
Senecio vernalis Waldst. & Kit. – 7, *Bal. 5185;* 12, *Bal. 5269;* 33a, *Bal. obs.*

Boraginaceae

Alkanna corcyrensis Hayek – 6, 7, *Bal. 5142.*
Anchusa undulata L. subsp. *hybrida* (Ten.) Bég. – 22, *Bal. 5455.*

Anchusella cretica (Mill.) Bigazzi, E. Nardi & Selvi – 23a, f, *Bal. 5435.*
Anchusella variegata (L.) Bigazzi, E. Nardi & Selvi – 4, 5, 6, 7, *Bal. 5143;* 34b, *Bal. 5521.*
Borago officinalis L. – 23a, f, *Bal. 5475;* 33a, b, *Bal. obs.*
Cerinthe major L. subsp. *major* – 23a, *Bal. 5427.*
Cerinthe retorta Sm. – 33b, c, *Bal. 5081.*
Cynoglossum columnae Ten. – 23b, *Bal. 5465.*
Cynoglossum creticum Mill. – 23a, f, *Bal. 5443;* 33a, b, *Bal. obs.*
Echium italicum L. subsp. *biebersteinii* (Lacaita) Greuter & Burdet – 23a, *Bal. obs.*
Myosotis ramosissima Rochel subsp. *ramosissima* – 17, *Bal. 5317;* 23c, 24c, *Bal. 5394.*
Neatostema apulum (L.) I.M. Johnst. – 15a, 16a, *Bal. 5284.*

Brassicaceae
Arabis collina Ten. (Strid & Tan 2002, dot maps).
Arabis verna (L.) R. Br. – 23d, 24c, d, *Bal. 5402.* (Strid & Tan 2002, dot maps).
Biscutella didyma L. – 8, *Bal. 5262.*
Bunias erucago L. – 11b, *Bal. 5268.*
Capsella bursa-pastoris (L.) Medik. – 10b, 11b, *Bal. 5270.*
Capsella grandiflora (Fauché & Chaub.) Boiss. – 33a, *Bal. 5073;* 34a, *Bal. 5531;* 23a, *Bal. obs.*
Cardamine graeca L. – 24e, *Bal. 5418.*
Cardamine hirsuta L. – 23d, *Bal. 5414a;* 27a, *Bal. 5414b.*
Clypeola jonthlaspi L. s.l. – 5, *Bal. 5201.*
Diplotaxis viminea (L.) DC. – 16a, *Bal. 5060.* (Strid & Tan 2002, dot maps).
Draba praecox Steven (Strid & Tan 2002, dot maps).
Hirschfeldia incana (L.) Lagr.-Foss. – 31a, *Bal. 5132;* 33a, *Bal. obs.*
Lepidium coronopus (L.) Al-Shehbaz (Strid & Tan 2002, dot maps).
Lepidium graminifolium L. – 33a, *Bal. 5013.*
Malcolmia graeca Boiss. & Spruner subsp. *hydraea* (Heldr. & Halácsy) Stork – 6, 7, *Bal. 5173.* – To my knowledge this is the first record of this taxon from the Ionian islands.
Malcolmia maritima (L.) R. Br. – 17, *Bal. 5340;* 22, *Bal. 5422;* 34b, *Bal. 5519.*
Raphanus raphanistrum L. subsp. *raphanistrum* – 33a, *Bal. 5074.*

Caesalpiniaceae
Cercis siliquastrum L. subsp. *siliquastrum* – 30a, *Bal. obs.*

Campanulaceae
Campanula drabifolia Sm. – 6, *Bal. 5219;* 16b, 21a, *Bal. 5351;* 23d, *Bal. 5413;* 30b, *Bal. 5496b.*
Campanula erinus L. – 33d, *Bal. 5510.*
Campanula ramosissima Sm. – 10b, *Bal. 5280;* 23a, d, *Bal. 5412;* 30b, *Bal. 5496a.*
Campanula spatulata Sm. subsp. *spruneriana* (Hampe) Hayek – 26b, *Bal. 5487.*
Legousia speculum-veneris (L.) Chaix – 11b, *Bal. 5267;* 23a, *Bal. 5433.*

Caprifoliaceae
Lonicera etrusca Santi – 6*, Bal. 5136.*

Caryophyllaceae
Arenaria leptoclados (Rchb.) Guss. – 8, *Bal. 5263;* 17, *Bal. 5339;* 21a, *Bal. 5354;* 23d, *Bal. 5409.*
Cerastium brachypetalum Pers. subsp. *roeseri* (Boiss. & Heldr.) Nyman – 7, *Bal. 5152;* 6, *Bal. 5177.*
Cerastium brachypetalum Pers. subsp. *tenoreanum* (Ser.) Soó – 23d, *Bal. 5411.*
Cerastium glomeratum Thuill. – 17, *Bal. 5337;* 22, *Bal. 5454;* 23a, *Bal. 5472.*
Petrorhagia dubia (Raf.) G. López & Romo – 23a, 30b, *Bal. 5441.*
Sagina apetala Ard. – 22, *Bal. 5419b.*
Sagina maritima G. Don – 22, *Bal. 5419a.*
Saponaria calabrica Guss. – 31b, *Bal. 5122;* 5, 6, 7, *Bal. 5145.*
Stellaria cupaniana Jord. & Fourr. – 33a, *Bal. 5072a;* 17, *Bal. 5367.*
Stellaria media (L.) Vill. – 33a, *Bal. 5072a;* 33d, *Bal. 5515.*

Cistaceae
Cistus creticus L. subsp. *creticus* – 13b, *Bal. 5322.*
Cistus creticus L. subsp. *eriocephalus* (Viv.) Greuter & Burdet – 7, *Bal. s.n.*
Helianthemum nummularium (L.) Mill. subsp. *nummularium* – 5, 6, 7, *Bal. 5176.*

Convolvulaceae
Convolvulus cantabrica L. – 5, *Bal. 5198.*
Convolvulus elegantissimus Mill. – 31a, *Bal. 5123;* 6, *Bal. 5215.*
Convolvulus pentapetaloides L. – 15a, *Bal. 5371.* – To my knowledge this is the first report of this species from the Ionian islands.
Convolvulus siculus L. subsp. *siculus* – 21b, *Bal. obs.*
Cuscuta palaestina Boiss. subsp. *palaestina* – 5, *Bal. 5196;* 17, *Bal. 5342.*

Crassulaceae

Phedimus stellatus (L.) Raf. – 23d, *Bal. 5416.*

Sedum litoreum Guss. – 7, *Bal. 5184;* 18, *Bal. 5266;* 21a, *Bal. 5352;* 23d, *Bal. 5410;* 22, *Bal. 5468;* 33d, *Bal. 5511.*

Sedum sp. – 6, *Bal. 5171* (non-flowering).

Umbilicus chloranthus Heldr. & Sartori ex Boiss. – 6, *Bal. 5181;* 21a, *Bal. 5357;* 24d, *Bal. 5396;* 23e, *Bal. 5431.*

Dipsacaceae

Knautia integrifolia (L.) Bertol. subsp. *integrifolia* – 23a, f, *Bal. 5444;* 33a, b, *Bal. 5513.*

Ericaceae

Arbutus andrachne L. – 5, *Bal. obs.;* 24g, *Bal. obs.*

Euphorbiaceae

Euphorbia dendroides L. – 30c, *Bal. 5018;* 16c, *Bal. obs.*

Euphorbia helioscopia L. – 17, *Bal. 5335a;* 23a, b, *Bal. 5471.*

Euphorbia peplus L. – 15a, *Bal. 5056;* 17, *Bal. 5335b.*

Euphorbia taurinensis All. – 7, *Bal. 5251;* 19a, *Bal. 5293.*

Fabaceae

Anthyllis vulneraria L. subsp. *rubriflora* (DC.) Arcang. – 5, *Bal. 5208.*

Astragalus hamosus L. – 31a, *Bal. 5103;* 15a, 16a, 17, *Bal. obs.*

Astragalus pelecinus (L.) Barneby – 8, *Bal. 5258;* 17, *Bal. 5325.*

Coronilla scorpioides (L.) W.D.J. Koch – 5, *Bal. obs.;* 31a, *Bal. 5089.*

Dorycnium hirsutum (L.) Ser. – 4, *Bal. 5211.*

Hippocrepis biflora Spreng. – 31a, *Bal. 5104;* 17, *Bal. 5347;* 22, *Bal. 5458.*

Hippocrepis emerus (L.) Lassen subsp. *emeroides* (Boiss. & Spruner) Greuter & Burdet ex Lassen – 29d, *Bal. 5028;* 24a, g, *Bal. 5390.*

Hymenocarpos circinnatus (L.) Savi – 3, *Bal. 5239.*

Lathyrus aphaca L. – 3, 7, *Bal. 5244.*

Lathyrus cicera L. – 3, *Bal. 5224.*

Lathyrus digitatus (M. Bieb.) Fiori – 10a, *Bal. 5273.*

Lathyrus saxatilis (Vent.) Vis. – 31a, *Bal. 5100;* 4, 7, *Bal. 5140;* 21a, *Bal. 5353.*

Lathyrus setifolius L. – 3, *Bal. 5247.*

Lathyrus sphaericus Retz. – 3, 7, *Bal. 5236.*

Lens ervoides (Brign.) Grande – 5, *Bal. 5206.*

Lotus edulis L. – 31a, *Bal. 5116;* 3, *Bal. obs.*

Lotus longisiliquosus R. Roem. – 31a, 32, *Bal. 5084;* 3, 6, 7, *Bal. 5216.*

Medicago arabica (L.) Huds. – 23a, *Bal. 5480.*

Medicago coronata (L.) Bartal. – 3, *Bal. 5249.*

Medicago disciformis DC. – 31a, *Bal. 5106;* 3, 5, 7, *Bal. 5204.*

Medicago monspeliaca (L.) Trautv. – 31a, *Bal. 5110.*

Medicago orbicularis (L.) Bartal. – 31a, *Bal. 5107.*

Medicago polymorpha L. – 31a, *Bal. 5108;* 22, 23a, *Bal. 5459;* 33a, *Bal. obs.*

Medicago truncatula Gaertn. – 31a, *Bal. 5114;* 22, *Bal. 5424.*

Melilotus graecus (Boiss. & Spruner) Lassen – 5, 7, *Bal. 5200.*

Ononis reclinata L. – 31a, 32, *Bal. 5112;* 3, *Bal. 5250.*

Scorpiurus muricatus L. – 31a, 32, *Bal. 5111;* 5, 6, 7, *Bal. 5226.*

Securigera securidaca (L.) Degen & Dörfl. – 31a, 32, *Bal. 5088.*

Tetragonolobus purpureus Moench – 31a, *Bal. 5085;* 3, *Bal. 5248;* 17, *Bal. obs.*

Trifolium angustifolium L. – 31a, *Bal. 5091.*

Trifolium boissieri Guss. – 31a, *Bal. 5097;* 8, *Bal. 5260.*

Trifolium campestre Schreb. – 31a, *Bal. 5096;* 3, *Bal. 5245;* 17, *Bal. obs.*

Trifolium cherleri L. – 31a, *Bal. 5090b.*

Trifolium dalmaticum Vis. – 31a, *Bal. 5090a;* 3, *Bal. 5230b;* 7, *Bal. 5237;* 17, 18, *Bal. 5286.*

Trifolium infamia-ponertii Greuter – 3, *Bal. 5238b;* 8, *Bal. 5261;* 17, *Bal. 5338.*

Trifolium lucanicum Guss. – 31a, *Bal. 5092.*

Trifolium nigrescens Viv. – 31a, *Bal. 5094;* 23a, b, f, *Bal. 5445;* 17, 33b, *Bal. obs.*

Trifolium physodes M. Bieb. – 32, *Bal. 5093;* 7, *Bal. 5233;* 17, *Bal. 5314.*

Trifolium resupinatum L. subsp. *resupinatum* – 32, *Bal. 5098.*

Trifolium scabrum L. – 17, *Bal. 5318.*

Trifolium stellatum L. – 3, 7, *Bal. 5238a;* 30b, *Bal. 5497b.* – This taxon frequently coexist with *T. xanthinum* which is distinguished by its later flowering period its robust habit and the colour of corolla. Locally they were collected specimens with intermediate features, they are exactly like *T. xanthinum* but the colour of corolla is not yellow (*Bal. 5497b*).

Trifolium subterraneum L. – 17, *Bal. 5365.*

Trifolium tomentosum L. – 31a, *Bal. 5095;* 22, 23a, *Bal. 5467.*

Trifolium xanthinum Freyn – 31a, *Bal. 5113;* 3, *Bal. 5230a;* 24b, *Bal. 5404;* 30b, *Bal. 5497a.*

Trigonella corniculata (L.) L. subsp. *balansae* (Boiss. & Reut.) Lassen – 23a, f, *Bal. 5473.*

Tripodion tetraphyllum (L.) Fourr. – 31a, *Bal. 5105;* 3, *Bal. 5242;* 8, *Bal. obs.*

Vicia angustifolia L. – 31a, *Bal. 5101;* 3, *Bal. 5243;* 19a, *Bal. 5299;* 23f, 26c, *Bal. 5436.*
Vicia lutea L. subsp. *lutea* – 27b, c, *Bal. 5491.*
Vicia parviflora Cav. – 5, *Bal. 5205.*
Vicia pubescens (DC.) Link – 19a, *Bal. 5308;* 30b, *Bal. 5429;* 26b, c, *Bal. 5485.*
Vicia villosa Roth subsp. *varia* (Host) Corb. – 31a, *Bal. 5099;* 17, 27b, 33b, *Bal. obs.;* 3, *Bal. 5199;* 23a, b, f, *Bal. 5474.*

Fagaceae
Quercus ilex L. – 29d, *Bal. 5027;* 24g, *Bal. obs.*
Quercus pubescens Willd. – 26a, *Bal. 5040.*

Fumariaceae
Fumaria capreolata L. – 23f, *Bal. 5437;* 33b, *Bal. obs.*
Fumaria officinalis L. subsp. *officinalis* – 11b, *Bal. 5279.*

Gentianaceae
Centaurium pulchellum (Sw.) Druce – 19, *Bal. 5302.*

Geraniaceae
Erodium cicutarium (L.) L'Hér. – 17, *Bal. 5331.*
Erodium malacoides (L.) L'Hér. – 17, *Bal. 5330;* 33b, c, *Bal. obs.*
Geranium columbinum L. – 24c, f, *Bal. 5384.*
Geranium molle L. – 19a, *Bal. 5305;* 23a, *Bal. 5434.*
Geranium purpureum Vill. – 31a, 32, *Bal. 5118;* 3, 4, 5, 6, 7, *Bal. 5207;* 33b, *Bal. obs.;* 24e, *Bal. 5417.*
Geranium rotundifolium L. – 31a, *Bal. 5128;* 5, *Bal. 5203;* 21b, *Bal. 5358.*

Lamiaceae
Ajuga chamaepitys (L.) Schreb. subsp. *chia* (Schreb.) Arcang. – 5, *Bal. 5214;* 15b, *Bal. 5271.*
Ajuga iva (L.) Schreb. – 16a, *Bal. 5059.*
Lamium amplexicaule L. – 33a, *Bal. obs.*
Salvia verbenaca L. – 16a, *Bal. 5061.*
Stachys ionica Halácsy – 16b, 21a, *Bal. 5350.*
Stachys spinulosa Sm. – 23f, *Bal. 5460;* 33a, *Bal. obs.*

Lauraceae
Laurus nobilis L. – 29a, *Bal. 5029;* 24g, *Bal. 5387.*

Linaceae
Linum corymbulosum Rchb. – 5, 7, *Bal. 5146.*

Malvaceae
Malva cretica Cav. – 3, 4, 7, *Bal. 5148;* 30b, *Bal. obs.*
Malva multiflora (Cav.) Soldano, Banfi & Galasso – 33b, *Bal. 5076;* 22, *Bal. 5453.*

Oleaceae
Fraxinus ornus L. – 29d, *Bal. phot.;* 24a, g, *Bal. 5382.*

Orobanchaceae
Bellardia latifolia (L.) Cuatrec. subsp. *latifolia* – 8, *Bal. 5255.*
Orobanche alba Willd. – 30b, *Bal. 5500*, parasitizing on *Thymbra capitata* (L.) Cav.
Orobanche minor Sm. – 6, *Bal. 5172;* 7, *Bal. 5182;* 17, *Bal. 5312.*
Orobanche pubescens d'Urv. – 26b, *Bal. 5488.*
Phelipanche nana (Reut.) Soják – 17, *Bal. 5313.*

Oxalidaceae
Oxalis corniculata L. – 33c, *Bal. 5063.*
[*Oxalis pes-caprae* L.] – 27b, 33c, *Bal. phot.*

Papaveraceae
Papaver apulum Ten. – 15a, 16a, *Bal. 5277;* 30b, *Bal. 5501.*

Plantaginaceae
Plantago bellardii All. subsp. *bellardii* – 7, *Bal. 5234;* 17, *Bal. 5324.*
Plantago coronopus L. – 31a, *Bal. 5124.*
Plantago lagopus L. subsp. *lagopus* – 17, *Bal. 5316.*
Plantago lanceolata L. – 33a, *Bal. 5134.*

Polygalaceae
Polygala monspeliaca L. – 17, *Bal. 5343;* 22, *Bal. 5456.*

Primulaceae
Cyclamen hederifolium Aiton s.l. – 26a, 29a, d, 30a, c, *Bal. 5017;* 13a, b, 33b, *Bal. obs.*

Ranunculaceae
Anemone pavonina Lam. – 29a, *Bal. 5021;* 24f, 26c, *Bal. 5400.*
Ficaria verna Huds. s.l. – 34a, *Bal. 5014* (non-flowering).
Nigella damascena L. – 32, *Bal. 5133.*
Ranunculus chius DC. – 17, *Bal. 5315;* 24f, *Bal. 5403.*
Ranunculus gracilis E.D. Clarke – 17, *Bal. 5346.*
Ranunculus muricatus L. – 33a, *Bal. 5518.*
Ranunculus neapolitanus Ten. – 17, *Bal. 5349;* 23c, *Bal. 5446;* 27a, *Bal. 5490.*
Ranunculus paludosus Poir. – 23c, *Bal. 5033* (non-flowering).
Ranunculus sardous Crantz – 31a, *Bal. 5131;* 19, *Bal. 5303;* 34a, *Bal. 5525.*
Ranunculus sprunerianus Boiss. – 5, 6, 7, *Bal. 5225.*

Rosaceae
Aphanes arvensis L. – 24b, *Bal. 5408.*
Crataegus monogyna Jacq. var. *lasiocarpa* (Lange) K.I. Chr. – 24a, *Bal. 5389.*
Pyrus spinosa Forssk. – 10a, 32, *Bal. obs.*
Sanguisorba minor Scop. subsp. *balearica* (Nyman) Muños Garm. & C. Navarro – 30b, *Bal. 5499.*
Sarcopoterium spinosum (L.) Spach – 23c, *Bal. obs.;* 19, *Bal. 5301.*

Rubiaceae
Crucianella latifolia L. – 5, 7, *Bal. 5202.*
Galium aparine L. – 23a, *Bal. 5438.*
Galium spurium L. – 6, 7, *Bal. 5178.*
Rubia peregrina L. – 26b, *Bal. 5486.*
Theligonum cynocrambe L. – 15b, *Bal. 5058;* 6, *Bal. 5218.*
Valantia muralis L. – 5, 7, *Bal. 5168;* 18, 19a, *Bal. 5295.*

Saxifragaceae
Saxifraga hederacea L. – 24d, *Bal. 5395.*
Saxifraga tridactylites L. – 23d, *Bal. 5415.*

Solanaceae
[*Lycopersicon esculentum* Mill.] – 33a, *Bal. obs.*

Urticaceae
Parietaria lusitanica L. – 19a, *Bal. 5309;* 33d, *Bal. 5512.*

Valerianaceae
Valeriana italica Lam. – 6, *Bal. 5188;* 24d, *Bal. 5399.*
Valerianella discoidea (L.) Loisel. – 31a, *Bal. 5121;* 3, *Bal. 5235;* 8, *Bal. 5257;* 17, *Bal. 5334;* 16a, *Bal. 5368.*
Valerianella echinata (L.) DC. – 5, 7, *Bal. 5149.*
Valerianella muricata (Steven ex Roem. & Schult.) W.H. Baxter – 19a, *Bal. 5307;* 17, *Bal. 5332.*

Veronicaceae
Digitalis laevigata Waldst. & Kit. subsp. *graeca* (Ivanina) H. Werner – 26c, 29b, *Bal. 5024.*
Veronica arvensis L. – 17, *Bal. 5328;* 23a, *Bal. 5428;* 33d, *Bal. obs.*
Veronica cymbalaria Bodard – 6, *Bal. 5162;* 24d, *Bal. 5406a;* 23d, *Bal. 5406b;* 24e, *Bal. 5406c;* 23e, *Bal. 5481;* 33d, *Bal. 5514.*
Veronica glauca Sm. subsp. *peloponnesiaca* (Boiss. & Orph.) Maire & Petitm. – 3, 4, 5, *Bal. 5190;* 26b, *Bal. 5484.*

Angiospermae – Monocotyledones

Alliaceae
Allium subhirsutum L. – 4, 5, *Bal. 5193.*
Allium trifoliatum Cirillo – 23b, *Bal. 5477.*

Amaryllidaceae
Sternbergia lutea (L.) Ker-Gawl. ex Spreng. subsp. *lutea* – 6, *Bal. 5164* (non-flowering).

Araceae
Arisarum vulgare O. Targ. Tozz. subsp. *vulgare* – 30a, c, *Bal. 5019;* 11a, 13a, b, 33b, *Bal. obs.;* 4, 7, *Bal. 5139.*
Arum italicum Mill. subsp. *italicum* – 27b, *Bal. 5502;* 33b, *Bal. obs.*

Asphodelaceae
Asphodeline sp. – 6, *Bal. 5165* (only leaves).
Asphodelus fistulosus L. – 34b, *Bal. 5522.*

Colchicaceae
Colchicum cupanii Guss. s.l. – 30c, *Bal. 5016;* 11a, 13b, *Bal. 5051.*

Cyperaceae
Carex divisa Huds. – 34a, *Bal. 5527.*
Carex flacca Schreb. subsp. *serrulata* (Spreng.) Greuter – 5, *Bal. 5213;* 17, *Bal. 5345;* 23c, *Bal. 5448;* 34a, *Bal. 5529.*
Carex halleriana Asso – 4, *Bal. 5210;* 18, *Bal. 5296.*
Carex otrubae Podp. – 34a, *Bal. 5526.*
Cyperus rotundus L. – 23b, *Bal. 5045.*

Hyacinthaceae
Bellevalia dubia (Guss.) Schult. & Schult. f. subsp. *boissieri* (Freyn) Feinbrun – 5, 6, *Bal. 5169.*
Bellevalia hyacinthoides (Bertol.) K.M. Perss. & Wendelbo – 7, *Bal. 5137* (only fruits).
Muscari comosum (L.) Mill. – 3, 5, 7, *Bal. 5163;* 33b, *Bal. obs.*
Muscari neglectum Guss. ex Ten. – 5, *Bal. 5175.*
Ornithogalum collinum Guss. s.l. – 19a, *Bal. 5298;* 24b, *Bal. 5398;* 22, *Bal. 5461;* 27c, *Bal. 5493.*
Ornithogalum montanum Cirillo – 6, *Bal. 5161;* 17, 18, *Bal. 5287.*
Ornithogalum narbonense L. – 21b, *Bal. 5355.*
Prospero autumnale (L.) Speta – 11a, 13b, *Bal. 5052.*

Iridaceae
Chasmanthe aethiopica (L.) N.E. Br.] – 33a, *Bal. phot.* – This species has also been reported as adventive from the nearby Ionian island of Kastos (Chousou-Polydouri & Yannitsaros 2005).

Crocus cancellatus Herb. subsp. *mazziaricus* (Herb.) B. Mathew – 30a, c, *Bal. 5015;* 11a, 13b, *Bal. 5049;* 5, *Bal. 5227.*
Gladiolus italicus Mill. – 23b, *Bal. 5478.*
[*Iris albicans* Lange] – 23f, *Bal. 5439.*
[*Iris germanica* L.] – 23f, *Bal. 5442.*
Moraea sisyrinchium (L.) Ker-Gawl. – 33a, 34a, *Bal. 5524.*
Romulea sp. – 31a, *Bal. 5083;* 19a, *Bal. 5306;* 22, *Bal. 5462.*

Juncaceae
Juncus bufonius L. – 24b, *Bal. 5407;* 23a, *Bal. 5469;* 34a, *Bal. 5528.*

Liliaceae
Gagea graeca (L.) Irmisch – 4, 5, *Bal. 5223.*

Orchidaceae
Ophrys ferrum-equinum Desf. subsp. *ferrum-equinum* – 7, *Bal. 5151;* 24f, *Bal. 5391.*
Ophrys fusca Link subsp. *fusca* – 24f, *Bal. 5385.*
Ophrys lutea Cav. subsp. *galilaea* (H. Fleischm. & Bornm.) Soó – 17, *Bal. 5341.*
Ophrys scolopax Cav. subsp. *cornuta* (Steven) E.G. Camus – 23c, *Bal. 5447.*
Orchis italica Poir. – 7, *Bal. 5150.*
Orchis pauciflora Ten. – 5, *Bal. 5174.*
Orchis quadripunctata Cirillo ex Ten. – 5, 7, *Bal. 5220;* 24f, *Bal. 5386.*

Poaceae
Aira elegantissima Schur – 17, *Bal. 5327.*
Avena barbata Pott ex Link subsp. *barbata* – 17, *Bal. 5344;* 23b, *Bal. 5464;* 33b, *Bal. obs.*
Brachypodium retusum (Pers.) P. Beauv. – 13a, *Bal. obs.;* 29a, *Bal. obs.*
Bromus alopecuros Poir. s.l. – 17, *Bal. 5366;* 23a, *Bal. 5466;* 33a, *Bal. 5520.*
Bromus fasciculatus C. Presl – 17, *Bal. 5326.*
Catapodium marinum (L.) C.E. Hubb. – 18, 19a, *Bal. 5294.*
Cynosurus effusus Link – 24c, f, *Bal. 5405.*
Hordeum murinum L. subsp. *leporinum* (Link) Arcang. – 15a, 16a, *Bal. 5364;* 23b, *Bal. 5452;* 33b, *Bal. obs.*
Lolium rigidum Gaudin subsp. *rigidum* – 31a, *Bal. 5119;* 5, *Bal. 5194;* 18, 19a, *Bal. 5300.*
Parapholis incurva (L.) C.E. Hubb. – 15a, *Bal. 5274;* 18, *Bal. 5291;* 22, *Bal. 5420.*
Poa annua L. – 16a, *Bal. 5281a.*
Poa bulbosa L. s.l. – 5, 6, *Bal. 5179;* 16a, *Bal. 5281b;* 19a, *Bal. 5310;* 24f, *Bal. 5426.*
Poa trivialis L. subsp. *sylvicola* (Guss.) H. Lindb. – 22, *Bal. 5423;* 24f, *Bal. 5430;* 34a, *Bal. 5530.*
Psilurus incurvus (Gouan) Schinz & Thell. – 16a, *Bal. 5369.*
Rostraria cristata (L.) Tzvelev – 15a, *Bal. 5276.*
Stipa capensis Thunb. – 15a, *Bal. 5275.*
Vulpia ciliata Dumort. subsp. *ciliata* – 16a, *Bal. 5282b;* 23a, *Bal. 5432.*
Vulpia myuros (L.) C.C. Gmel. – 16a, *Bal. 5282a.*

Vegetation

The basic vegetation type of the WSW parts of the island, from Agios Gerasimos to Kefali is macchie with *Phillyrea latifolia*, *Quercus coccifera*, *Pistacia lentiscus*, *Olea europaea* subsp. *europaea*. Another basic constituent of this macchie is *Arbutus unedo*. However this species is rather locally abundant and only occasionally dominant. Scattered individuals of *Ceratonia siliqua* L. are also found in the lower altitudes especially in the vicinity of Kefali settlement. Sporadically we also find individuals of *Calicotome villosa* (Poir.) Link. One of the main constituents of the vegetation of the ENE parts of the island (mainly around Mt Xilokastro) *Pinus halepensis*, is absent here. Only a few taxa can grow in the shade of these relatively dense formations. Phryganic taxa are restricted to a few individuals of *Cistus salviifolius*. Less common are taxa such as *Cistus creticus* s.l. and *Anthyllis hermanniae* L. The herb layer is species poor and mainly consists of taxa such as *Cyclamen hederifolium*, *Arisarum vulgare* and *Brachypodium retusum*. Only in small openings of macchie we find a considerable number of annuals. Locally, especially in cases where the main elements of the macchie have been cut deliberately by man and the soil conditions are fairly good the vegetation is characterized by the presence of *Cistus salviifolius*.

In contrast, the southern slopes of Mt Vouni which are steep, rocky and much eroded, are covered by a much more degraded vegetation influenced by the nearby main settlement of the island, Kalamos village. Only locally we find low somewhat dense scrub dominated by *Quercus coccifera*, mainly in places with better soil conditions. The other components of the macchie described previously are restricted to a few scattered individuals. Deforestation, soil erosion and overgrazing by domestic animals, especially goats, have created conditions similar to those in natural phrygana. So we can assume that these formations in the southern slopes of Mt Vouni represent a stage in the degradation of the main type of macchie that

exists in the WSW part of the island, to garigue and phrygana-like vegetation. The most characteristic species of this degraded type of vegetation is *Salvia fruticosa*. This phryganic taxon creates an impressive colorful landscape at time of flowering. Of less importance are phryganic taxa such as *Cistus salviifolius* and *Cistus creticus* s.l.

In northern foot of Mt Xilokastro between Castle and Episkopi we find old woods of *Cupressus sempervirens* in pure stands or mixed with *Pinus halepensis*, frequently planted in abandoned terraced fields. Some of these woods are very old as we can assume by the size of the trees.

The northern parts of the island especially at the northern slopes of Mt Vouni are covered by dense macchie with *Arbutus andrachne*, *Quercus ilex*, *Phillyrea latifolia*, *Arbutus unedo*, *Quercus coccifera* and in the lower parts with *Pistacia lentiscus*. These tall plant communities are in a transitional stage to forest vegetation. The floristic composition of this type of vegetation reflects the cooler and more humid conditions that prevail in the northern parts of the island. *Quercus ilex* and *Arbutus andrachne* are practically absent from the southern parts of the island and only a few isolated individuals of *Arbutus andrachne* were observed in E slopes of Mt Vouni and near Mirtia beach. The distribution pattern of this type of vegetation follows the one of the cooler and more humid habitats we find in the island. This pattern is in accordance with the distribution pattern of deciduous taxa such as *Cotinus coggygria* and *Fraxinus ornus*, taxa that are absent in the southern parts of the island.

4. FLORISTIC ANALYSIS – DISCUSSION

The present study raises the total number of plant taxa of the flora of Kalamos to 502, a fact that highlights the floristic diversity of small Ionian islands. The 502 taxa belong to 86 families and 308 genera (Table 1). The 5 richest in number of taxa families are *Fabaceae* (64), *Asteraceae* (54), *Poaceae* (42), *Lamiaceae* (24), *Apiaceae* (23).

The life-form spectrum shows that therophytes dominate (54.8%), followed by hemicryptophytes (16.1%) while the other life forms are represented by smaller percentages (Table 2). The proportion of therophytes is remarkably high for an Ionian island with humid to subhumid bioclimate. This can be attributed to the intense human influence in the area. For example many of the taxa of *Fabaceae* family which in the flora of Kalamos are in their vast majority therophytes (84.4%), were found in man-made habitats. One of the characteristic features of its flora is the existence of many woody species. This is reflected mainly in the relatively high percentage of phanerophytes (8.4%). Moreover these species have a wide distribution in the island and play an important role, as they shape the physiognomy of its vegetation.

Table 1: Distribution of vascular plant taxa (species and infraspecific taxa) of the flora of Kalamos in the major systematic units.
Tabela 1: Razdelitev taksonov cevnic (vrste in taksoni na podvrstnem nivoju) flore otoka Kalamos v glavne sistematske enote.

Systematic unit	Families	Genera	Taxa	%
Pteridophyta	6	8	9	1.8
Gymnospermae	3	4	4	0.8
Angiospermae Dicotyledones	61	238	397	79.1
Angiospermae Monocotyledones	16	58	92	18.3
Total	**86**	**308**	**502**	**100**

Table 2: Life-form spectrum of the vascular flora of Kalamos island.
Tabela 2: Pestrost življenskih oblik rastlinstva otoka Kalamos.

Life forms	Number of taxa	%
Therophytes	275	54.8
Hemicryptophytes	81	16.1
Geophytes	63	12.5
Chamaephytes	40	8
Phanerophytes	42	8.4
Hydrophytes	1	0.2
Total	**502**	**100**

The analysis of the chorological spectrum (Table 3) shows that Mediterranean and Mediterranean-Submediterranean elements are dominant (75.3%).

One of the features of the phytogeography of the investigated island is the small number of Greek endemics which comprise 7 taxa (1.4% of the total flora, *Anchusella variegata*, *Campanula drabifolia*, *Stachys ionica*, *Veronica glauca* subsp. *peloponnesiaca*, *Heptaptera colladonioides*, *Allium ionicum* Brullo & Tzanoud., *Bellevalia hyacinthoides*). However, it is known that the endemism of the Ionian islands is not distinctive for its richness (Phitos & Damboldt 1985). So taking

Table 3: Chorological spectrum of the flora of Kalamos island.
Tabela 3: Horološka pestrost rastlinstva otoka Kalamos.

Chorological group	Number of taxa	%
Cosmopolitan-Subcosmopolitan	44	8.7
Tropical-Subtropical	9	1.8
Temperate	30	6
Eurasian	14	2.8
Circumboreal	2	0.4
European	3	0.6
American	14	2.8
African	4	0.8
Mediterranean-Submediterranean	45	9
Mediterranean taxa		
Eurymediterranean	255	50.8
East-Mediterranean	41	8.1
Balkan	12	2.4
Balkan-Anatolian	12	2.4
Balkan-Italian	6	1.2
Greek endemics	7	1.4
Total	**498**	**99.2**

into account the phytogeographical position of the island and its small size, the number of Greek endemics is quite satisfactory.

There are no local endemics in the flora of Kalamos compare to other Ionian islands with about the same size such as Paxi complex which has two local endemics, *Centaurea paxorum* Phitos & T. Georgiadis and *Limonium antipaxorum* R. Artelari (Georgiadis et al. 1986). Paxi island complex is well isolated from the Greek mainland; on the contrary Kalamos is very close to the latter. We could make the assumption that the differences in local endemism between the two Ionian islands can be attributed to the factor "isolation".

The presence on Kalamos of the Ionian endemic *Stachys ionica* underlies its strong phytogeographical affinities with the rest of the Ionian islands. This affinity is demonstrated also by the presence of *Allium ionicum*, a taxon which could be considered Ionian endemic though it has also been found in the opposite Akarnanian coast (Tzanoudakis 2000).

Based on the common distribution of endemic taxa the phytogeographical connections of the island are stronger with the Ionian islands (all the 7 Greek endemics of Kalamos are present in other Ionian islands too), Sterea Ellas (5), Peloponnisos (5) and Kiklades (3). We observe that the phytogeographical connections with Sterea Ellas and Peloponnisos are of equal importance. This conclusion is enhanced by the presence of one biregional endemic between Ionian islands and Sterea Ellas (*Allium ionicum*) and one biregional endemic between Ionian islands and Peloponnisos (*Heptaptera colladonioides*), in the flora of Kalamos.

The second chorological subgroup with narrow geographical distribution range, Balkan endemics, comprises 12 taxa (2.4%). Some of them such as *Capsella grandiflora* have limited distribution range that occupies the western parts of Greece and Albania, while *Alkanna corcyrensis* has a more typical western distribution pattern and it could be considered as Ionian endemic with a broad sense. The presence of *Malcolmia graeca* subsp. *hydraea*, the only known locality in the Ionian islands, demonstrates the strong floristic affinities of Kalamos with the Greek mainland and especially with the opposite Akarnanian coast where the taxon is abundant (dot maps, Strid & Tan 2002). *Malcolmia graeca* s.l. is rare in the Ionian islands and until now there was only one representative *Malcolmia graeca* subsp. *bicolor* (Boiss. & Heldr.) Stork, known from the island of Levkas (Georgiou 2002). In general, Balkan endemics of the flora of Kalamos are not correlated with orophilous Balkan endemics characteristic of the Pindhos mountain range.

The ratio of Balkan-Anatolian and Balkan-Italian is 2 : 1. The same ratio though, in eastern parts of Greece with about the same latitude such as Mt Pendelikon (Baliousis 2011) is much bigger (6 : 1). We can conclude that the influence of the Anatolian elements, though important, decreases in a westward direction as it was expected from the geographical position of the examined areas.

The flora of the island comprises 25 (5%) adventive taxa, mainly of American origin, a fact that reflects the strong human influence on its composition.

Both life-form and chorological spectrums underline the pronounced Mediterranean character of the island's flora.

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