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# Flora and vegetation of Gávdos (Greece), the southernmost European island. I. Vascular flora and chorological relations

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## ABSTRACT

BERGMEIER, E., R. JAHN & A. JAGEL (1997). Flora and vegetation of Gávdos (Greece), the southernmost European island. I. Vascular flora and chorological relations. *Candollea* 52: 305-358. In English, English and French abstracts.

457 vascular plant species (+ 12 infraspecific taxa) are recorded from Gávdos, the southernmost European island, including 297 (+ 11) new records. *Matricaria aurea* is a new record for the Greek flora; *Astragalus epiglottis*, *Erodium cicutarium* subsp. *bipinnatum*, *Lolium subulatum*, *Valerianella pumila* and *Vicia sativa* subsp. *amphicarpa* represent new findings, or confirmations, to Kríti or the South Aegean. *Bupleurum gaudianum* is endemic to Gávdos. Within the Flora Europaea borders of Greece, the following are confined to Gávdos: *Artemisia herba-alba*, *Callitriche pulchra*, *Chlamydophora tridentata* and *Reseda odorata*. The occurrence of several taxa not collected on Gávdos since 1904 is confirmed and comments added for the chorologically significant ones. Gávdos is, phytogeographically, part of the Cardaean region. There are also strong links to North African Cyrenaica.

## RÉSUMÉ

BERGMEIER, E., R. JAHN & A. JAGEL (1997). Flore et végétation de Gávdos (Grèce), l'île la plus méridionale d'Europe. I. Flore vasculaire et relations chorologiques. *Candollea* 52: 305-358. En anglais, résumés anglais et français.

Pour la flore de Gávdos, l'île la plus méridionale d'Europe, 457 espèces (+ 12 sous-espèces) de plantes vasculaires ont été relevées, dont 297 (+ 11) pour la première fois. *Matricaria aurea* est une nouveauté pour la flore grecque. *Astragalus epiglottis*, *Erodium cicutarium* subsp. *bipinnatum*, *Lolium subulatum*, *Valerianella pumila* et *Vicia sativa* subsp. *amphicarpa* sont des nouveautés ou ont vu leur présence confirmée soit pour la Crète, soit pour les îles de la Mer Egée. Dans les limites de la Grèce établies dans Flora Europaea, les espèces suivantes ne se trouvent que sur l'île de Gávdos: *Artemisia herba-alba*, *Callitriche pulchra*, *Chlamydophora tridentata*, *Reseda odorata*. *Bupleurum gaudianum* est la seule endémique de Gávdos. La présence de plantes dont l'existence n'avait plus été vérifiée depuis 1904 a pu être confirmée. Les aspects phytogéographiques de Gávdos et de certaines espèces sont commentés.

**KEY-WORDS:** Greece – Crete – Gávdos – Island – Vascular flora – Chorology.

## Introduction

The South Aegean island of Gávdos, though small, is of considerable phytogeographical interest due to its outlying position as the southernmost European landmark towards the Libyan Sea. Africa is in fact closer than Athens, but there are links to both mainland Greece and Turkey

via the South Aegea island arc. In an attempt to give a comprehensive account of the botany and landscape ecology of Gávdos this contribution provides a catalogue of the vascular flora of the island. The catalogue is based chiefly on our own collections and field notes, as well as on full evaluation of the botanical literature. Unpublished data are included from the collections of B. Snogerup and H. Runemark, Lund. The main chorological traits are analysed and discussed. Floristic similarities to neighbouring regional floras are calculated in order to express phytogeographical relationships.

### Geographical background

Gávdos is a Greek island administered by the west Cretan Sélinos district (eparchía) within the prefecture (nómos) Chaniá. The island comprises c. 32 km<sup>2</sup> and is situated between 34°48'–52.5'N and 24°02.5'–08'E in the Libyan Sea. It is separated from the large island of Kríti (Crete) to the north by a distance of c. 37 km. No part of Europe lies further south than Cape Tripití on Gávdos. The North African Cyrenaica coast is c. 250 kilometres distant, separated by open sea, whereas the southwest Anatolian mainland somewhat more than 400 km but connected via Kríti, the Karpáthos archipelago and Ródos, forming the eastern part of the phytogeographically highly significant South Aegean island arc. Its western part extends via Antikíthira to Kíthira, and ends on Elafonísi and the southeastern coast of the Peloponnese, some 200 km from Gávdos. Deep-sea straits of 3500 m below sea level between Libya and Gávdos and 1500 m between Kríti and Gávdos (PFANNENSTIEL, 1960) indicate the extreme submarine topography. Gávdos itself rises to 368 m above sea level.

The island has the shape of a trapezoid, with a long northwest to southeast orientated south coast of c. 10 km which forms an impressive escarpment 200 to more than 300 m high. Northeastward Gávdos shows a moderate incline over a distance of c. 5 km towards the northern cliff coasts and sandy beaches. Below 200 m above sea level chiefly tertiary (middle miocene) formations with sandy soils occur, thus comprising the northern (northeastern) half of the island. The more elevated southwestern part is formed by an older crystalline limestone series mixed with few patches of flysch. The area around the northeast Cape Tsounos consists of a miocene volcano-sedimentary ophiolitic series with a complex of greenrocks, sandstones and breccias, the latter containing various schists, gneiss and quartzites. Coastal sands and dunes are well represented along the north coast. Small alluvial deposits can be found at torrent outlets in various parts of the island, one of them, near Cape Tripití, being particularly relevant in floristic terms due to the salinity of the substrate. The geology of the island is described in detail by VICENTE (1970) and mapped by the Institute of Geology and Mineral Exploration (IGME, 1993).

The climate of Gávdos is characterized by a very pronounced dry summer period of 6–8 months and moist, rather mild winters. Frost temperatures hardly, if ever, occur. There are no meteorological records but, concluding from the nearest rainfall station of Paleochora in southwest Kríti (see climatogram in BERGMEIER, 1995), mean annual precipitation can be expected to be less than 400 mm. In summer, northern winds prevail while south winds are most frequent during springtime.

There are three small villages (Kastrí, Vatsianá and Ámbelos) on Gávdos, each with patches of cultivated fields. Additionally, a number of hamlets and isolated small farm sites is scattered over the island most of which are now deserted. Two more settlements, however, are growing rapidly with expanding tourism – Karavé, the harbour site, and Sarakíniko, a sandy area at the north coast, which is already by far the most populated place in summer with beach tourists.

### Floristic exploration of Gávdos

The first documented visit of a plant collecting naturalist on the islands of Gávdos and Gavdopoúla was that of Prospero Alpini in 1584, on his way back from Egypt to Padua (ALPINI, 1591, cited after LACK, 1996: 187). 84 out of 135 plant species which were later described and illustrated in “De plantis exoticis” (ALPINI, 1627) originate from the Cretan area (LACK, 1996). While most of the plants lack precise locality information, at least one of them, denoted “*Tragacantha*”, is explicitly stated to be from the small islands south of Kríti (ALPINI, 1627: 52-53). However, any attempt to identify the illustration with a species present would be hazardous.

The first modern floristic investigation on Gávdos was made in March 1904, when the Austrian botanist Ignaz Dörfler spent six days on the island. The visit was part of his six months' collection journey to Kríti sponsored by the Vienna Academy of Sciences. Travel data and his collections were published by VIERHAPPER & RECHINGER (1935), including 137 plant records from Gávdos which were also incorporated in RECHINGER's Flora Aegaea (1943). Rechinger himself spent a short visit on the island in June 1942. His field notes and gatherings from the northeastern part of Gávdos (mainly woody species due to the late season) were published by RECHINGER (1944) and later used in his Phytogeographia Aegaea (RECHINGER & RECHINGER-MOSER, 1951). More extensive collecting was done by H. Runemark and B. Snogerup in May 1980. On this occasion the only known endemic of Gávdos was found – a small annual *Bupleurum* which was described by SNOGERUP (1984) as *B. gaudianum*. Their data, for the most part, is published here for the first time although a few records have been cited by the authors of various taxonomic and floristic treatments (SNOGERUP, 1984; CARLSTRÖM, 1985, 1986; GREUTER, MATTHÄS & RISSE, 1984; RAUS, 1990; BORATYNSKI & al., 1992; van SLAGEREN, 1994). Multi-disciplinary studies on Gávdos in the fields of natural and social history were initiated, or encouraged, by various Greek institutions especially in the 1980s. The reports of VOKOU (1983) and ICONOMOU (1989) contain but scattered floristic data most of which cannot be accepted due to obvious misidentifications.

We visited Gávdos during 1994–1996 each spring for several days, thereby exploring almost all parts of the island. The small island of Gavdopoúla 8 km northwest of Gávdos which has apparently not been visited by a botanist since Alpini's times, remains almost unknown floristically since inclement weather conditions did not permit our visit. Our specimens as well as extensive field observations more than double the number of 169 taxa so far published on Gávdos. The total number of taxa known (including subspecies) is 470.

The relevant floristic exploration on Gávdos (in brackets: number of specimens, followed by the herbarium acronym of the respective collections) can be summarized as follows:

- 19.-24.3.1904 – I. Dörfler (137; W)
- 6.-7.6.1942 – K. H. Rechinger (36; W)
- 9.-12.5.1980 – H. Runemark, B. Snogerup (c. 220; LD)
- 17.7. and 2.10.1993 – U. Matthäs (7; B, C)
- 23.-27.5.1994 – E. and U. Bergmeier, A. Jagel (C)
- 26.-29.5.1994 – R. Jahn (private herb., Regensburg, with duplicates in UPA)
- 27.4.-3.5.1995 – E. Bergmeier (C)
- 1.-5.4.1996 – R. Jahn (total for 1994 and 1996: 175; private herb., Regensburg)
- 5.-11.4.1996 – E. and U. Bergmeier (total for 1994–1996: 370; C)



### Explanatory notes

For the locality list and the floristic catalogue the following acronyms apply: AJ = Armin Jagel; EB = Erwin Bergmeier; RJ = Ralf Jahn; R & BS = Hans Runemark & Britt Snogerup; UM = Ursula Matthäs. In the floristic catalogue the acronyms are followed by the specimen number and the locality code. Field notes are indicated by "obs.", followed by the grid reference(s). Latitude is symbolized by a letter (A–E), representing the coordinates from north to south 34°52' to 34°48'N; longitude by a one-digit number (3–7), representing coordinates from west to east 24°03' to 24°07'E (see Fig. 1). For our herbarium specimens, the localities are encoded by the grid reference followed by a current number (see locality list). If a locality is unprecise or lies on the border of a grid reference, latitude and/or longitude are given by two letters (or numbers) (e.g. CD67, D45). In the catalogue, quotations concerning Dörfler's specimens are taken from VIERHAPPER & RECHINGER (1935), those referring to Rechinger's collections from RECHINGER (1944). For each taxon the records are given in chronological order. Herbarium specimens precede field observations. The latter are given for all grid references except for those with documentation from specimens. Families, genera and species are arranged alphabetically within the major classification units, viz., *Pteridophyta*, *Gymnospermae*, *Dicotyledoneae*, *Monocotyledoneae*. Accepted names are set in bold-face italics; they follow the recent flora of the Cretan area (JAHN & SCHÖNFELDER, 1995), and relevant taxonomic literature. Synonyms or misapplied names used by VIERHAPPER & RECHINGER (1935) and RECHINGER (1943, 1944) are also given. Non-established taxa are designated by square brackets [ ]; taxa erroneously cited in literature for Gávdos are given in round brackets ( ). The frequency of all taxa observed is approximated, based on our field observations.

### List of collecting localities

A4-1 around Ag. Ioannis (34°52'00-20"N/24°04'00-50"E), alt. 0-90 m, EB 25/5/1994, 3/5/1995, 6/4/1996

A5-1 N coast 1 km E Ag. Ioannis (34°52'10"N/24°05'10"E) alt. 10-50 m, RJ 27/5/1994

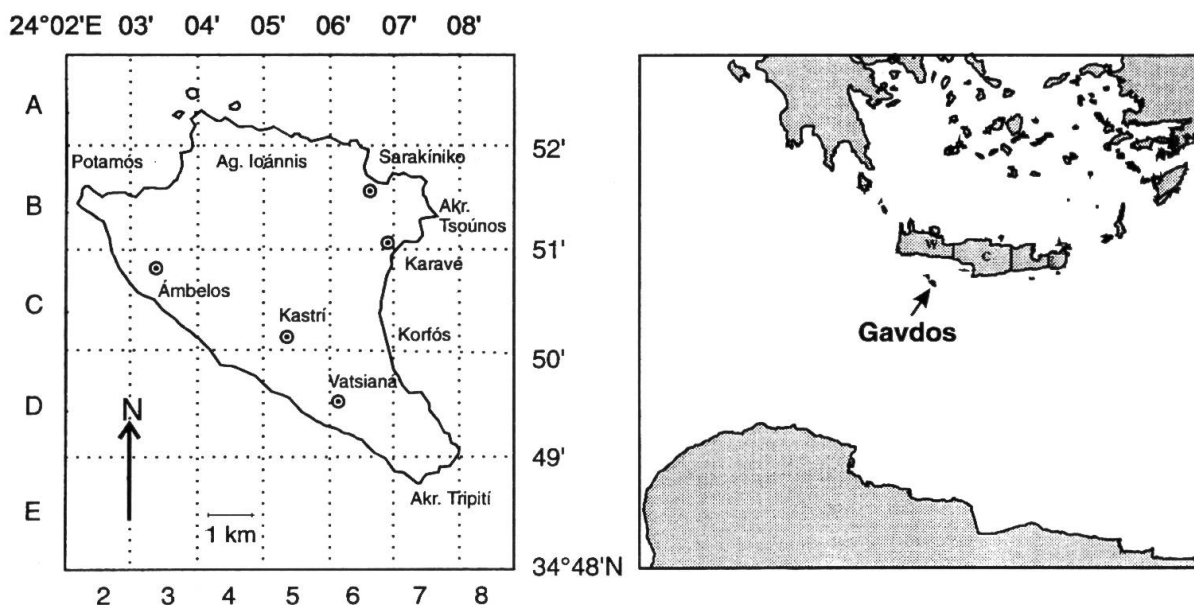


Fig. 1. – The island of Gávdos and the grid code adopted in the text for indicating localities.

- B3-1 Potamós bay (34°51'35"N/24°03'40"E), alt. 0-10 m, EB 29/4/1995
- B4-1 farm Periheila, at the end of the track from Kastri northward (34°51'00-10"N/24°04'50-59"E) alt. 180 m, RJ 2/4/1996
- B5-1 Pot. Ag. Pavlou (34°51'30-40"N/24°05'20-30"E), alt. 60-100 m, EB 26/5/1994
- B5-2 W upper part of Pot. Ag. Pavlou, 0.5-1km NNE of Ag. Pandeileímon (34°51'10"N/24°05'10"E) alt. 100-130 m, RJ 27/5/1994, 2/4/1996
- B6-1 Sarakíniko bay (34°51'30-50"N/24°06'30-50"E), alt. 0-10 m, EB 23/5/1994, 27/4/1995, 30/4/1995, 3/5/1995, RJ 26-29/5/1994, 4/4/1996
- B6-2 Pot. Sarakinikou, S of Sarakíniko bay (34°51'00-20"N/24°06'40"E), alt. 10-30 m, EB 23/5/1994, 27/4/1995, 3/5/1995, RJ 26-29/5/1994, 4/4/1996
- B6-3 SW Sarakíniko (34°51'10"N/24°06'20"E), alt. 30 m, EB 30/4/1995, 11/4/1996
- B6-4 NW Sarakíniko (34°51'50-52'00"N/24°06'20-30"E), alt. 20 m, EB 30/4/1995, 6/4/1996
- B6-5 400 m W Sarakíniko bay (34°51'55"N/24°06'15"E) alt. 10 m, RJ 27/5/1994
- B7-1 above Karavé bay (34°51'00"N/24°07'00-10"E), 20-50 m, EB 23/5/1994, 5/4/1996, RJ 29/5/1994, 4/4/1996
- B7-2 between Karavé and Akr. Tsounos (34°51'10-30"N/24°07'10-20"E), alt. 30-80 m, EB 27/5/1994, 30/4/1995, 5/4/1996
- B7-3 Karavé bay (34°51'55"N/24°07'00"E), alt. 5 m, RJ 4/4/1996
- B7-4 side valley E Sarakíniko bay (34°51'25"N/24°07'05"E), alt. 30 m, RJ 4/4/1996
- C3-1 Ámbelos, cultivated land and adjacent phrygana (34°50'25-40"N/24°03'20-30"E), alt. 310-330 m, EB 29/4/1995, 2/5/1995, 10/4/1996, RJ 28/5/1994, 2/4/1996
- C3-2 NE slope of Fanari hill (34°50'30"N/24°03'40"E), alt. 300 m, RJ 28/5/1994
- C4-1 abandoned hamlet (Frageliana) between Kastri and Ámbelos (34°50'20"N/24°04'40"E), alt. 300 m, EB 29/4/1995, 10/4/1996, RJ 28/5/1994, 2/4/1996
- C4-2 near Ag. Pandeileímon (34°50'50"N/24°04'50"E), alt. 200 m, EB 26/5/1994, 10/4/1996, RJ 2/4/1996
- C5-1 Kastri, the village and adjacent cultivated fields N of it (34°50'10-30"N/24°05'10-30"E), alt. 120-200 m, EB 24/5/1994, 7/4/1996, RJ 28/5/1994, 2/4/1996
- C5-2 0.5 km SW of Kastri (34°50'00/24°05'00"E), alt. 260 m, EB 28/4/1995
- C5-3 ravine E of Kastri (34°50'10"N/24°05'20"E), alt. 140-180 m, EB 7/4/1996
- C5-4 NE of Kastri, slope E of the ravine (34°50'20-30"N/24°05'40-50"E), alt. 100-120 m, EB 9/4/1996
- C5-5 Kapanélou region, 500 m E of Ag. Pandeileímon (34°50'55"N/24°05'10"E) alt. 120 m, RJ 27/5/1994, 2/4/1996
- C6-1 Spitia Papadias, above Korfos bay (34°50'20-55"N/24°06'30-45"E), alt. 40-100 m, EB 24/5/1994, 27/4/1995, 8/4/1996, RJ 26/5/1994, 1/4/1996
- C6-2 2 km NE of Kastri, near Ag. Christos (34°50'30-35"N/24°06'00-20"E), alt. 80-120 m, EB 24/5/1994, 29/4/1995, RJ 28/5/1994
- C6-4 between Karavé and Sarakíniko, olive grove and roadside (34°50'40-51'00"N/24°06'30"E), alt. 50-60 m, EB 26/5/1994, 28/4/1995, 30/4/1995, RJ 1/4/1996
- C6-5 Pot. Sarakíniko, between Kastri and Karavé (34°50'30-55"N/24°06'10-30"E), 20-80 m, EB 7/4/1996, RJ 2/4/1996

- C6-6 between Kastri and Ag. Georgios, cultivated fields (34°50'00-10"N/24°06'00-30"E), 80-120 m, EB 8/4/1996, RJ 1/4/1996
- CD67 Korfos bay, sandy beach and rocky coast (34°49'00-50'50"N/24°06'50-07'30"E), alt. 0-40 m, AJ 26/5/1994
- D5-1 between Vatsianá and Kastri (34°49'20-50"N/24°05'10-40"E), alt. 220-250 m, EB 24/5/1994
- D5-2 W of Vatsianá (34°49'20"N/24°05'40"E), alt. 220 m, EB 1/5/1995
- D56 Vatsianá, the village and adjacent cultivated fields (34°49'20"N/24°05'50-06'10"E), alt. 220 m, EB 28/4/1995, 8/4/1996
- D6-1 NE-facing slope N of Vatsianá (34°49'20-50"N/24°06'00-20"E) alt. 100-200 m, EB 24/5/1994, 28/4/1995, 1/5/1995, 8/4/1996; RJ 26/5/1994, 3/4/1996
- D6-3 Ag. Georgios, open woodland and cultivated fields (34°49'55"N/24°06'30"E), alt. 80 m, EB 28/4/1995, 8/4/1996, RJ 1/4/1996
- D6-4 E of Vatsianá (34°49'10"N/24°06'00"E), alt. 220 m, EB 1/5/1995, RJ 26/5/1994, 3/4/1996
- D6-5 small ravine above the E coast 1.25 km E of Vatsianá (34°49'25"N/24°06'55"E), alt. 80 m, RJ 3/4/1996
- D6-6 Korfos bay E of Ag. Georgios (34°49'55"N/24°06'50"E), alt. 0-5 m, RJ 1/4/1996
- D6-7 1 km NE Vatsianá (34°49'35"N/24°06'35"E), alt. 100 m, RJ 1/4/1996
- E6-1 1 km SE Vatsianá (34°48'55"N/24°06'20"E) 240 m, RJ 26/5/1994, 3/4/1996
- E7-1 S of Alikí, Limni, NE Akr. Tripití (34°48'30/24°07'30"E), alt. 0-10 m, EB 28/4/1995, 1/5/1995, RJ 3/4/1996
- E7-2 Akr. Tripití (34°48'05"N/24°07'15-20"E), alt. 20 m, RJ 3/4/1996

### ***PTERIDOPHYTA***

#### *Adiantaceae*

*Adiantum capillus-veneris* L. – EB obs. B5 – rare

#### *Aspleniaceae*

*Asplenium ceterach* L. – EB obs. C4, C5 – rare

#### *Gymnogrammaceae*

*Anogramma leptophylla* (L.) Link – Dörfler 65: "Felsen bei Kastri" (C5)

#### *Selaginellaceae*

*Selaginella denticulata* (L.) Spring – EB, RJ obs. D6 – rare

*Sinopteridaceae*

***Cheilanthes acrostica*** (Balbis) Tod. – *R* & *BS* 47777: “Kastri” (C5) (see also ZIMMER, 1991: 231); *RJ* obs. C4 – rare

**GYMNOSPERMAE***Cupressaceae*

***Juniperus macrocarpa*** Sm. – *Dörfler* 626: “besonders an der Nordküste”; *Rechinger* 13665: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 7 and 28, and BORATYNSKI & al., 1992: 134); *EB* & *UM* 3450 (17/7/1993): B6; *EB*, *RJ* obs. B7, C3, C4, C6, E7; *EB* obs. A4, A6, B3, B4, D5; *RJ* Photo: B5-2; *RJ* obs. B6, C5, D6 – common

***Juniperus phoenicea*** L. – *Dörfler* 110: “bei Xenakis” (D45); *Rechinger* 13662: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: 65, table 11, and BORATYNSKI & al., 1992: 136); *EB*, *RJ* obs. B7, C3, C5, C6, D6, E7; *EB* obs. A4, A5, A6, C4, D5; *RJ* obs. B5, B6, E6 – common

*Pinaceae*

***Pinus brutia*** Ten. – *Dörfler* 627 (“*P. halepensis*”): “meist nur ca. 2 m hohe Sträucher”; *Rechinger* 13640: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 7 and 11, the indication of *P. halepensis* in table 7 is doubtlessly erroneous); *EB*, *RJ* obs. B6, C3, C4, C5, C6, D6; *EB* obs. A4, B4, D5, E7; *RJ* Photo: B5-2; *RJ* obs. E6 – common

**DICOTYLEDONES***Acanthaceae*

***Acanthus spinosus*** L. – *EB* obs. C5 – rare

*Aizoaceae*

***Aizoon hispanicum*** L. – *R* & *BS* 47710: “Along the road from the harbour to Kastri” (BC6); *EB* & *AJ* 94-34: C6-1; *RJ* 960401-16: C6-1; *EB* obs. C5 – very scattered

Population size depends very much on sufficient rainfall; after the dry winter of 1994/95 no plants occurred in 1995, but in 1994 and 1996 many individuals were found in several localities. The indication for Gávdos of “*Zygophyllum album*” by *RJ* in JAHN & SCHÖNFELDER (1995) is erroneous due to confusion with this species.

***Mesembryanthemum nodiflorum*** L. – *EB* & *AJ* 94-78: D5-1; *EB* & *AJ* 94-118: CD67; *EB* 95-73: E7-1; *RJ* 960403-14: E7-1; *EB* obs. C5 – scattered

*Anacardiaceae*

*Pistacia lentiscus* L. – *Rechinger 13652*: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 178); EB, RJ obs. B7, C3, C6, E7; EB obs. A4, A6, B4, C4, D5; RJ obs. B5, C5, D6 – common

*Apocynaceae*

*Nerium oleander* L. subsp. *oleander* – *Rechinger 13641*: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28, and BORATYNSKI & al., 1992: 161); EB, RJ obs. B6, EB obs. A4, B4, B5 – scattered

*Asclepiadaceae*

*Periploca angustifolia* Labill. – *Rechinger 13647*: “sandige Hügel am Kap Tsuno” (B7) (see also GREUTER, 1973: 54 and RECHINGER & RECHINGER-MOSER, 1951: tables 11 and 28, and BORATYNSKI & al., 1992: 167); *R & BS 47768*: “3 km S of Kastri” (D5); *R & BS 47801*: “Kastri. The ravine at the church” (C5); *EB & AJ 94-87*: C5-1; *RJ 940529-10*: B7-3; EB, RJ obs. E7; EB obs. B6; RJ obs. D6 – scattered

*Berberidaceae*

*Leontice leontopetalum* L. subsp. *leontopetalum* – *Dörfler 4*: “Äcker bei Ambelos” (C3) – almost certainly extinct

*Boraginaceae*

*Anchusa aegyptiaca* (L.) DC. – *Dörfler 84* (“*A. variegata*”): “Karstfelsen am Kap Kamarela” (E7); *R & BS 47741*: “2–4 km S–SW of Kastri” (D5); *EB 96-84*: C6-6; EB obs. C5 – rare

(*Anchusa variegata* (L.) Lehm.) – *Dörfler 84*: belongs to *A. aegyptiaca* (GREUTER, 1965: 210)

*Echium arenarium* Guss. – *EB & AJ 94-43*: C6-1; *EB 96-43*: A4-1; RJ obs. E7 – scattered

*Buglossoides arvensis* (L.) I. M. Johnston – *Dörfler 1135* (*Lithospermum arvense* L.): “unter Saaten bei Kastri” (C5); *EB & AJ 94-49*: C6-1; *RJ 960401-62*: D6-3; EB obs. C3, C5 – scattered

*Neatostema apulum* (L.) I. M. Johnston – *Dörfler 1150* (*Lithospermum apulum* L.): “Karstboden”; *R & BS 47723*: “W of Kastri” (C4); *EB & AJ 94-57*: C6-1; *EB 96-34*: B6-4; *RJ 960401-59*: C6-1; *RJ 960401-66*: C6-6; EB obs. C3; RJ obs. C4, C5 – scattered

*Cactaceae*

[*Opuntia ficus-indica* (L.) Miller] – EB obs. C5, C6 (each single plants which represent relics of cultivation)

*Callitrichaceae*

*Callitriche pulchra* Schotsman – Dörfler 45 (“*C. truncata* Guss.”): “in Wasserlachen bei Kastri”; EB 96-108: C4-1; RJ 960401-67: D6-7; RJ 960402-16: C4-1 – rare

For the taxonomy of the present species see SCHOTSMAN (1967). This Mediterranean endemic is correctly stated as being confined to Gávdos and Cyrenaica by COOK (1983: 550) but the respective dot in the distribution map is misplaced (1983: 568), and *C. truncata* subsp. *occidentalis* is erroneously given as present on Gávdos (map on p. 551).

*Campanulaceae*

*Campanula erinus* L. – Dörfler 97: “Karstboden an der Südküste”; EB, RJ obs. C4, C5, C6; EB obs. C3, E7; RJ obs. B7 – rather common

*Legousia hybrida* (L.) Delarbre – Dörfler 61 (*Specularia hybrida* DC.): “unter Saaten bei Kastri” (C5); EB 96-90 (white petals): D56; EB 96-101 (blue petals): C3-1 – scattered

*Capparaceae*

*Capparis spinosa* L. subsp. *rupestris* (Sm.) Nyman – EB & AJ 94-88: C5-1; EB obs. also in natural habitats: C5-3 – rare

*Caryophyllaceae*

*Agrostemma githago* L. – EB obs. C5 – rare

*Arenaria leptoclados* (Reichenb.) Guss. – EB 96-45: A4-1; RJ 960404-03: B7-4 – scattered

*Arenaria muralis* (Link) Sprengel – R & BS 47773b: “3 km S of Kastri” (D5); R & BS 47778: “Kastri. The ravine at the church” (C5) (CARLSTRÖM, 1986: 362)

*Cerastium glomeratum* L. – EB 96-62: A4-1 – rare

*Herniaria cinerea* DC. – EB 95-41: C6-1; EB & AJ 94-123: C4-2; RJ 940527-07: A5-1; RJ 960401-25: C6-1; EB obs. C3 – scattered



*Minuartia hybrida* (Vill.) Schischkin subsp. **hybrida** – *R & BS* 47869: “Sarakiniko” (B6); *EB* 95-46: C6-1 – scattered

*Minuartia mediterranea* (Link) K. Maly – *Dörfler* 1138: “Karstboden bei Kastri”; *RJ* 960401-31: C6-1; *RJ* 960402-11: C3-1 – scattered

*Petrorhagia dubia* (Rafin.) G. López & Romo – *Dörfler* 1137 (*Kohlrauschia velutina* (Guss.) Rchb.): “unter Saaten bei Kastri” (C5); *R & BS* 47806: “1–4 km NW of Kastri” (BC45); *EB* obs. D56, C5; *RJ* obs. C4 – scattered

*Polycarpon tetraphyllum* (L.) L. – *Dörfler* 37 (var. *diphyllum* (Cav.) DC.): “Karstboden bei Vathyana” (D56); *EB* 95-14: B6-2; *RJ* 960401-34: C6-1; *EB* obs. A4, C4 – scattered

*Dörfler*’s specimen and *EB* 95-14 belong to subsp. **diphyllum** (Cav.) O. Bolós & Font Quer.

*Sagina maritima* G. Don – *R & BS* 47817: “Small stream near the NW point” (A4); *EB* 95-170: A4-1; *EB* 96-39: A4-1; *EB* obs. C4, C5, D6 – scattered

*Silene behen* L. – *Dörfler* 56: “unter Saaten bei Kastri” (C5); *EB* 96-67: C6-6; *EB* obs. C5, D5 – rare

*Silene colorata* Poiret subsp. **colorata** – *Dörfler* 12: “Dünen an der Nordküste”; *R & BS* 47842: “The NW point” (A34); *EB & AJ* 94-1: B6-1; *EB & AJ* 94-96: A4-1; *EB* 95-30: B6-1; *EB*, *RJ* obs. B7 – scattered

*Silene fruticosa* L. – *R & BS* 47798: “Kastri. The ravine at the church” (C5)

*Silene gallica* L. – *EB* 96-103: C3-1 – rare

*Silene nocturna* L. – *Dörfler* 43: “Karstboden”; *R & BS* 47792b: “Kastri. The ravine at the church” (C5); *EB* 95-91: C3-1; *RJ* 940526-28: D6-4; *EB*, *RJ* obs. C5; *EB* obs. C6, D6; *RJ* obs. C4 – scattered

*Silene sedoides* Poiret subsp. **sedoides** – *EB & AJ* 94-15: B6-1; *EB* 95-81: E7-1; *RJ* 960403-17: E7-2; *EB* obs. A4, B3 – scattered

The taxonomy follows OXELMAN (1995).

*Silene succulenta* Forssk. subsp. **succulenta** – *Rehinger* 13544: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); *R & BS* 47840: “The NW point” (A34); *R & BS* 47866: “Sarakiniko” (B6); *EB & AJ* 94-5: B6-1; *EB* obs. A4 – rare, locally frequent

*Silene vulgaris* (Moench) Garcke subsp. *macrocarpa* Turrill – *Rechinger* (leg. Herzog) 13670 (*Silene cucubalus* Wib. subsp. *angustifolia* (Guss.) Rech. fil.): “beim Dorf Ambelos” (C3); *R & BS* 47766: “2–4 km S–SW of Kastri” (D5); *EB* 95-66: D56; EB, RJ obs. C5; EB obs. C3, C6 – scattered

*Spergularia bocconeii* (Scheele) Asch. & Gr. – *EB* 95-149: E7-1; EB obs. C4, C5 – very scattered

*Spergularia diandra* (Guss.) Boiss. – *Dörfler* 30: “Kulturboden bei Vathyana” (D56); *R & BS* 47685: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47825: “Small stream near the NW point” (A4); *EB & AJ* 94-4: B6-1; *EB & AJ* 94-62: C6-1; *EB* 96-s.n.: B7-2; *RJ* 960401-38: C6-1; EB obs. C5; RJ obs. B4 – scattered

*Stellaria pallida* (Dumort.) Murb. – *EB* 96-107: C4-1; EB obs. A4 – rare

For correct author’s citation see MILL (1996).

#### *Chenopodiaceae*

*Beta adanensis* Aellen – *R & BS* 47816: “1–4 km NW of Kastri” (BC45)

*Chenopodium album* L. – *EB & AJ* 94-35: C6-1; *EB* 95-142: D56 – rare

*Chenopodium murale* L. – *Dörfler* 1139: “Kulturboden bei Vathyana” (D56); EB, RJ obs. C6; EB obs. C5, D6 – scattered

*Salsola kali* L. subsp. *kali* – AJ, RJ obs. B6-1, CD67 – rare

#### *Cistaceae*

*Cistus creticus* L. – *Dörfler* 106 (“*C. villosus* L.”): “Karstboden” (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 58 as “*Cistus incanus* L.”); *EB & UM* 3447: B6; EB, RJ obs. B7, C3, C4, C6, D6; EB obs. A4, A6, C5, D5, E7; RJ obs. B5, E6 – common

*Cistus parviflorus* Lam. – *Dörfler* 104: “Karstboden”; *Rechinger* 13656: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 61); *EB & UM* 3449: B6; EB, RJ obs. B7, C3, D6; EB obs. A4, A6, C4, C5, E7; RJ Photo: C5-1, RJ obs. B5, C6, E6 – common

*Cistus salviifolius* L. – *Dörfler* 105: “Karstboden” (see also BORATYNSKI & al., 1992: 62); *EB & UM* 3448: B6; EB, RJ obs. C3, C6, D6; EB obs. C4, C5, D5, E7; RJ Photo: C5-1, RJ obs. B5, B7, E6 – common

*Fumana arabica* (L.) Spach – Dörfler 90: “Karstboden an der Südküste”; Rechinger 13667b: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11); R & BS 47681: “Along the road from the harbour to Kastri” (BC6); R & BS 47740: “2–4 km S–SW of Kastri” (D5); EB, RJ obs. C3, D6; EB obs. B7, C5, E7; RJ Photo: D6-1; RJ obs. C6, E6 – rather common

*Fumana thymifolia* (L.) Webb – Dörfler 101: “Karstboden an der Südküste”; Rechinger 13667a (“var. *laevis* (Cav.) Grosser”): “sandige Hügel am Kap Tsuno” (B7); EB, RJ obs. B6, B7, C3, C5; EB obs. A6, E7; RJ obs. B5, C6, E6 – common

*Helianthemum stipulatum* (Forssk.) C. Chr. – EB & AJ 94-132: B7-2; EB 95-140: B6-3 – rare

*Tuberaria guttata* (L.) Fourr. s.l. – EB obs. A4, B6, B7; RJ obs. B5 – scattered

Plants with cleistogamous flowers and small rosettes were seen as well as plants with open flowers.

### *Compositae*

*Aetheorhiza bulbosa* (L.) Cass. subsp. *microcephala* Rech. fil. – R & BS 47809: “1–4 km NW of Kastri” (BC45); RJ 960402-19a: C5-1; EB, RJ obs. B7, C6, D6, E7; EB obs. A4, B4, B6, C3, C4, D5 – common

*Anthemis chia* L. – EB 96-61: C5-1 (specimens belong to f. *inornata* Greuter & al.) – very scattered

*Anthemis rigida* Heldr. subsp. *rigida* – Dörfler 40 (“*A. cretica*”): “auf Karstboden”; EB 95-78: E7-1; EB, RJ obs. C5; EB obs. A4; RJ obs. B4, C6 – rather common

*Artemisia herba-alba* Asso – R & BS 47688: “Along the road between the harbour and Kastri” (C6) (GREUTER, MATTHÄS & RISSE, 1984: 271); EB & AJ 94-82: C6-2; RJ 940528-08: C6-2; RJ Photo: C5 – rare

*Asteriscus spinosus* (L.) C. H. Schultz – EB obs. D5; RJ obs. C5 – rare

*Atractylis cancellata* L. subsp. *cancellata* – Dörfler 28: “Karstfelsen bei Vathyana” (D56); EB, RJ obs. C4, C6; RJ obs. C5, D6 – rather common

*Bellis annua* L. – EB 96-111: C4-2 – rare

*Bellium minutum* (L.) L. – Dörfler 77: “Felsen am Kap Kamarela, sehr selten” (E7); R & BS 447846: “The NW point” (A34); EB 95-84: E7-1; EB obs. A4, B3, B7 – scattered

- Calendula arvensis* L. – Dörfler 62: “Karstboden bei Kastri”; *EB* 95-92: C3-1; *EB* 96-99: C3-1; *EB* obs. D5, D6; *RJ* obs. C4 – scattered
- Carduncellus caeruleus* (L.) C. Presl – *R* & *BS* 47696: “Along the road from the harbour to Kastri” (C5); *EB* & *AJ* 94-86: C5-1; *EB* obs. C3 – rare, locally frequent
- Carduus pycnocephalus* L. – Dörfler 89: “Karstfelsen am Kap Kamarela” (E7); *EB* obs. C3, C5; *RJ* obs. C6 – scattered
- Carlina graeca* Heldr. & Sart. – *EB*, *RJ* obs. C3, C5; *EB* obs. D6, E7; *RJ* obs. C4, C6 – common
- Carthamus leucocaulos* Sm. – *EB* & *AJ* 94-130: C6-4; *EB* obs. C5; *RJ* obs. D6 – scattered  
The specimen mentioned above was erroneously assigned to *C. boissieri* Hal. in BERGMEIER & MATTHÄS (1995).
- Centaurea melitensis* L. – *R* & *BS* 47767: “2–4 km S–SW of Kastri” (D5); *EB* & *AJ* 94-39: C6-1; *RJ* 940526-10: C6-6; *EB* obs. C5 – rare, locally frequent
- Chlamydophora tridentata* (Delile) Less. – Dörfler 1: “Karstfelsen und Meeresküste am Kap Kamarela” (E7); *EB* 95-72: E7-1; *EB* 96-113: C5-1; *RJ* 960401-58: C6-1; *RJ* 960401-70: D6-6; *EB* obs. A4, B3 – scattered
- Chrysanthemum coronarium* L. – Dörfler 46: “unter Saaten bei Kastri” (C5); *EB*, *RJ* obs. C6; *EB* obs. C3, C5, D5, D6; *RJ* Photo: D6-4; *RJ* obs. C4 – scattered, locally abundant
- Chrysanthemum segetum* L. – Dörfler 47: “unter Saaten bei Kastri” (C5); *EB*, *RJ* obs. C5 – rare, locally frequent
- Cichorium endivia* L. subsp. *divaricatum* (Schousboe) P. D. Sell – *EB* & *AJ* 94-31: C6-1; *EB* 95-29: B6-2; *EB* obs. C3 – scattered
- Cichorium spinosum* L. – *AJ* obs. A4; *EB*, *RJ* obs. E7; *RJ* obs. D6 – rare, locally frequent
- Crepis cretica* Boiss. – Dörfler 7: “sandiger Boden unweit Sarakiniko” (B6); *R* & *BS* 47721: “W of Kastri” (C4); *RJ* 940529-02: B7-1; *RJ* 960404-02: B7-1; *EB*, *RJ* obs. C4; *EB* obs. C3, E7; *RJ* obs. B5, C5, D6 – common
- Crepis multiflora* Sm. – *R* & *BS* 447852: “The NW point” (A34); *EB* & *AJ* 94-113: CD67; *EB* 95-120: B3-1; *RJ* 940526-33: E6-1; *RJ* 960404-01: B7-3; *EB* obs. A4 – scattered
- Crepis pusilla* (Somm.) Merxm. – *EB* 96-37: A4-1; *RJ* 960401-21: C6-1; *EB* obs. C4 – very scattered

*Crepis tybakiensis* Vierh. – *EB* 95-86: C5-2; *EB*, *RJ* obs. B7; *RJ* obs. D6 – scattered

*Crupina crupinastrum* (Moris) Vis. – *R* & *BS* 47790: “Kastri. The ravine at the church” (C5); *EB* 95-141: D6-1; *RJ* obs. C5 – scattered

*Cynara cornigera* Lindley – *R* & *BS* 47715: “W of Kastri” (C4); *EB* & *AJ* 94-67: D6-1; *EB* obs. C3; *RJ* obs. C4, C5; also recorded from Gavdopoúla (WELTER-SCHULTES, 1995) – scattered

*Dittrichia viscosa* (L.) Greuter – *EB* obs. B5 – rare

*Filago aegaea* Wagenitz subsp. *aristata* Wagenitz – *Rechinger* 13671 (“*F. spathulata* var. *siria*”): “sandige Hügel am Kap Tsuno” (B7) (WAGENITZ, 1970: 130; GREUTER, 1973: 59); *R* & *BS* 47803b: “1 km NW of Kastri” (C45); *R* & *BS* 47835: “The NW point” (A34); *R* & *BS* 47867: “Sarakiniko” (B6); *EB* & *AJ* 94-108: A4-1; *EB* 95-15: B6-2; *RJ* 940526-05: C6-1; *RJ* 940526-14: D6-1; *RJ* 960401-09: C6-4; *EB*, *RJ* obs. B7, C3, C5; *EB* obs. A5, A6, E7; *RJ* obs. B4, B5, E6 – common

*Filago contracta* (Boiss.) Chrtek & Holub – *R* & *BS* 47734: “2–4 km S–SW of Kastri” (D5); *R* & *BS* 47803c: “1 km NW of Kastri” (C45); *EB* 95-114: C3-1; *EB* 96-54: C5-1; *RJ* 960401-23: C6-1; *EB* obs. D6 – scattered

*Filago cretensis* Gand. – *EB* 96-40: A4-1; *EB* 96-106: C4-1 – rare

The small collection *EB* 96-106 belongs to subsp. *cretensis*, whereas *EB* 96-40 matches subsp. *cycladum* Wagenitz which is known hitherto only from the Cyclades and the Karpathos archipelago where it is chiefly found on smaller islands (WAGENITZ, 1970: 125f.). Few specimens in this collection are transitional between the two subspecies. Such forms were already mentioned by WAGENITZ (1970).

*Filago eriocephala* Guss. – *EB* & *AJ* 94-122: C4-2 – rare

*Filago gallica* L. – *R* & *BS* 47709b: “Along the road from the harbour to Kastri” (BC6); *R* & *BS* 47832: “The NW point” (A34); *EB* obs. B6, C6; *RJ* obs. C5 – scattered

*Filago pyramidata* L. – *Dörfler* 87 (*F. spathulata* Presl): “Karstboden bei Kap Kamarela”; *R* & *BS* 47720: “W of Kastri” (C4); *R* & *BS* 47751: “2–4 km S–SW of Kastri” (D5); *EB* & *AJ* 94-52: C6-1; *EB* 95-3: B6-2; *RJ* 960401-24: C6-1; *EB*, *RJ* obs. C5; *EB* obs. A4, C3, D6 – rather common

*Geropogon hybridus* (L.) C. H. Schultz – *EB* & *AJ* 94-125: C6-4 – rare

*Hedypnois rhagadioloides* (L.) F. W. Schmidt subsp. *rhagadioloides* (incl. *H. tubaeformis* Ten.) – Dörfler 15 (“*H. cretica* (L.) Willd.”): “Dünen an der Nordküste”; Dörfler 98 (“*H. tubaeformis* Ten.”): “Südküste”; EB obs. A4, B5, B6, C3, C5, D6; RJ obs. B7, C4 – rather common

*Hedypnois rhagadioloides* (L.) F. W. Schmidt subsp. *monspeliensis* (Murb.) Hayek – EB obs. A4, B4, E7; RJ obs. C3, C4, C5, C6 – common

*Helichrysum conglobatum* (Viv.) Steudel – *R & BS* 47822: “Small stream near the NW point” (A4); *EB & AJ* 94-66: D6-1; *EB & AJ* 94-94: A4-1; *EB* 95-118: B3-1; EB obs. B6, C5, C6 – scattered

*Hyoseris scabra* L. – Dörfler 86: “Karstboden”; *RJ* 960401-27: C6-1; EB, RJ obs. C5; EB obs. C3, D5 – scattered

*Hypochaeris achyrophorus* L. – Dörfler 1157 (*Hypochoeris aethnensis* (L.) Bentham & Hook.): “Sandboden”; EB, RJ obs. B7, C5, D6; EB obs. C3, E7; RJ obs. C4, C6 – common

*Lactuca serriola* L. – EB, AJ obs. B7 – rare

*Lamyropsis cynaroides* (Lam.) Dittrich – EB, RJ obs. C4; EB obs. C5; RJ obs. C6, D6 – scattered

*Leontodon tuberosus* L. – Dörfler 1156: “Karstboden”; EB, RJ obs. C3, C4, C5, D6; EB obs. B7, D5, E7; RJ obs. B5, C6 – common

*Matricaria aurea* (L.) Schultz Bip. – *EB* 96-112: C4-2; *RJ* 960402-09: B4-1 – rare, but locally frequent

New to Greece.

*Onopordum tauricum* Willd. – *R & BS* 47856: “2–4 km N of Kastri” (BC5)

*Phagnalon graecum* Boiss. & Heldr. – Dörfler 88 (*Ph. rupestre* (L.) DC. subsp. *graecum* (Boiss. & Heldr.) Hayek): “Karstboden bei Kap Kamarela” (E7); *Rechinger* 13649: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11); *R & BS* 47686: “Along the road from the harbour to Kastri” (BC6); EB, RJ obs. B7, C3, D6; EB obs. B4, B6, E7; RJ obs. B5, C4, C5, C6, E6 – common

*Reichardia picroides* (L.) Roth – *EB & AJ* 94-100: A4-1 – rare



**Rhagadiolus stellatus** (L.) Gaertner – *Dörfler 59* (*Rh. stellatus* (L.) Willd. var. *edulis* (Gaertn.) DC. f. *hebelaenus* DC.): “unter Saaten bei Kastri” (C5); *EB 96-66*: C5-1; EB obs. C3, C6 – scattered

For the synonymy of the name applied by VIERHAPPER & RECHINGER (1935) to Dörfler’s specimen see MEIKLE (1979), and the key provided by RECHINGER (1943).

**Senecio leucanthemifolius** Poirlet var. **pygmaeus** (DC.) Fiori – *EB 95-116*: B3-1; *RJ 960401-72*: D6-6; EB obs. A4; RJ obs. B5 – scattered

Records of *S. gallicus* from Crete and the Karpathos island group either belong here (W Kríti) or to var. *leucanthemifolius* (E Kríti, Karpathos group) (see ALEXANDER, 1979).

**Senecio vulgaris** L. – EB, RJ obs. C6; EB obs. C3, D6; RJ obs. B4, C4, E7 – rather common

**Sonchus oleraceus** L. – *EB & AJ 94-117*: CD67; *EB 95-25*: B6-2; EB, RJ obs. C5; EB obs. C3, D5; RJ obs. B7, C6, D6, E6 – rather common

**Steptorhamphus tuberosus** (Jacq.) Grossh. – RJ obs. C5; EB, RJ obs. D6 – scattered

**Taraxacum** sect. **Scariosa** – *R & BS 47812*: “1–4 km NW of Kastri” (BC45); *RJ 960401-39*: C6-1; EB, RJ obs. C5; EB obs. A4, B5, C3, C4; RJ obs. D6 – scattered

**Tragopogon sinuatus** Avé-Lall. – *R & BS 47762*: “2–4 km S–SW of Kastri” (D5); EB, RJ obs. D6; EB obs. D5; RJ obs. C5 – scattered

**Tyrimnus leucographus** (L.) Cass. – *Dörfler 117*: “Kulturboden bei Vathyana” (D56); *R & BS 47784*: “Kastri. The ravine at the church” (C5); *EB & AJ 94-77*: C5-1; RJ obs. D6 – scattered

**Urospermum picroides** (L.) F. W. Schmidt – *Dörfler 1151*: “Karstboden an der Südküste”; EB, RJ obs. B6, B7, C5; EB obs. A4, B4, C3, C4, E7; RJ obs. C6, D6 – common

#### *Convolvulaceae*

**Convolvulus althaeoides** L. – *EB & AJ 94-134*: C6-4; *EB 95-58*: D6-3; EB obs. B7, C3, D5, E7 – scattered

**Convolvulus oleifolius** Desr. – *EB 95-147*: D6-4 – rare

**Cuscuta palaestina** Boiss. – *R & BS 47761*: “2–4 km S–SW of Kastri” (D5); *R & BS 47773*: “3 km S of Kastri” (D5); *EB & AJ 94-6*: B6-2; *RJ 940529-03*: B7-1; EB, RJ obs. C5, D6; EB obs. B6, B7; RJ obs. B5, C3, C4, C6 – common (frequently on *Satureja thymbra* and *Globularia alypum*)

*Crassulaceae*

*Tillaea alata* Viv. – *EB* 95-171: A4-1; *EB* 96-41: A4-1; *RJ* 960401-20: C6-1; *RJ* 960401-61: D6-3; *RJ* 960402-15: C4-1; *EB* obs. C5 – scattered

*Tillaea vaillantii* Willd. – *Dörfler* 475: “in Wasserlachen (Karstlöchern) nächst Kastri. In eiskaltem Wasser” (see also RECHINGER & RECHINGER-MOSER, 1951: 190); *EB* 95-168: A4-1; *EB* 96-22: B7-2; *RJ* 960401-68: D6-7; *EB* obs. C4, C5, D5 – scattered

According to TURLAND & al. (1993) there is no post-1930 record for the Cretan area.

*Sedum creticum* C. Presl – *RJ* 960403-18: D6-5; *EB* obs. C5; *RJ* obs. C4 – rare

*Sedum litoreum* Guss. subsp. *litoreum* – *Dörfler* 472 (“*S. rubrum* (L.) Thell.”): “Karstfelsen unweit Kap Kamarela” (E7) (for the identity of the specimen see RUNEMARK & GREUTER, 1981: 20 and GREUTER, MATTHÄS & RISSE, 1984: 276); *R* & *BS* 47776: “Kastri. The ravine at the church” (C5); *EB* 95-44: C6-1; *EB* 96-26, 96-98: C5-4; *RJ* 940527-04: B5-2; *RJ* 940528-05: C5-1; *RJ* 960401-55: C6-1; *EB*, *RJ* obs. C4; *EB* obs. A4 – rather common

*Sedum rubens* L. subsp. *rubens* – *R* & *BS* 47726: “W of Kastri” (C4) (CARLSTRÖM, 1985: 112, “*S. delicum* (Vierh.) Carlström”); *EB* 95-45: C6-1; *RJ* obs. C4, D6 – scattered

*Sedum sediforme* (Jacq.) Pau – *Rechinger* (leg. Herzog) 13661 (“*S. altissimum* Poir.”): “bei Ambelos” (C3); *R* & *BS* 47803: “Kastri. The ravine at the church” (C5); *RJ* obs. B5 – rare

*Umbilicus horizontalis* (Guss.) DC. – *R* & *BS* 47787: “Kastri. The ravine at the church” (C5); *EB* 95-100: C4-1; also in natural habitats at the eastern Korfos bay cliff coast, *AJ* obs. – rare

*Cruciferae*

*Biscutella didyma* L. – *Dörfler* 55 (“var. *ciliata* (DC) Hal.”): “unter Saaten bei Kastri” (C5); *Dörfler* 1133 (“var. *columnae* (Ten.) Hal.”): “unter Saaten bei Xenakis” (D45); *EB*, *RJ* obs. C6; *EB* obs. B6, C3, C4, C5, D5, D6 – rather common

*Cakile maritima* Scop. – *R* & *BS* 47843: “The NW point” (A3); *EB* & *AJ* 94-20: B6-1 (cf. subsp. *aegyptiaca* (Willd.) Nyman) – rare, locally frequent

*Capsella bursa-pastoris* (L.) Medicus – *EB* obs. A4, C5; *RJ* obs. C4; C6 – scattered

*Clypeola jonthlaspi* L. – *Dörfler* 91 (subsp. *petraea* (Jordan & Fourreau) Vierh.): “Karstboden an der Südküste”; *R* & *BS* 47750: “2–4 km S–SW of Kastri” (D5); *EB* obs. A4, C4, C5; *RJ* obs. C6 – scattered

***Didesmus aegyptius*** (L.) Desv. – *Dörfler* 96 (*Rapistrum aegyptium* (L.) Baill.): “Karstboden an der Südküste”; *R & BS* 47795: “Kastri. The ravine at the church” (C5); *EB & AJ* 94-30: C6-1; *EB* 95-110: C3-1; EB, RJ obs. C5 – scattered

***Diplotaxis viminea*** (L.) DC. – *Dörfler* 93: “Karstboden an der Südküste”; *R & BS* 47687: “Along the road from the harbour to Kastri” (B6); *R & BS* 47815: “1-4 km NW of Kastri” (B4); *EB & AJ* 94-8: B7-1; *RJ* 960401-05: C6-4 – scattered

***Erophila praecox*** (Steven) DC. – *EB* 96-109: C4-1; *RJ* 940526-24: D6-4; *RJ* 960401-22: C6-1; *RJ* 960402-12: C3-1; EB obs. A4 – scattered

***Hirschfeldia incana*** (L.) Lagr.-Foss. – EB, RJ obs. C6; EB obs. C3 – rare

***Hymenolobus procumbens*** (L.) Torr. & A. Gray – *R & BS* 47841: “The NW point” (RAUS, 1990: 36); *EB* 95-85: E7-1; *RJ* 960403-12: E7-1 – rare

***Malcolmia africana*** (L.) R. Br. – *RJ* 960401-12: C6-4 – rare

***Malcolmia chia*** (L.) DC. – *Dörfler* 72 (var. *xerophila* Vierh.): “Karstboden bei Kastri”; *Dörfler* 72a (var. *xerophila* Vierh.): “Dünen bei Sarakiniko” (B6)

***Malcolmia flexuosa*** (Sm.) Sm. subsp. *naxensis* (Rech. fil.) A. Stork – *EB & AJ* 94-101: A4-1; *EB & AJ* 94-112: CD67; *EB* 95-117: B3-1; *RJ* 960403-15: E7-2 – scattered

***Malcolmia nana*** (DC.) Boiss. – *EB & AJ* 94-17: B6-1; *RJ* 960404-04: B7-4; EB obs. A4-1 – rare

***Raphanus raphanistrum*** L. – EB obs. C3, C6 – rare

***Sinapis alba*** L. subsp. *mairei* (H. Lindb. fil.) Maire – *R & BS* 47690: “Along the road from the harbour to Kastri” (BC6); *EB & AJ* 94-24: B6-2; EB obs. C5; RJ obs. C6 – scattered

***Sinapis arvensis*** L. subsp. *arvensis* – *R & BS* 47747: “2–4 km S–SW of Kastri” (D5); *EB* 95-112: C3-1; *EB* 96-56: C6-5; EB obs. D5, D6 – scattered, locally frequent

***Sisymbrium officinale*** L. – EB obs. C6 – rare

***Sisymbrium orientale*** L. – *EB* 95-111: C3-1; EB, RJ obs. C6; EB obs. D5 – scattered

***Thlaspi perfoliatum*** L. – EB & AJ obs. C5 – rare

*Dipsacaceae*

*Pterocephalus plumosus* (L.) Coulter – *R & BS* 47730: “W of Kastri” (C4); *RJ* obs. C5 – rare

*Ericaceae*

*Erica manipuliflora* Salisb. – *Rechinger* 13663: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 100); *EB*, *RJ* obs. B6, B7, C3; *EB* obs. A6, C4, C5, E7; *RJ* obs. B5, C6 – common

*Euphorbiaceae*

*Euphorbia exigua* L. – *Dörfler* 13: “Sandboden”; *R & BS* 47718: “W of Kastri” (C4); *R & BS* 47753: “2–4 km S–SW of Kastri” (D5); *EB & AJ* 94-10: C6-1; *EB & AJ* 94-99: A4-1; *RJ* 960401-07: C6-4; *EB*, *RJ* obs. D6; *EB* obs. A6, C3, E7; *RJ* obs. B7, C5 – common

*Euphorbia helioscopia* L. – *EB* obs. C3, C5 – rare

*Euphorbia paralias* L. – *EB* obs. B6, CD67 – rare

*Euphorbia peplis* L. – *Rechinger* 13665: “an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 28 and 29); *EB & UM* 3523: B6; *EB & AJ* 94-104: A4-1 – rare

*Euphorbia peplus* L. – *EB* 95-13: B6-2; *EB* 96-48: A4-1; *RJ* 960401-08: C6-4; *EB*, *RJ* obs. B7; *EB* obs. C3, D6; *RJ* obs. C5 – common

*Mercurialis annua* L. – *R & BS* 47781: “Kastri. The ravine at the church” (C5); *EB*, *RJ* obs. C5; *RJ* obs. D6 – scattered

*Frankeniaceae*

*Frankenia hirsuta* L. – *R & BS* 47797: “Kastri. The ravine at the church” (C5); *R & BS* 47813: “1–4 km NW of Kastri” (BC45); *EB & AJ* 94-97: A4-1; *RJ* 940527-08: A5-1; *EB*, *RJ* obs. C5, E7; *EB* obs. C6; *RJ* obs. D6 – scattered

*Frankenia pulverulenta* L. – *R & BS* 47845: “The NW point” (A34); *EB & AJ* 94-14: B6-2; *EB & AJ* 94-37: C6-1; *EB* 95-83: E7-1; *RJ* obs. D6 – scattered

*Gentianaceae*

*Blackstonia perfoliata* (L.) Hudson – *EB* 95-2: B6-2; *EB*, *RJ* obs. C5; *EB* obs. D5, E7; *RJ* obs. B5, C4, D6 – rather common

*Centaurium pulchellum* (Swartz) Druce – *EB* & *AJ* 94-29: B6-2 – rare

*Centaurium tenuiflorum* (Hoffmanns. & Link) Fritsch subsp. *tenuiflorum* – *R* & *BS* 47727: “W of Kastri” (C4); *R* & *BS* 47860: “Sarakiniko” (B6); *EB* & *AJ* 94-95: A4-1; *RJ* 940526-03: C6-1; *EB*, *RJ* obs. B7, C3, C5; *EB* obs. A6, E7; *RJ* obs. B5, B6, C4, D6 – common

*Geraniaceae*

*Erodium botrys* (Cav.) Bertol. – *Dörfler* 79: “Karstboden” (see also DAHLGREN, 1980, distribution map)

*Erodium cicutarium* (L.) L’Hér. subsp. *bipinnatum* (Cav.) Tourlet – *EB* & *AJ* 94-93: A4-1; *EB* 95-61: C6-1; *EB* 96-32: B6-4; *EB* 96-51: C6-5 – scattered

**New to the Cretan area.**

*E. cicutarium* subsp. *bipinnatum* is distinguished from subsp. *cutitarium* by the absence of a furrow below the distal pit of the mericarp, by the darker red violet (instead of lilac) petals, the less deeply incised leaflets with subobtusate pinnules and the less dense indumentum.

*Erodium cicutarium* (L.) L’Hér. subsp. *cutitarium* – *EB* 95-123: B6-1; *EB* 96-33: B6-4; *RJ* 940526-04: C6-1; *EB* obs. C3 – rather common

The following records cannot be assigned to either subspecies: *Rechinger* 13645: “Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MÖSER, 1951: table 28, and DAHLGREN, 1980, distribution map); *R* & *BS* 47693, 47705: “Along the road from the harbour to Kastri” (BC6); *R* & *BS* 47873: “Sarakiniko” (B6); *RJ* 960401-06: C6-4; *RJ* obs. B4, D6

*Erodium gruinum* (L.) L’Hér. – *R* & *BS* 47695: “Along the road from the harbour to Kastri” (BC6); *EB* 95-56: D6-3; *RJ* obs. C6 – scattered

*Erodium laciniatum* (Cav.) Willd. subsp. *laciniatum* – *R* & *BS* 47873pp: “Sarakiniko” (B6); *EB* 95-126: B6-1; *RJ* 960402-03: C5-1; *EB* obs. A4, B7 – scattered

*Erodium malacoides* (L.) L’Hér. – *R* & *BS* 47759: “2–4 km S–SW of Kastri” (D5); *EB* 95-60: D6-3; *EB* obs. C5, D56; *RJ* obs. B5, C4, E7 – scattered

*Geranium molle* L. – *EB* obs. C5, D6; *RJ* obs. C4, C6 – scattered

*Geranium purpureum* Vill. – *EB*, *RJ* obs. D6; *EB* obs. C4, C5 – scattered

*Geranium rotundifolium* L. – *EB* obs. C3, C5, D6; *RJ* obs. C4 – scattered

*Globulariaceae*

*Globularia alypum* L. – *Dörfler* 2: “Karstboden der Nord- und Ostküste”; *Rechinger* 13659: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 120); *R & BS* 47701: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47769: “3 km S of Kastri” (D5); *EB & AJ* 94-53: C6-1; EB, RJ obs. B6, B7; EB obs. A6, C5; RJ obs.: B5, C3 – common

*Guttiferae*

*Hypericum triquetrifolium* Turra – EB obs. C3, D56 – very scattered

*Labiatae*

*Ajuga iva* (L.) Schreber – *R & BS* 47802: “Kastri. The ravine at the church” (C5); *EB & AJ* 94-13: B7-1; *RJ* 940527-05: C5-5; *RJ* 960401-17: C6-1 – scattered

According to TURLAND & al. (1993) there are no published records for Kríti since 1930.

*Coridothymus capitatus* (L.) Reichenb. fil. – *Dörfler* 103: “Karstboden”; *Rechinger* 13651: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 70); *EB & UM* 3521: B6; EB, RJ obs. B6, B7, C3, C4, C5, D6; EB obs. A4, A6, B4, D5, E7; *RJ* Photo: B7-4; *RJ* obs. B5, C6, E6 – common

*Lamium amplexicaule* L. – EB, RJ obs. C4, D6; EB obs. C5 – scattered

*Marrubium vulgare* L. – *EB & AJ* 94-40: C6-1; EB obs. B6, C5, D5 – scattered

*Nepeta melissifolia* Lam. – *Dörfler* 53: “Karstfelsen bei Kastri”; *R & BS* 47700: “Along the road from the harbour to Kastri” (C6); *EB & AJ* 94-63: C5-1; *RJ* 960402-13: C3-1; EB, RJ obs. C4; EB obs. C3, C6 – scattered, locally frequent

*Phlomis fruticosa* L. – *R & BS* 47788: “Kastri. The ravine at the church” (C5); EB obs. C5 – rare

*Prasium majus* L. – *Dörfler* 100 (f. *creticum* Hausskn.); EB, RJ obs. B6, C3, C6, D6; EB obs. A4, A6, B4, B7, C4, E7; *RJ* obs. E6 – common

*Salvia verbenaca* L. – *EB* 95-59: C6-1; EB, RJ C5; EB obs. C3, D5 – scattered

*Salvia viridis* L. – *Dörfler* 29: “Karstfelsen bei Vathyana” (D56); *EB* 96-74: D6-1 – rare



*Satureja nana* (P. H. Davis & Doroszenko) R. Jahn – EB obs. D6 – rare

*Satureja nervosa* Desf. – *R & BS* 47689: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47735: “2–4 km S–SW of Kastri (D5); *EB & AJ* 94-45: C6-1; *EB* 96-55: C6-5; EB, RJ obs. C3, C5; EB obs. E7; RJ obs. D6 – rather common

*Satureja thymbra* L. – *Dörfler* 64: “Karstboden bei Kastri” (see also BORATYNSKI & al., 1992: 243); *R & BS* 47697: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47719: “W of Kastri” (C4); EB, RJ obs. C4, C5; EB obs. A4, B4, B6, C3, C6, E7; RJ obs. B5 – common

*Sideritis curvidens* Stapf – *Dörfler* 24 (“*S. romana* L. subsp. *eu-romana* Hay.”): “Karstboden bei Kastri”; *EB* 95-43: C6-1; EB, RJ obs. B7, C5; EB obs. A4, C3; RJ obs. C4 – scattered

*Teucrium brevifolium* Schreber – *Dörfler* 85: “an Felsen unweit Kap Kamarela” (E7); *EB* 95-121: B6-4; *RJ* 940527-02: B6-5; EB, RJ obs. E7; EB obs. A6, B7; RJ obs. C6 – scattered

*Teucrium divaricatum* Heldr. subsp. *divaricatum* – *EB & AJ* 94-128: C6-4 (single plant at a fenced olive grove, not observed after 1994; possibly adventive)

*Teucrium microphyllum* Desf. – EB, RJ obs. C3, D6; EB obs. A6, E7 – scattered

#### Leguminosae

*Anagyris foetida* L. – *EB* 95-161: C3-1; EB obs. C5 – rare

*Anthyllis hermanniae* L. – *Rechinger* 13666: “sandige Hügel am Kap Tsuno” (B7) “und auf Schiefer obs.” (RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 24); EB, RJ obs. B7, C3, C6; EB obs. B6, C4, C5, E7; RJ Photo: C6-1; RJ obs. E6 – common

*Astragalus epiglottis* L. subsp. *epiglottis* – *EB* 96-114: B6-3 – rare

New to Kríti.

*Astragalus hamosus* L. – *R & BS* 47709: “Along the road from the harbour to Kastri” (BC6); *EB* 95-39: C6-1; EB obs. A4, C3, D5; RJ obs. B5; D6 – scattered

*Astragalus sinaicus* Boiss. – *EB & AJ* 94-131: B6-1; *EB* 95-128: B7-2; *RJ* 960401-64: C6-6; EB obs. A4 – very scattered

*Bituminaria bituminosa* (L.) C. H. Stirton – EB, RJ obs. C5, E7 – scattered

*Calicotome villosa* (Poiret) Link – EB obs. AB5 – rare

*Ceratonia siliqua* L. – Rechinger obs. (see also RECHINGER & RECHINGER-MOSER, 1951: table 11, and BORATYNSKI & al., 1992: 52); EB, RJ obs. D6; EB obs. C3, C6, E7 – scattered

Chiefly but not exclusively found close to (formerly) cultivated places.

*Coronilla scorpioides* (L.) Koch – Dörfler 60: “unter Saaten bei Kastri” (C5); *R & BS 47714*: “Along the road from the harbour to Kastri” (BC6); *EB & AJ 94-55*: C6-1; *EB 95-137*: C6-4; EB, RJ obs. C3, C5, D6; EB obs. C6, D5; RJ obs. B5, B7 – common

*Dorycnium hirsutum* (L.) Ser. – Dörfler 102 (var. *hirtum* (Jord. & Fourr.) Rikli): “Karstboden bei Sarakiniko” (B6); *R & BS 47713*: “Along the road from the harbour to Kastri” (BC6); *EB & AJ 94-129*: C6-4; *RJ 940528-03*: B6-2; EB obs. C3, C4; RJ obs. B5, C5, D6 – scattered

*Hedysarum spinosissimum* L. – *R & BS 47708*: “Along the road from the harbour to Kastri” (BC6); *EB 1995-5*: B6-2; EB, RJ obs. C5; EB obs. A4, B7, C3, E7; RJ obs. C6, D6 – rather common

*Hippocrepis biflora* Sprengel – *R & BS 47758*: “2–4 km S–SW of Kastri” (D5); *EB 95-53*: D6-1; EB, RJ obs. C3, C4, C5; EB obs. B7 – rather common

*Hippocrepis ciliata* Willd. – Dörfler 8: “Sandboden”; *R & BS 47811*: “1–4 km NW of Kastri” (BC45); *EB 95-115*: C6-5; *RJ 940526-25*: D6-4; EB, RJ obs. B7, C3; EB obs. A6, B6, E7; RJ obs. B5, C5, E6 – common

*Hymenocarpus circinnatus* (L.) Savi – Dörfler 95: “Karstboden”; *R & BS 47711*: “Along the road from the harbour to Kastri” (BC6); EB, RJ obs. C3, C4, C5, C6; EB obs. D5; RJ obs. D6 – common

*Lathyrus amphicarpos* L. – *EB 95-88*: C5-2; *RJ 960402-19*: C5-1; RJ obs. D6 – scattered

*Lathyrus aphaca* L. – *EB 96-86*: D56; *RJ 960403-19*: D6-4 – rare

*Lathyrus cicera* L. – Dörfler 52: “unter Saaten bei Kastri” (C5); *R & BS 47691*: “Along the road from the harbour to Kastri” (BC6); *EB & AJ 94-18*: B7-1; *EB 95-98, 95-113*: C3-1; *RJ 940526-16*: D6-1; EB obs. C6 – scattered

*EB 95-98* represents a variant with dark-spotted valves which occurs frequently in fields in the area; the spots are hardly recognizable in dried material.

*Lathyrus hierosolymitanus* Boiss. – Dörfler 50: “unter Saaten bei Kastri” (C5); *EB 95-94*: C3-1; *EB 96-89*: D56 – scattered

*Lathyrus saxatilis* (Vent.) Vis. – *R & BS* 47793: “Kastri. The ravine at the church” (C5); *R & BS* 47863: “Sarakiniko” (B6); *EB* 96-44: A4-1 – very scattered

*Lathyrus setifolius* L. – *R & BS* 47792: “Kastri. The ravine at the church” (C5); *RJ* obs. C6 – very scattered

*Lathyrus sphaericus* Retz. – *EB & AJ* 94-23: B6-2; *EB* 95-6: B6-2, *EB* obs. C5, C6, D5 – very scattered

*Lens nigricans* (Bieb.) Godron – *EB* 95-87: C5-2; *EB* 96-75: D6-1; *EB* 96-94: C5-4; *RJ* 960402-20: C5-1 – scattered

*Lotus cytisoides* L. – *Dörfler* 92 (*L. creticus* L. subsp. *cytisoides* (L.) Briq.): “Karstboden”; *R & BS* 47694: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47851: “The NW point” (A34); *EB & AJ* 94-111: CD67; *RJ* 940527-06: C5-5; *RJ* 960401-11: C6-4; *EB*, *RJ* obs. C3, E7; *RJ* Photo: D6-4; *RJ* obs. C5 – scattered

*Lotus edulis* L. – *EB*, *RJ* obs. C3, B5; *EB* obs. E7; *RJ* obs. B7, C5, C6, D6 – rather common

*Lotus halophilus* Boiss. & Spruner – *Dörfler s.n.*: “Dünen bei Sarakiniko” (B6); *Rechinger* obs.: “sandige Niederungen” (see also RECHINGER & RECHINGER-MOSER, 1951: tables 11, 28 and 29); *R & BS* 47833: “The NW point” (A34); *EB & AJ* 94-16: B6-1; *EB & AJ* 94-107: A4-1; *EB* 95-34: B6-1; *RJ* 940529-05: B7-1; *EB*, *RJ* obs. B7 – scattered, locally frequent

*Lotus ornithopodioides* L. – *R & BS* 47716: “W of Kastri” (C4); *EB*, *RJ* obs. C3, D6; *RJ* obs. C4, C5 – scattered

*Lotus peregrinus* L. – *Dörfler* 1132: “Südküste”; *EB* 95-1: B6-2; *RJ* 960401-65: C6-6; *EB* obs. C3, D5 – scattered

*Lotus tetragonolobus* L. – *R & BS* 47746: “2–4 km S–SW of Kastri” (D5); *EB* 95-64: D56, *EB*, *RJ* obs. C3; *EB* obs. C6; *RJ* obs. D6 – scattered

*Medicago coronata* (L.) Bartal. – *Dörfler* 1145: “Felsen am Kap Kamarela” (E7); *EB*, *RJ* obs. C3, C4, C5; *EB* obs. D5, E7; *RJ* obs. B5, B7, C6, D6 – common

*Medicago littoralis* Loisel. – *Dörfler* 14 (var. *brevisetia* DC.): “Dünen an der Nordküste” (see also RECHINGER & RECHINGER-MOSER, 1951: table 29); *EB & AJ* 94-65: C6-1; *EB* 95-172: B6-1; *EB* obs. A4 – scattered

*Medicago marina* L. – 1942 *Rechinger* obs. (see also RECHINGER & RECHINGER-MOSER, 1951: tables 28 and 29); *R & BS* 47836: “The NW point” (A34); *R & BS* 47872: “Sarakiniko” (B6); *EB*, *RJ* obs. B6; *EB* obs. A4 – scattered, locally frequent

*Medicago minima* (L.) L. – *R & BS 47729*: “W of Kastri” (C4); *R & BS 47821*: “Small stream near the NW point” (A4); RJ obs. C5 – rare

*Medicago monspeliaca* (L.) Trautv. – *Dörfler 11* (*Trigonella monspeliaca* L. f. *typica* Eig): “sandiger Boden”; EB, RJ obs. C3, C4, C5; RJ obs. B5, B7, C6, D6, E6 – common

*Medicago orbicularis* (L.) Bartal – *Dörfler 34*: “Karstboden bei Vathyana” (D56); EB obs. C3, C5 – scattered

*Medicago polymorpha* L. – *Dörfler 32* (*M. hispida* Gärtner. var. *lappacea* (Desr.) Hal.): “Vathyana” (D56); *EB 95-28*: B6-2; EB obs. C3, D5, D6 – scattered

*Medicago rigidula* (L.) All. – *EB 95-79*: E7-1; *EB 132*: C6-4 – rare

The specimens may be assigned to var. *agrestis* Burnat.

*Medicago rugosa* Desr. – *EB 95-103*: C3-1; EB obs. D5, D6 – scattered

*Medicago truncatula* (Retz.) Willd. – *Dörfler 33* (*M. tribuloides* Desr.): “Karstboden bei Vathyana” (D56); *R & BS 47739*: “2–4 km S–SW of Kastri” (D5); *R & BS 47796*: “Kastri. The ravine at the church” (C5); *EB 95-68*: D56; EB, RJ obs. C5; EB obs. C3, E7; RJ obs. C4, D6 – scattered

Our specimen represents the type variety.

*Medicago tuberculata* Gaertner – *Dörfler 63*: “unter Saaten bei Kastri” (C5)

*Melilotus sulcatus* Desf. – *R & BS 47804*: “1–4 km NW of Kastri” (BC45); *EB 96-58*: C6-5; *RJ 960402-02*: C6-5; EB obs. B7, D6 – scattered

*Onobrychis aequidentata* (Sm.) D’Urv. – *R & BS 47737*: “2–4 km S–SW of Kastri” (D5); *EB 95-38*: C6-1; EB, RJ obs. C3; EB obs. C5; RJ obs. B7 – scattered

*Onobrychis caput-galli* (L.) Lam. – *Rechinger 13669*: “sandige Hügel am Kap Tsuno” (B7); *R & BS 47706*: “Along the road from the harbour to Kastri” (BC6); *EB 95-16*: B6-2; EB, RJ obs. B7; EB obs. C3, E7; RJ obs. C5, C6, D6 – rather common

*Ononis hispanica* L. fil. subsp. *hispanica* – *Rechinger 13646*: “Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 28 and 29, and FÖRTHNER & PODLECH, 1991: 251); *R & BS 47702*: “Along the road from the harbour to Kastri” (B6); *R & BS 47834*: “The NW point” (A34); *EB & UM 3520*: B6; *EB & AJ 94-110*: B6-1; EB obs. A4, B7; RJ obs. C6 – scattered, but locally frequent

*Ononis ornithopodioides* L. – *R & BS* 47865: “Sarakiniko” (B6); *EB* 95-173: B6-2; *EB & AJ* 94-81: C6-2; *RJ* 960401-51: C6-1; *EB* obs. C5 – scattered

*Ononis reclinata* L. – *Rechinger* 13667c (“var. *mollis* Heldr.”): “sandige Hügel am Kap Tsuno” (B7); *R & BS* 47703: “Along the road from the harbour to Kastri” (BC6); *R & BS* 47780: “Kastri. The ravine at the church” (C5), *R & BS* 47820: “Small stream near the NW point” (A4); *EB* 95-89: C5-2; *RJ* 940526-06: C6-1; *RJ* 940526-18: D6-1; *RJ* 940527-01: B6-5; *RJ* 940528-04: C5-1; *RJ* 940529-06: B7-1; *RJ* 960401-63: D6-3; *EB*, *RJ* obs. C3; *EB* obs. E7; *RJ* obs. B5, C4, E6 – common

*Ononis sieberi* DC. – *R & BS* 47704: “Along the road from the harbour to Kastri” (BC6); *EB & AJ* 94-133: B7-2; *RJ* 940526-01: C6-1 – rare

*Ononis verae* Sirj. – *Dörfler* 73: “Felsen am Kap Kamarela zwischen Gebüsch” (E7); *EB & AJ* 94-73: D6-1; *EB* 95-90: C5-2; *RJ* 940526-07: C6-1; *RJ* 960403-03: D6-1; *EB*, *RJ* obs. B7, C4, D6; *EB* obs. B6, C3, D5, E7; *RJ* Photo: D6-3; *RJ* obs. B5 – common

*Ononis viscosa* L. subsp. *breviflora* (DC.) Nyman – *EB & AJ* 94-79: C6-2; *EB* obs. C5 – rare

*Pisum sativum* L. subsp. *sativum* – *EB* 95-158: C3-1 – rare, established weed

*Scorpiurus muricatus* L. var. *muricatus* – *EB* 95-155: C3-1; *EB* obs. C5; *RJ* obs. D6 – scattered

*Scorpiurus muricatus* L. var. *subvillosus* (L.) Fiori – *Dörfler* 82 (*S. subvillosus* L.): “Karstboden bei Kap Kamarela”; *EB*, *RJ* obs. C3, C5, D6; *EB* obs. B7, E7; *RJ* obs. B6, C6 – common

*Securigera securidaca* (L.) Degen & Dörfler – *Dörfler* 26: “Karstboden bei Kastri” (C5); *R & BS* 47764: “2–4 km S–SW of Kastri” (D5); *EB*, *RJ* obs. C6; *EB* obs. D5, E7 – scattered

*Trifolium arvense* – *RJ* obs. C6 – rare

*Trifolium campestre* Schreber – *Dörfler* 71: “Felsen am Kap Kamarela” (E7); *EB*, *RJ* obs. B7, C3, C4, C5; *EB* obs. D5, E7; *RJ* obs. B5, C6, D6 – common

*Trifolium infamia-ponertii* Greuter – *R & BS* 47731: “W of Kastri” (C4); *EB*, *RJ* obs. C3, C5; *RJ* obs. B5, C4, D6 – rather common

*Trifolium scabrum* L. – *Dörfler* 9: “Dünen an der Nordküste”; *R & BS* 47707: “Along the road from the harbour to Kastri” (BC6); *EB*, *RJ* obs. B7, C3, C5, C6; *EB* obs. A4, B4, E7; *RJ* obs. B5, C4, D6 – common

*Trifolium stellatum* L. – Dörfler 1134: “Karstboden bei Vathyana” (D56); EB, RJ obs. C3, C5; EB obs. E7; RJ obs. B5, C4, C6, D6 – common

*Trifolium suffocatum* L. – RJ 960401-40: C6-1; EB, RJ obs. C4, C5; EB obs. A4, C4 – scattered

*Trifolium tomentosum* L. – RJ 960401-41: C6-1; EB, RJ obs. C4, C5, D6; EB obs. B6, C3, D5 – rather common

*Trigonella spinosa* L. – Dörfler 1153: “auf Sandboden”; R & BS 47722: “W of Kastri” (C4); EB 96-59: C6-5; RJ 960401-42: C6-1 – rare

*Tripodion tetraphyllum* (L.) Fourr. – Dörfler 81 (*Physanthyllis tetraphylla* (L.) Boiss.): “Karstboden”; EB obs. C6; RJ obs. D6 – rare

*Vicia cretica* Boiss. & Heldr. – Dörfler 67 (*V. spruneri* Boiss.): “Kastri” (C5); R & BS 47772: “3 km S of Kastri” (D5); R & BS 47786: “Kastri. The ravine at the church” (C5); EB 96-31: B7; EB, RJ obs. C4, C5, C6, D6; EB obs. B6, C3, D5, E7 – common

[*Vicia faba* L.] – EB, RJ obs.; cultivated, locally escaped

*Vicia hybrida* L. – RJ obs. C5-1 – rare

*Vicia parviflora* Cav. – R & BS 47684: “Along the road from the harbour to Kastri” (BC6); R & BS 47849: “The NW point” (A34); EB 95-4: B6-2; EB, RJ obs. C6; EB obs. B7, C3, C4, C5, D5 – rather common

*Vicia peregrina* L. – RJ 960402-05: C5-1 – rare

*Vicia sativa* L. subsp. *amphicarpa* (L.) Batt. – RJ 940526-29: D6-4; RJ 960401-44: C6-1; RJ 960402-06: B5-2; RJ 960402-10: C3-1; RJ 960403-09: D6-4; RJ obs. C5, D6 – scattered

#### Confirmation for the Cretan area.

*Vicia sativa* L. subsp. *cordata* (Hoppe) Asch. & Graebner – Dörfler 51: “Kastri” (C5); RJ 960401-56: C6-1 – rare

The following records of *V. sativa* cannot be assigned with certainty to any subspecies: EB & AJ 94-22: B6-2; EB 95-65: C3-1; EB 95-99: D56; EB obs. C6.

#### Linaceae

*Linum strictum* L. var. *spicatum* Pers. – EB 95-20: B6-2; EB, RJ obs. B6, B7, C3, C4, C5, D6; EB obs. A6, D5, E7; RJ obs. B5, C6 – common



*Lythraceae*

*Lythrum hyssopifolia* L. – EB 96-83: C6-6; EB obs. A4, B7, C4, C5 – scattered

*Malvaceae*

*Malva aegyptia* L. – EB 96-35: B6-4; EB obs. E7; RJ obs. C3, C4, D6, E6 – scattered

*Malva cretica* Cav. subsp. *cretica* – Dörfler 1146: “Felsen am Kap Kamarela” (E7); EB obs. E7 – rare

*Malva parviflora* L. – R & BS 47748: “2–4 km S–SW of Kastri (D5); EB & AJ 94-36: C6-1; RJ 960401-30: C6-1; EB obs. C5, D6 – scattered

*Moraceae*

[*Ficus carica* L.] – EB, RJ obs. C5, D3 – scattered occurrences probably all due to cultivation

*Oleaceae*

*Olea europaea* L. var. *sylvestris* (Miller) Lehr – EB obs. B7, C5 – rare

Young plantations of the cultivated taxon in B6 and C6.

*Orobanchaceae*

*Orobanche pubescens* Dum.-Urv. – EB 95-148: E7-1; EB 96-42: A4-1; EB obs. C6 – scattered

*Orobanche ramosa* L. subsp. *mutelii* (F. W. Schultz) Cout. – Dörfler 58 (*O. muteli* F. Schultz f. *spissa* Beck): “Karstboden bei Kastri” (C5); Dörfler 1144 (*O. muteli* f. *spissa*): “Felsen am Kap Kamarela” (E7); R & BS 47810: “1–4 km NW of Kastri” (BC45); EB 96-76: D6-3 (on *Chrysanthemum coronarium*), EB obs. C6 – very scattered

*Orobanche ramosa* L. subsp. *nana* (Reuter) Cout. – RJ 940529-07: B7-1 – rare

*Oxalidaceae*

*Oxalis pes-caprae* L. – EB obs. B5 (1994, one plant); EB, RJ obs. C6 (1996, numerous under several olive trees in a plantation) – rare neophytic weed, but spreading

*Papaveraceae*

*Fumaria macrocarpa* Parl. – *EB* 95-102: C3-1 – rare

*Fumaria parviflora* Lam. – *EB* 95-134: C6-4; *RJ* 960402-01: C6-5 – rare

*Hypecoum procumbens* L. subsp. *procumbens* – *R* & *BS* 47699: “Along the road from the harbour to Kastri” (BC6); *EB* 96-63: C5-1; *EB* 96-102: C3-1; *RJ* 960402-08: C4-2 – rare

*Papaver hybridum* L. – *R* & *BS* 47857: “Kastri” (C5); *EB* & *AJ* 94-54: C6-1; *EB* 96-68: C5-1; *RJ* 960401-32: C6-1; *EB* obs. C3, D6 – scattered

*Papaver purpureomarginatum* Kadereit – *EB* 96-36: A4-1 – rare

*Papaver rhoeas* L. – *R* & *BS* 47858: “Kastri” (C5); *EB*, *RJ* obs. C6; *EB* obs. C3, C5, D6 – scattered

*Roemeria hybrida* (L.) DC. – *Dörfler* 1147: “unter Saaten bei Kastri” (C5); *EB* 96-80: C6-5; *EB* 96-104: C3-1 – rare

*Plantaginaceae*

*Plantago afra* L. – *Dörfler* 1140 (*P. psyllium* L.): “Karstboden”; *R* & *BS* 47682: “Along the road from the harbour to Kastri” (BC6); *EB* 95-19: B6-2; *EB*, *RJ* obs. C6, D6; *EB* C3, C5, D5; *RJ* obs. C4 – rather common

*Plantago albicans* L. – *EB* & *AJ* 94-7: B6-2; *EB* obs. E7; *RJ* obs. C5, C6 – scattered

*Plantago bellardii* All. – *R* & *BS* 47752: “2–4 km S–SW of Kastri” (D5); *EB*, *RJ* obs. C3; *RJ* obs. C5 – scattered

*Plantago lagopus* L. – *Dörfler* 27: “Karstboden bei Vathyana” (D56); *R* & *BS* 47732: “W of Kastri” (C4); *EB* & *AJ* 94-58: C6-1; *EB*, *RJ* obs. C4, C5, D6; *EB* obs. C3, D5, E7; *RJ* obs. B4, B5, D6 – common

*Plantago lanceolata* L. – *EB* & *AJ* 94-85: C5-1 – rare

*Plantago squarrosa* Murray – *Dörfler* 1148: “Dünen an der Nordküste, massenhaft”; *Rechinger* 13648: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); *R* & *BS* 47837: “The NW point” (A3); *R* & *BS* 47862: “Sarakiniko” (B6); *EB* & *AJ* 94-98: A4-1; *EB* 95-125: B6-1; *EB* obs. B7 – scattered, locally abundant

***Plantago weldenii*** Reichenb. subsp. ***weldenii*** – Dörfler 115 (“*P. coronopus*”): “Karstboden”; *R* & *BS* 47859: “Sarakiniko” (B6); *EB* 95-152: E7-1; *EB* obs. A4, C4, C5; *RJ* obs. B4, C6 – scattered

### *Plumbaginaceae*

(*Limonium avei* (De Not.) Brullo & Erben) – BRULLO (1988) regards *L. echioides* a West Mediterranean taxon which is replaced in the Central and East Mediterranean by *L. avei*. Thus, only *L. avei* is given for Greece: beside material of Attikí there is one record from Gávdos quoted by BRULLO (1988). The source of this is not specified but is almost certainly based on *Rechinger 13643* which represents in fact *L. echioides* (ERBEN, in litt.). According to BRULLO (1988) and ERBEN (1978) *L. avei* is characterized by mucronate leaves and pilose calyces without mucro, while the leaves of *L. echioides* neither have acumen nor mucro, the calyces being glabrous or subglabrous with long-exserted uncinat mucro. The specimens collected by us on Gávdos have the set of characters typical of *L. echioides*, and the same is true for all material from the Cretan main island collected by *RJ* and A. Mayer (see MAYER, 1995) as well as for the following specimens seen by *EB* from the South Aegean: “Kreta, Lasithi, Ep. Sitia: Itamos (35°16’N/26°16’E)”, 6/4/1984, *Raus* 9117 (C); “Kasos, Insel Armathia, Südostküste (35°25’30”N/26°52’30”E)”, 19/4/1983, *Raus* 7599 (C); “Karpathos, Südostküste nördl. Ammopi (35°28’40”N/27°12’30”E)”, 21/5/1984, *Raus* 9894 (C). Hence, the occurrence of *L. avei* for the Cretan area as given in Med-Checklist (GREUTER & al., 1989) still remains to be proved.

***Limonium creticum*** Artelari – *EB* & *AJ* 94-115: CD67 (det. A. Mayer) – rare

***Limonium echioides*** (L.) Miller – *Rechinger 13643*: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); *EB* & *AJ* 94-28: B6-2; *EB* & *AJ* 94-105: A4-1; *RJ* 940526-09: C6-6; *RJ* 940526-31: E6-1; *EB*, *RJ* obs. B4, C3, C5, E7; *EB* obs. B7; *RJ* obs. D6 – rather common

***Limonium elaphonisicum*** A. Mayer – *EB* & *AJ* 94-106: A4-1 (det. A. Mayer) – rare

***Limonium graecum*** (Poiret) Rech. fil. subsp. ***graecum*** – *Rechinger 13643*: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); *R* & *BS* 447850: “The NW point” (A34); *R* & *BS* 47871: “Sarakiniko” (B6); *EB* & *UM* 3522: B6 (det. A. Mayer); *EB* 95-119: B3-1 (det. A. Mayer); *RJ* 940528-02: B6-1 – scattered

### *Polygalaceae*

***Polygala monspeliaca*** L. – *RJ* obs. C6 – rare

***Polygala venulosa*** Sm. – Dörfler 78: “zwischen Buschwerk am Kap Kamarela” (E7); *R* & *BS* 47760: “2–4 km S–SW of Kastri” (D5); *EB* 95-63: D6-1; *EB*, *RJ* obs. C3; *EB* obs. A6, B7, C4, C5, E7; *RJ* obs. C6 – rather common

*Polygonaceae*

*Emex spinosa* (L.) Campd. – EB obs. A4, C5, D6; RJ obs. B6 – scattered

*Polygonum maritimum* L. – *Rechinger 13642*: “Sandstrand an der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 28 and 29); EB, RJ obs. B6, EB obs. A4, E7 – rare

*Rumex bucephalophorus* L. subsp. *aegaeus* Rech. fil. – *Dörfler 57* (“*R. bucephalophorus*”): “Karst- and Kulturboden”; EB obs. A4, B6, B7; RJ obs. C4; C5 – scattered

*Rumex pulcher* L. subsp. *anodontus* (Hausskn.) Rech. fil. – *EB 95-97*: C3-1 – rare

According to TURLAND & al. (1993) there is no published record for the Cretan area since 1930.

*Rumex pulcher* L. subsp. *woodsii* (De Not.) Arcangeli – *R & BS 47765*: “2–4 km S–SW of Kastri” (D5); *EB & AJ 94-76*: D56; EB obs. D6 – scattered

A field record from C6 cannot be assigned to a subspecies.

*Primulaceae*

*Anagallis arvensis* L. var. *caerulea* (L.) Gouan – *EB 95-11*: B6-2; *RJ 940529-01*: B7-1; EB, RJ obs. B6, C3, C5, C6, D6, E7; EB obs. A4, A6, C4, D5; RJ obs. B4, B5, E6 – common

*Asterolinon linum-stellatum* (L.) Duby – *Dörfler 1149*: “Karstboden”; EB, RJ obs. B7, C3; EB obs. A4; RJ obs. B6, C5, C6, D6 – common

*Rafflesiaceae*

*Cytinus hypocistis* (L.) L. subsp. *clusii* Nyman – RJ obs. C6-1 (on *Cistus creticus*) – rare

*Cytinus hypocistis* (L.) L. subsp. *orientalis* Wettst. – *Dörfler 303*: “auf *Cistus* am Kap Kamarela” (E7); *EB 95-130*: B7-2 (on *Cistus parviflorus*); RJ obs. B6-5 – scattered

*Ranunculaceae*

*Adonis microcarpa* DC. subsp. *cretica* (Huth) Vierh. – *Dörfler 20* (“*A. cupaniana*”): auf Karstboden; *R & BS 47757*: “2–4 km S–SW of Kastri” (D5); *EB & AJ 94-59*: C5-1; *RJ 940526-22*: D6-4; *RJ 960402-07*: C4-2 – scattered

*Anemone coronaria* L. – *EB* 96-53: C6-5; *RJ* 960401-45: C6-1; *RJ* 960403-20: D6-4; *EB*, *RJ* obs. C5; *EB* obs. C3, D6 – scattered

*EB* 96-53 represents the common variant with violet-blue petals which is by far more frequent on Gávdos than plants with scarlet petals (var. *coccinea* (Jordan) Burn.), the latter were observed as a segetal weed in C3, C5, D6.

*Clematis cirrhosa* L. – *R* & *BS* 47783: “Kastri. The ravine at the church” (C5) (see also BORTYNSKI & al., 1992: 63); *EB* obs. C5 – rare

*Nigella damascena* L. – *R* & *BS* 47785: “Kastri. The ravine at the church” (C5); *EB* obs. C5 – rare

*Nigella doerfleri* Vierh. – *R* & *BS* 47736: “2–4 km S–SW of Kastri” (D5); *R* & *BS* 47771: “3 km S of Kastri” (D5); *EB* & *AJ* 94-50: C6-1; *EB* 95-7: B6-2; *EB* 95-82: E7-1; *RJ* 940526-17: D6-1; *RJ* 940526-26: D6-4; *RJ* 960401-13: C6-4; *EB* obs. C3; *RJ* obs. C4 – scattered

*Ranunculus asiaticus* L. var. *albus* Hayek – *Dörfler* 66: “auf Karstboden bei Kastri”; *EB* & *AJ* s. n.: C6-1; *EB* 96-21: B7-1; *RJ* 960401-36: C6-1; *EB*, *RJ* obs. C5, D6; *EB* obs. B6; *RJ* obs. B5 – scattered, locally abundant

*Ranunculus asiaticus* L. var. *sanguineus* (Miller) DC. – *Dörfler* 3 (f. *puniceus* *Dörfler*): “Äcker bei Ambelos” (C3); *EB*, *RJ* obs. D6; *EB* obs. C3, C5, D5 – very scattered

*Ranunculus bullatus* L. – *RJ* 960401-53: C6-1; *EB*, *RJ* obs. C5 – scattered

*Ranunculus creticus* L. – *EB* obs. C5 – rare

*Ranunculus ficaria* L. subsp. *chrysocephalus* P. D. Sell – *EB* obs. C3, C5, D6 – very scattered

*Ranunculus paludosus* Poiret – *Dörfler* 112 (*R. flabellatus* Desf.): bei Xenakis (D45); *EB* obs. C3, C6, D5, E7; *RJ* obs. D6 – scattered

#### *Resedaceae*

*Reseda lutea* L. subsp. *lutea* – *Dörfler* 116: “Kulturboden bei Vathyana” (D56); *Rechinger* 13667d: “sandige Hügel am Kap Tsuno” (B7); *R* & *BS* 47698: “Along the road from the harbour to Kastri” (BC6); *R* & *BS* 47742: “2–4 km S–SW of Kastri” (D5); *EB* & *AJ* 94-33: C6-1; *RJ* Photo: C5-1; *EB* obs. C5, D56 – scattered

*Reseda odorata* L. – *Dörfler* 69 (“*R. orientalis* (Müller) Boiss.”): “Karstboden bei Vathyana” (D56); *R* & *BS* 47774: “Kastri. The ravine at the church” (C5); *EB* & *AJ* 94-48: C6-1; *EB* & *AJ* 94-89: A4-1; *RJ* 940529-09: B7-1; *RJ* 960405-01: B7-1; *EB* obs. C5 – scattered

*Rosaceae*

(*Rosa canina* L.) – is erroneously given for Gávdos in BORATYNSKI & al. (1992: 211)

*Sanguisorba minor* Scop. subsp. *verrucosa* (Decne) Holmboe – *EB* 95-37: C6-1; *RJ* obs. C5 – rare

*Sarcopoterium spinosum* (L.) Spach – *EB*, *RJ* obs. C3; *EB* obs. E7; *RJ* obs. C4, C5, C6, D6 – common on limestone

*Rubiaceae*

*Asperula rigida* Sm. – *Rechinger* 13664: “sandige Hügel am Kap Tsuno” (B7); *R* & *BS* 47717: “W of Kastri” (C4); *EB* & *AJ* 94-27: B6-2; *EB*, *RJ* obs. D6; *EB* obs. A6, B7, C3, C4, C5, C6, E7; *RJ* obs. B5, E6 – common

*Crucianella latifolia* L. – *EB* & *AJ* 94-72: D6-1; *EB*, *RJ* obs. B7; *EB* obs. E7; *RJ* obs. B5, C6 – rather common

*Galium aparine* L. – *EB*, *RJ* obs. C5, C6 – scattered

*Galium graecum* L. subsp. *graecum* – *R* & *BS* 47782: “Kastri. The ravine at the church” (C5); *EB* obs. C4, C5; *RJ* obs. D6 – very scattered

*Galium murale* (L.) All. – *Dörfler* 39: “Karstboden bei Vathyana” (D56); *RJ* 960401-10: C6-4; *EB* obs. A4, C3, C4, D5; *RJ* obs. B7; C5; D6 – rather common

*Galium setaceum* Lam. – *R* & *BS* 47770: “3 km S of Kastri” (D5); *EB* 95-10: B6-2; *EB*, *RJ* obs. B7; *RJ* obs. D6 – scattered

*Galium tricornutum* Dandy – *EB* 95-136: C6-4; *EB* 96-82: C6-6 – rare

*Galium verrucosum* Hudson – *EB* 96-93: D56; *RJ* 960403-07: D6-4 – rare  
According to TURLAND & al. (1993) there is no post-1930 record for Kríti.

*Sherardia arvensis* L. – *EB*, *RJ* obs. D6; *EB* obs. C3, D5; *RJ* obs. C4, C5 – rather common

*Valantia hispida* L. – *Dörfler* 36: “Karstboden bei Vathyana” (D56); *EB* 95-40: C6-1; *EB*, *RJ* obs. B4, B7, C4, C5, D6; *EB* obs. A4, C3, E7 – common

*Valantia muralis* L. – *EB* 95-42: C6-1; *RJ* 960401-15: C6-4; *EB*, *RJ* obs. D6; *EB* obs. A4, B4, B7, C3; *RJ* obs. B5, C4, C5, E6 – common

*Rutaceae*

*Ruta chalepensis* L. subsp. *chalepensis* – R & BS 47800: “Kastri. The ravine at the church” (C5); EB 96-70: C5-3 – rare

*Santalaceae*

*Thesium bergeri* Zucc. – EB obs. D6, E7; RJ obs. B6, B7, C6 – scattered

*Saxifragaceae*

*Saxifraga tridactylites* L. – EB 96-97: C5-4 – rare

*Scrophulariaceae*

*Bellardia trixago* (L.) All. – RJ obs. C5-5 – rare

*Kickxia elatine* (L.) Dumort. subsp. *sieberi* (Reichenb.) Hayek – EB & AJ 94-25: B6-2; EB 96-96: C5-4; RJ 940528-06: C5-1; EB, RJ obs. C4 – scattered

*Linaria chalepensis* (L.) Miller – EB 96-81: C6-6 – rare

*Linaria micrantha* (Cav.) Hoffmanns. & Link – EB 95-131: C6-4; RJ 960401-28: C6-1 – rare  
According to TURLAND & al. (1993) there is no published record for the Cretan area since 1930.

*Linaria pelisseriana* (L.) Miller – Dörfler 1136: “unter Saaten bei Kastri” (C5)

*Linaria simplex* (Willd.) DC. – EB 96-27: B7-2; RJ 940529-04: B7-1; RJ 960401-29: C6-1 – rare

*Linaria triphylla* (L.) Miller – Dörfler 48: “unter Saaten bei Kastri” (C5); EB 95-51, 96-91: D56; RJ 960403-08: D6-4 – rare

According to TURLAND & al. (1930) there is no published record for the Cretan area since 1930.

*Misopates orontium* (L.) Rafin. – R & BS 47791: “Kastri. The ravine at the church” (C5); EB 95-9: B6-2; EB, RJ obs. C6; EB obs. E7; RJ obs. B7 – scattered

*Parentucellia latifolia* (L.) Caruel – EB obs. C4-1 – rare



*Verbascum sinuatum* L. – EB, RJ obs. C5; EB obs. B6 – very scattered

*Veronica cymbalaria* Bodard – EB obs. C4, C5 – very scattered

*Veronica polita* Fries – EB 96-60: C5-1 – rare

*Solanaceae*

*Hyoscyamus albus* L. – EB & AJ 94-109: B7-1; EB, RJ obs. C5 – rare

[*Lycopersicon esculentum* Miller] – EB obs. cultivated and as rare garden escape

*Mandragora autumnalis* Bertol. – RJ obs. C6 – rare

*Theligonaceae*

*Theligonum cynocrambe* L. – R & BS 47823: “Small stream near the NW point” (A4); EB obs. A4, C5; RJ obs. D6 – scattered

*Umbelliferae*

*Bifora testiculata* (L.) Schultes – Dörfler 54: “unter Saaten bei Kastri” (C5); EB 95-93: C3-1 – rare

*Bunium ferulaceum* Sibth. & Sm. – EB 95-67: D56 – rare

*Bupleurum gaudianum* Snogerup – R & BS 47733: “2–4 km S–SW of Kastri” (D5); R & BS 47854: “1 km N of Kastri” (C5) (SNOGERUP, 1984); EB 95-8: B6-2; EB & AJ 94-64: D6-1; EB 96-95: C5-4; RJ 940526-13: D6-1; RJ 940528-07: C3-2; RJ 960401-01: C6-1; RJ 960403-02: D6-1; EB, RJ obs. C3; EB obs. C4, E7; RJ obs. B5, C5, D6 – rather common

*Bupleurum lancifolium* Hornem. var. *longifolium* (Desv.) Hayek – Dörfler 111: “unter Saaten bei Xenakis” (D45)

*Bupleurum semicompositum* L. – Rechinger 13666: “sandige Hügel am Kap Tsuno” (B7) (“var. *glaucum* (Rob. & Cast.) Wolff”); R & BS 47803d: “1 km NW of Kastri” (C45); R & BS 47853: “1 km N Kastri” (C5); R & BS 47864: “Sarakiniko” (B6); EB & AJ 94-12: B6-1; EB 95-22: B6-2; RJ 940526-11: C6-6; EB obs. A4, B7, C3, C5; RJ obs. C6, E7 – scattered

*Crithmum maritimum* L. – RJ obs. E7 – rare

*Daucus guttatus* Sm. – *R & BS 47755*: “2–4 km S–SW of Kastri” (D5); EB obs. C5 – rare

*Daucus involucratus* Sm. – *R & BS 47755pp*: “2–4 km S–SW of Kastri” (D5); EB obs. C3, D5; RJ obs. C4, C5, C6, D6 – scattered

*Eryngium maritimum* L. – EB, RJ obs. B6 – rare

*Foeniculum vulgare* Miller subsp. *piperitum* (Ucria) Cout. – *Rechinger* (leg. Herzog) 13673: “Brachen bei Ambelos” (C3); EB, RJ obs. B6, C5, C6 – scattered

*Lagoecia cuminoides* L. – *Dörfler 1154*: “Karstboden” (see also RECHINGER & RECHINGER-MOSER, 1951: table 11); EB, RJ obs. C3; EB obs. D5, E7; RJ obs. C4, C5, C6, D6 – common

*Pseudorhaphis pumila* (L.) Grande – *Dörfler 23* (*Daucus pumilus* (Gou.) Ball.): “Dünen bei Sarkiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 29); *R & BS 47838*: “The NW point” (A34); *EB 95-36*: B6-1; EB, RJ obs. B7; EB obs. A4 – rare, but locally frequent

*Scaligeria napiformis* (Sprengel) Grande – EB obs. C4, D6 – rare

*Scandix australis* L. subsp. *australis* – *Dörfler 68* (“subsp. *gallica* Vierh.”): “Karstboden bei Kastri”; *EB 95-133*: C6-4; *EB 96-79*: D6-1; *RJ 960403-04*: D6-1; RJ obs. C4, C5 – scattered

*Scandix pecten-veneris* L. – *Dörfler 113*: “Kulturboden”; *EB 95-47*: C6-4; EB obs. C3, C5, D6 – scattered

*Tordylium apulum* L. – *Dörfler 99*: “Karstboden an der Südküste”; *RJ 960401-14*: C6-4; EB, RJ obs. C5, D6; EB obs. C3, D5; RJ obs. C4 – rather common

*Torilis humilis* (Jacq.) Lassen (*T. leptophylla* auct.) – *R & BS 47728*: “W of Kastri” (C4); *R & BS 47756*: “2–4 km S–SW of Kastri” (D5); *EB 95-135*: C6-4; EB, RJ obs. C3; RJ obs. C4, C5 – scattered

Nomenclature follows P. Lassen (in RAUS, 1996).

*Torilis nodosa* (L.) Gaertner – *R & BS 47756pp*, 47763: “2–4 km S–SW of Kastri” (D5); *EB & AJ 94-61*: C5-1, EB obs. C3, C4, D5 – scattered

*Urticaceae*

*Parietaria cretica* L. – Dörfler 75: “Felsen am Kap Kamarela” (E7); EB obs. C5; RJ obs. C6, D6, E7 – scattered

*Urtica pilulifera* L. – EB, RJ obs. C4, C5, C6 – scattered

*Urtica urens* L. – RJ obs. B4, C4 – scattered

*Valerianaceae*

*Centranthus calcitrapae* (L.) Dufresne subsp. *calcitrapae* – Dörfler 18: “Karstboden bei Vathyana” (D56); EB obs. C5; RJ obs. C4 – scattered

*Valerianella coronata* (L.) DC. – Dörfler 94: “Karstboden an der Südküste”

*Valerianella discoidea* (L.) Loisel. – Dörfler 1142: “unter Saaten bei Kastri” (C5); RJ 960401-43: C6-1; EB obs. D5 – scattered

*Valerianella microcarpa* Loisel. – R & BS 47824: “Small stream near the NW point” (A4); R & BS 47848: “The NW point” (A34); EB 96-46: A4-1 – rare

*Valerianella muricata* Loisel. – EB 96-110: C4-1 – rare

*Valerianella pumila* (L.) DC. – EB 96-64: C5-1 – rare

New to the Aegean area.

*Valerianella vesicaria* (L.) Moench – EB obs. C3, C6, D56 – scattered

**MONOCOTYLEDONES***Amaryllidaceae*

*Narcissus tazetta* L. – EB 95-69: D56; EB obs. C5 – rare

*Pancratium maritimum* L. – EB, RJ obs. B6 – rare

*Araceae*

*Arisarum vulgare* Targ.-Tozz. – EB, RJ obs. C4, C5, D6; EB obs. A4, B7, C3, D5, E7; RJ obs. B5, B6, C6 – common

*Cyperaceae*

*Carex halleriana* Asso – EB & AJ 94-75: D6-1; EB 95-145: D6-1 – rare

*Carex illegitima* Cesati – EB 95-146: D6-1 – rare

*Schoenus nigricans* L. – EB & AJ 94-90: A4-1 – rare

*Gramineae*

*Aegilops biuncialis* Vis. – R & BS 47754: “2–4 km S–SW of Kastri” (van SLAGEREN, 1994: 156 and distribution map); EB & AJ 94-70: D6-1; EB obs. E7; RJ obs. D6 – scattered

*Aegilops geniculata* Roth – R & BS 47692: “Along the road from the harbour to Kastri” (BC6) (van SLAGEREN, 1994: 238 and distribution map)

*Aegilops markgrafii* (Greuter) Hammer – R & BS 47725: “W of Kastri” (C4) (van SLAGEREN, 1994: 166, “*Ae. caudata* L.”, dot erroneously omitted in distribution map); EB & AJ 94-69: D6-1; EB obs. C3, E7 – scattered

*Aeluropus lagopoides* (L.) Thwaites – EB 95-76: E7-1; RJ 960403-10: E7-1 – rare, locally frequent

*Aira elegantissima* Schur – R & BS 47807: “1–4 km NW of Kastri” (BC45); EB, RJ obs. C5; RJ obs. B5 – scattered

*Andropogon distachyos* L. – EB obs. C5-3 – rare

*Avellinia michelii* (Savi) Parl. – EB & AJ 94-124: C4-2; EB 96-65: C5-1; RJ 960402-04: C5-1; EB obs. B7 – scattered

*Avena barbata* Link subsp. *barbata* – EB & AJ 94-126b: C6-4; EB, RJ obs. B7, C3, D6; EB obs. E7; RJ obs. B5, B6, C4, C5, C6 – common

[*Avena byzantina* C. Koch] – EB & AJ 94-56: C6-1 – cultivated as field crop and rare weed in fallow fields

*Avena sterilis* L. subsp. *sterilis* – EB & AJ 94-126a: C6-4 – scattered

The following field notes are assigned to the species: EB obs. C5; RJ obs. B7, C6

*Brachypodium distachyon* (L.) P. Beauv. – R & BS 47744: “2–4 km S–SW of Kastri (D5); RJ 960402-11a: C3-1; EB, RJ obs. D6; EB obs. A4, A6, B7, C3, E7; RJ obs. B6 – rather common

*Briza maxima* L. – EB, RJ obs. C3; RJ obs. C4, C5, D6 – scattered

*Bromus alopecuroides* Poir. – EB 95-106: C3-1 – rare

*Bromus fasciculatus* C. Presl – Dörfler 76: “Kap Kamarela” (E7); Dörfler 35: “Vathyana” (D56); EB 95-55: D6-1; EB 96-30: B7-2 (Both specimens of which the former was kindly identified by Prof. H. Scholz represent tiny plants with unusually small spikelets and glumes); RJ 960401-46: C6-1; RJ 960403-01: D6-1; EB, RJ obs. C4, C5; EB obs. B4, B7, C3, E7; RJ obs. B6 – common

*Bromus intermedius* Guss. – EB & AJ 94-19: B7-1; EB & AJ 94-80: C6-2; EB 95-21: B6-2; EB, RJ obs. C3; EB obs. E7; RJ obs. B5, C4, C5, D6

*Bromus madritensis* L. subsp. *madritensis* – EB & AJ 94-84: C5-1; EB 95-17: B6-2; EB obs. C3; RJ obs. C4, E6 – scattered

*Bromus rubens* L. – R & BS 47683: “Along the road from the harbour to Kastri” (BC6); R & BS 47799: “Kastri. The ravine at the church” (C5); EB & AJ 94-11: B7-1; EB 96-72: C6-1; RJ 940526-02: C6-1; EB, RJ obs. C3, C5; RJ obs. E6 – scattered

*Bromus scoparius* L. – EB & AJ 94-60: D6-1 – rare

Given as “before 1930” record for Gávdos by TURLAND & al. (1993: 379) although there is apparently no literature basis for this.

*Bromus sterilis* L. – EB obs. C5 – rare

*Bromus tectorum* L. – EB 96-92: D56 – rare

*Catapodium maritimum* (L.) C. E. Hubbard – EB 96-23: B7-2; EB obs. A4, A6, E7 – scattered

*Catapodium rigidum* (L.) C. E. Hubbard – Dörfler 38 (*Scleropoa rigida* (L.) Gris.): “Karstboden”; EB 95-164: C3-1; RJ 940526-23: D6-4; RJ 940526-30: E6-1; RJ 960401-04: C6-4; RJ 960401-47: C6-1; EB obs. C6, D5, D6; RJ obs. B5, B7, C4, C5 – common

*Cutandia maritima* (L.) W. Barbey – *Rechinger 13654*: “Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); *R & BS 447830*: “The NW point” (A34); *EB 95-32*: B6-1, EB obs. A4 – rare, locally frequent

*Cynodon dactylon* (L.) Pers. – *EB 95-122*: B6-4 – rare

*Dactylis glomerata* L. subsp. *hackelii* (Asch. & Graebner) Ciferri & Giacomini – *EB & AJ 94-116*: CD67 – rare

*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman – EB, RJ obs. C3, C4, D6; EB obs. D5, E7; RJ obs. C6, E6 – common

*Echinaria capitata* (L.) Desf. – *EB 95-52*: D6-1; *EB & AJ 94-51*: C6-1; EB, RJ obs. C3; RJ obs. C5 – scattered

*Elytrigia juncea* (L.) Nevski – *RJ 940528-01*: B6-1 – rare

*Gastridium phleoides* (Nees & Meyen) C. E. Hubbard – *EB & AJ 94-83*: C6-2; *RJ 940526-15*: D6-1; EB, RJ obs. C3; EB obs. A4, B6, B7, E7; RJ obs. B5, C4, C5 – common

*Hordeum leporinum* Link subsp. *leporinum* – *Dörfler 31* (*H. murinum* L. subsp. *leporinum* (Link) Asch. & Gr.): “Karstboden bei Vathyana” (D56); *R & BS 47779*: “Kastri. The ravine at the church” (C5); *EB & AJ 94-46*: C6-1; *RJ 960401-26*: C6-1; *RJ 960401-57*: C6-1; EB, RJ obs. C5; EB obs. C3; RJ obs. C4 – scattered

[*Hordeum vulgare* L. subsp. *vulgare*] – *EB & AJ 94-42a*: C6-1; *EB 95-154*: C3-1 – cultivated as field crop and subspontaneous in fallow fields

*Hyparrhenia hirta* (L.) Stapf – *Rechinger 13653*: “sandige Hügel am Kap Tsuno” (B7) (see also RECHINGER & RECHINGER-MOSER, 1951: table 11); EB obs. E7; RJ obs. B5, B7, D6 – scattered

*Lagurus ovatus* L. subsp. *ovatus* – *Dörfler 114*: “Karstboden”; *EB & AJ 94-47*: C6-1; EB, RJ obs. C3, C5; EB obs. A4, B7 – rather common

*Lolium rigidum* Gaudin subsp. *lepturoides* (Boiss.) Sennen & Mauricio – *R & BS 447829*: “The NW point” (A34); *RJ 960401-50*: C6-1 – rare

*Lolium rigidum* Gaudin subsp. *rigidum* – *EB 95-138*: C3-1; EB obs. C5, C6 – scattered

*Lolium subulatum* Vis. – *EB 95-104*: C3-1; *EB 96-69*: C5-1 – rare

**Confirmation for the Cretan area.**

Not given by TURLAND & al. (1993) and JAHN & SCHÖNFELDER (1995), but reported for Kriti by RECHINGER (1944) and found by RAUS (1997 et in litt.) on Kasos and Karpathos. The species is otherwise known from Cyprus, Israel, Lebanon, Syria and Croatia (TERRELL, 1968), as well as Anatolia (MILL, 1985). Following TERRELL (1968) species rank is considered appropriate here for this taxon which differs clearly from the *L. rigidum* subspecies by the following combination of characters: culms upright, spikes straight, axis indurated and excavated to partly embracing the spikelets, adpressed glumes longer than spikelets (BERGMIEIER & RAUS, in prep.).

*Lolium temulentum* L. – R & BS 47805: “1–4 km NW of Kastri” (BC45); EB & AJ 94-41: C6-1; EB 95-50: D56; EB obs. C3 – scattered

*Parapholis incurva* (L.) C. E. Hubbard – R & BS 47680: “Along the road from the harbour to Kastri” (BC6); EB & AJ 94-9b, 94-26: B6-1; EB & AJ 94-38: C6-1; EB & AJ 94-121: B5-1; EB & AJ 94-102: A4-1; EB 95-75: E7-1; RJ 940526-32: E6-1; RJ 960401-71: D6-6; EB obs. C3, C5 – scattered

*Parapholis marginata* Runemark – R & BS 47813b: “1–4 km NW of Kastri” (BC45); R & BS 47818b: “Small stream near the NW point” (A4); R & BS 47839: “The NW point” (A34); EB & AJ 94-103: A4-1 – very scattered

*Phalaris minor* Retz. – R & BS 47818: “Small stream near the NW point” (A4); EB & AJ 94-21: B6-2; EB 95-23: C3-1; EB 95-49: D56; EB 95-163: C6-4 – scattered

*Phalaris paradoxa* L. – R & BS 47743: “2–4 km S–SW of Kastri (D5); R & BS 47808: “1–4 km NW of Kastri” (BC45); EB & AJ 94-71: D6-1; EB 95-108: C3-1 – very scattered

*Phleum crypsoides* (D’Urv.) Franchet subsp. *crypsoides* – Dörfler 22 (*Maillea urvillei* Parl.): “Dünen an der Nordküste” (see also RECHINGER & RECHINGER-MOSER, 1951: table 29); R & BS 47870: “Sarakiniko” (B6); EB & AJ 94-2: B6-1; RJ 940527-09: A5-1; RJ 960401-60: C6-1; EB obs. A4; RJ obs. B7; D6 – scattered, locally frequent

*Phleum subulatum* (Savi) Asch. & Graebner – R & BS 47775: “Kastri. The ravine at the church” (C5)

*Piptatherum miliaceum* (L.) Coss. subsp. *miliaceum* – EB obs. B6, C3, E7; RJ obs. C6, E6 – scattered

*Poa infirma* Kunth – EB 96-38&88: A4-1, D56; RJ 960402-09a: B4-1; RJ 960401-33: C6-1; EB obs. C4, C5 – scattered

Given as “before 1930” record for Gávdos by TURLAND & al. (1993: 389) although there is apparently no literature basis for this.

*Poa pelasgis* H. Scholz – RJ 960402-14: C3-1 – rare

Field records of *Poa bulbosa* agg. (EB obs. C6, D6) may belong here.



*Polypogon maritimus* Willd. subsp. *maritimus* – EB 96-71: C6-1; EB obs. C4, C5 – scattered

*Polypogon maritimus* Willd. subsp. *subspathaceus* (Req.) Asch. & Graebner – EB 95-74: E7-1 – rare

*Polypogon monspeliensis* (L.) Desf. – R & BS 47827: “Small stream near the NW point” (A4); EB & AJ 94-91: A4-1; EB & AJ 94-120: B5-1; RJ 960401-52: C6-1 – scattered

*Psilurus incurvus* (Gouan) Schinz & Thell. – EB 95-27: B6-2; EB & AJ 94-9a: B6-2; EB 96-73: C6-1; RJ 960401-35: C6-1; EB, RJ obs. B7, C3, C5; EB obs. E7; RJ obs. B5, C4, D6 – common

*Rostraria cristata* (L.) Tzvelev var. *cristata* – EB 95-24: B6-2; RJ 960401-37: C6-1; RJ 960401-54: C6-1; EB, RJ obs. B7, C3, C5; EB obs. E7; RJ obs. B5, D6 – common

Beside the type variety var. *glabriflora* (Trautv.) M. Doğan was found on Gávdos (EB 95-107: C3-1; EB obs. C5) which is distinguished in habit by the very long, lobed inflorescence, and was found as a segetal weed only. The following record refers to the species: Dörfler 41: “Karstboden bei Vathyana” (D56).

*Stipa bromoides* (L.) Dörfler – R & BS 47794: “Kastri. The ravine at the church” (C5); EB obs. D6-1 – rare

*Stipa capensis* Thunb. – EB, RJ obs. C6; EB obs. E7; RJ obs. B5, B7, C5, D6, E6 – rather common

*Triplachne nitens* (Guss.) Link – Rechinger 13658: “Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: tables 28 and 29); R & BS 47712: “Along the road from the harbour to Kastri” (BC6); R & BS 47819: “Small stream near the NW point” (A4); R & BS 447847: “The NW point” (A34); R & BS 47861: “Sarakiniko” (B6); EB 95-33: B6-1; EB & AJ 94-3: B6-2; EB & AJ 94-92: A4-1; RJ obs. B7 – scattered, locally frequent

[*Triticum turgidum* L. subsp. *durum* (Desf.) Husn.] – EB 95-105: C3-1; EB & AJ 94-42b: C6-1 – cultivated as field crop and subspontaneous in fallow fields

The nomenclature follows van SLAGEREN (1994).

*Vulpia ciliata* Dumort. subsp. *ciliata* – EB, RJ obs. C4 – scattered

*Vulpia fasciculata* (Forssk.) Fritsch – Rechinger 13657: “Sandstrand der Bucht Sarakiniko” (B6) (see also RECHINGER & RECHINGER-MOSER, 1951: table 28); R & BS 447844: “The NW point” (A34); R & BS 47868: “Sarakiniko” (B6); EB 95-31: B6-1; EB obs. A4, B7 – rare, but locally frequent

*Iridaceae*

*Gladiolus italicus* Miller – Dörfler 19 (*G. segetum* Gawl.): “unter Saaten”; Rechinger 13669: “bei Ambelos” (C3); EB, RJ obs. D6; EB obs. C3, C5, C6, D5 – scattered, locally abundant

*Gynandriris monophylla* Klatt – Dörfler 83: “auf Karstboden, mit der typischen Form” (i. e. *G. sisyrinchium*, *Iris sisyrinchium* L. var. *monophylla*) (see also GOLDBLATT, 1980); EB, RJ obs. B5; EB obs. A4, B7, C3, D56; RJ Photo: D6-4; RJ obs. C5, C6, E6 – rather common

*Gynandriris sisyrinchium* (L.) Parl. – EB, RJ obs. C5, D6; EB obs. C3, C5, C6, D5 – scattered

*Juncaceae*

*Juncus heldreichianus* Parl. subsp. *heldreichianus* – EB 95-166: A4-1; EB obs. E7-1 – rare

*Juncus hybridus* Brot. – Dörfler 49 (*J. bufonius* L. var. *congestus* Wahlenb.): “an Wasserlachen bei Kastri” (see also RECHINGER & RECHINGER-MOSER, 1951: 190); R & BS 47828: “Small stream near the NW point” (A4); EB & AJ 94-119: B5-1; EB 95-150: E7-1; EB 95-165: A4-1; EB 96-24: B7-2; RJ 960401-48: C6-1; RJ 960403-13: E7-1; EB obs. C5 – scattered

*Liliaceae* s.l.

[*Allium cepa* L.] – EB & AJ 94-127: C6-4 – cultivated, sometimes persisting after cultivation

*Allium longanum* Pamp. – EB & AJ 94-68: D6-1; EB 95-144: D6-1; RJ 960402-18: C5-1; EB, RJ Photo: D6-4; EB obs. C4, C6 – scattered

*Allium nigrum* L. – Rechinger 13675: “unter Saaten”; EB 95-48: D56; EB 95-95: C3-1; EB obs. C5 – scattered

Variable, plants with green and black ovary were observed.

*Allium rubrovittatum* Boiss. & Heldr. – R & BS 47745: “2–4 km S–SW of Kastri (D5); R & BS 47814: “1–4 km NW of Kastri” (B4); EB, RJ obs. B7, C3; EB obs. A6, E7; RJ obs. B5, B6, C5, C6, D6 – common

*Allium trifoliatum* Cirillo – EB 95-96: C3-1; RJ 960401-18: C6-1; RJ 960403-05: D6-4; EB obs. C5, D5 – scattered

*Asparagus aphyllus* L. subsp. *orientalis* (Baker) P. H. Davis – EB & AJ 94-114: CD67; EB obs. C5, E7 – scattered

*Asphodelus ramosus* L. – EB, RJ obs. C5, C6, D6; EB obs. C3, C4, D5, E7; RJ obs. E6 – common

*Bellevallia brevipedicellata* Turrill – EB 95-62: D6-1; RJ s. n. (cultivated in the Botanical Garden of the University Regensburg): E6-1; EB, RJ obs. B6, C4, C6; EB obs. E7 – scattered

*Colchicum pusillum* Sieber – EB 95-127: B7-2; EB 96-25: B7-2; RJ 940529-08: B7-1; RJ 960401-03: C6-1; EB, RJ obs. C3, D6; EB obs. A4, A6, C5, D5, E7; RJ obs. B5, B6, C4 – common

The Gávdos population differs from specimens on the opposite Cretan coast of Sfakiá by their broader leaves exceeding 5 mm in width. Similar plants, however, are not uncommon in other parts of Kriti (e.g. EB 96-140 from the plain of Omalos)

*Gagea fibrosa* (Desf.) Schultes & Schultes fil. – EB 96-105: C3-1 – rare

*Gagea graeca* (L.) Terracc. – R & BS 47831: “The NW point” (A3); EB 96-20: B7-1; EB obs. C5; RJ photo: C5-1; RJ obs. C6, D6 – scattered, locally abundant

*Gagea peduncularis* (J. & C. Presl) Pascher – RJ 960403-06: D6-4 – rare

*Muscari comosum* (L.) Miller – EB 96-29: B7-1; EB, RJ obs. C6; EB obs. C3, C5, D5; RJ Photo: D6-4 – rather common

*Muscari spreitzenhoferi* (Osterm.) Vierh. – RJ 960403-16: E7-2; EB obs. C3 – rare

*Ornithogalum arabicum* L. – EB 95-143: D5-2 – rare

The status of this showy species which is said to be occasionally cultivated for ornament has often been considered doubtful in the Aegean (RECHINGER, 1943), or explicitly “spontaneous or casual” in Kriti (YANNITSAROS, 1991). For the latter island it is known only from an old record by Gandoger (RECHINGER, 1943) and a recent one near Rethimno (see TURLAND & al., 1993) where it is said to be naturalized in olive groves. However, there is no reason to doubt the native status of the single small population which was found on Gávdos.

*Ornithogalum narbonense* L. – R & BS 47724: “W of Kastri” (C4); EB & AJ 94-32: C6-1; EB 95-57: D6-3; RJ 940526-21: D6-1; EB obs. C3, C5, D5 – scattered

*Prospero autumnale* (L.) Salisb. s.l. (= *Scilla autumnalis* L.) – EB obs. A4, B7, C5; RJ obs. C4, C6, D6 – rather common

The nomenclature follows SPETA (1993).

*Tulipa saxatilis* Sprengel – Dörfler 164: “auf Äckern bei Ambelos” (C3); EB 95-109: C3-1; EB 96-85: D56; EB obs. C5-1 – very scattered

*Urginea maritima* (L.) Baker s.l. – EB, RJ obs. B6, B7, C5, C6, D6; EB obs. A4, A6, B4, C3, C4, D5, E7; RJ obs. B5, E6 – common

### Orchidaceae

*Aceras anthropophorum* (L.) Aiton fil. – EB, RJ obs. C4, D6 – very scattered

*Anacamptis pyramidalis* (L.) L. C. M. Richard – RJ 940526-12: D6-1; EB, RJ obs. C6; EB obs. B7 – scattered

*Limodorum abortivum* (L.) Swartz – EB obs. B6, C6; RJ obs. D6 – scattered

*Neotinea maculata* (Desf.) Stearn – EB obs. D5 – rare

*Ophrys apifera* Hudson – R & BS 47826: “Small stream near the NW point” (A4); EB obs. C6 – rare

*Ophrys episcopalis* Poiret – Dörfler 1152 (*O. fuciflora* Rchb. f. var. *maxima* Fleischm., FLEISCHMANN, 1925): “Karstboden”; EB, RJ obs. D6; EB obs. C6; RJ Photo: D6-4 – scattered

The observed plants had relatively small flowers.

*Ophrys fusca* agg. – Dörfler 80 (“*typica*” sensu FLEISCHMANN, 1925): “Karstboden”; Dörfler 42 (21/3/1904) (“var. *funerea* Viv.”, FLEISCHMANN, 1925); RJ 940526-19: D6-1; RJ 940526-27: D6-4; RJ 940527-03: B5-2; EB, RJ obs. C4, C5, C6; EB obs. B7, E7 – common

All plants seen had a small, twice geniculate labellum and can thus be referred to *Ophrys “cinereophila-fusca”* (PAULUS, 1988), a clearly distinguishable East Mediterranean taxon which has not yet been validly described, and which is widely distributed also on the Cretan mainland. The name *Ophrys funerea* Viv. refers to a taxon endemic to Corsica and Sardinia and cannot be applied to this taxon (PAULUS & GACK, 1995).

*Ophrys mammosa* Desf. – Dörfler 474 (type of *O. doerfleri* Fleischmann): “Karstfelsen am Kap Kamarela” (E7) (see FLEISCHMANN, 1925; CAMPBELL, 1982; GÖLZ & REINHARD, 1985); R & BS 47855: “2–4 km N of Kastri” (B5); RJ 940526-20: D6-1; EB, RJ obs. C5, C6; EB obs. B6; RJ Photo: D6-5; RJ obs. B5 – scattered

As stated in the cited works the rostrum of the anther-connective in these plants is conspicuously long. Thus the Gávdos plants resemble *O. transhyrcana* Czern. *Ophrys cretica* (Vierh.) Nelson to which the name “*O. doerfleri*” is often referred does not occur on the island.

*Ophrys sicula* Tineo – Dörfler 42 (“*Ophrys lutea* Cav.”): “Karstboden”; RJ obs. C3, C5 – very scattered

*Ophrys tenthredinifera* Willd. – EB, RJ obs. C6; RJ obs. C4, C5 – very scattered

*Orchis collina* Banks & Sol. – RJ obs. C4, C5, D6 – scattered

*Orchis coriophora* L. subsp. *fragrans* (Pollini) Sudre – EB, RJ obs. B7; EB obs. A6, C6 – scattered

*Orchis italica* Poir. – EB obs. C4 – rare

*Orchis papilionacea* L. – RJ obs. D6 – rare

*Orchis quadripunctata* Ten. – EB obs. C4 – rare

*Serapias bergonii* E. G. Camus – EB obs. C3, C6 – rare

*Serapias orientalis* E. Nelson – *R & BS 47738*: “2–4 km S–SW of Kastri” (D5); *EB 95-54*: D6-1; *EB 96-52*: C6-5; EB, RJ obs. C5; RJ obs. C4 – rather common

#### *Potamogetonaceae* s.l.

*Posidonia oceanica* (L.) Delile – EB obs. B6; mentioned by ICONOMOU (1989) from sea beds near Cape Tripiti (E7), Gaiduronisi (A3), and Karavé (C6) – scattered off the coasts

*Ruppia maritima* L. – *RJ 960403-11*: E7-1 – rare

According to TURLAND & al. (1993) there is no published post-1930 record for Kríti.

*Zostera marina* L. – mentioned by ICONOMOU (1989) from sandy sea beds near Karavé (C6)

#### *Zannichelliaceae*

*Zannichellia pedunculata* Reichenb. – *Dörfler 44* (“*Zannichellia palustris* L.”): “in Wasserlachen bei Kastri” (see also RECHINGER & RECHINGER-MOSER, 1951: 190); *EB 95-101*: C4-1; *EB 96-49*: A4-1; *RJ 960402-17*: C4-1 – very scattered

Current floras generally refer to the Greek and Aegean representative(s) of the genus as *Z. palustris* L. Taxonomy and nomenclature here are according to TALAVERA & al. (1986). The species is given for Greece by TALAVERA & al. (1986: 266), based on a Heldreich collection from Attiki but is certainly much more widespread, and perhaps the commonest *Zannichellia* taxon in the country.

### Chorological comments

Almost 60% of the flora of Gávdos belongs to the Mediterranean or East Mediterranean phytogeographical element (Fig. 2). Chorological relationships outside the Mediterranean are strongest with the Irano-Turanian and the Saharo-Arabian region. The Mediterranean/Oriental/Saharian element includes almost 20% of the flora. Widely distributed Euro-Siberian species as well as the pluriregional and the neophytic elements are poorly represented. The only recent adventive species is *Oxalis pes-caprae*. Compared to Kríti (see JAHN & SCHÖNFELDER, 1995: 26) the Aegean endemic element and particularly that of the Cretan area is less prominent on Gávdos. But this is easily explained since most of the small-area endemics of the Aegean are restricted to high mountains or to cliffs, the latter being poorly, the former not at all represented on Gávdos.

According to GREUTER (1971) when elaborating on his phytogeographical concept for the South Aegean area, Gávdos forms part both of what he defined as the “Cardaean region” (comprising Cyclades and South Aegean islands excluding Kíthira and Ródos) and the “South Aegean” (South Aegean islands including Kíthira and Ródos). Within these phytogeographical regions, Gávdos joins the west Cretan subregion which is the nearest part of the main island.

Gávdos harbours 21 taxa endemic to the Aegean, or part thereof. By adopting Greuter’s categories of endemics to these taxa, they may be subdivided to 3 steno-endemics (i.e., taxa confined to the west Cretan subregion); 4 pluriendemics (confined to various Cretan subregions); 6 Cardaean endemics; 2 South Aegean endemics; 6 Aegean endemics. The three steno-endemics are:

*Bellevalia brevipedicellata*, known hitherto from southwestern Kríti (see distribution maps in TURLAND & al., 1993, and in PHITOS & al., 1996: 85), is found in many parts of Gávdos, in a variety of habitats, but hardly ever in large numbers.

*Bupleurum gaudianum* is the only endemic of Gávdos. This small annual was discovered by Runemark and B. Snogerup in 1980 and found by us throughout the island and locally abundant. Since it grows in a variety of both open and shrubland habitats we are glad to disagree with S. Snogerup (in PHITOS & al., 1996) who had considered this species as vulnerable.

*Limonium elaphonisicum* was only recently described by MAYER (1995) from the southwest Cretan coast close to the island of Elafónisos. Our finding is the second known locality.

*Asperula rigida*, *Limonium creticum*, *Muscari spreitzenhoferi* and *Ononis verae* are pluriendemics, while *Crepis cretica*, *Crepis tybakiensis*, *Filago cretensis*, *Nepeta melissifolia*, *Nigella doerfleri* and *Sedum creticum* (unless the latter is conspecific with *S. cyrenaicum* Brullo & Furnari from Libya as assumed by JAFRI & RATEEB, 1981) are restricted to the Cardaean region. Only two species, viz., *Teucrium microphyllum* and *Tulipa saxatilis* (extending slightly to southwestern Anatolia) may be considered South Aegean endemics, whereas the following have a somewhat wider distribution, ranging to the northern Aegean region and/or to the adjacent mainlands: *Arenaria muralis*, *Crepis multiflora*, *Galium graecum* subsp. *graecum*, *Malcolmia flexuosa* subsp. *naxensis*, *Papaver purpureomarginatum* and *Phleum crypsoides*. *Ranunculus creticus*, believed to belong here, however, occurs in Libya as well (GREUTER & al., 1989), thus representing a group of taxa being native exclusively in the Aegean and North Africa. This group is particularly well represented on Gávdos.

The South Aegean region, viz., the dry southeastern part of Kríti and the islands Gávdos, Chrii (Gaidouronisi) and Koufonisi south of the main island, is known for the considerable number of southerly distributed taxa which are missing, or almost so, in the adjacent continental parts of Greece and Turkey. They comprise both Saharo-Arabian and Irano-Turanian taxa (i.e., widely distributed in semi-desert areas in North Africa or Southwest Asia, or both) and true South Mediterranean taxa which are, in North Africa, confined to areas with Mediterranean climates, viz., the Gebel Akhdar area (Cyrenaica, Libya). BALDACCI in 1912 had already noted the floristic similarity of Kríti and Cyrenaica and mentioned Gávdos as an important phytogeographical link.



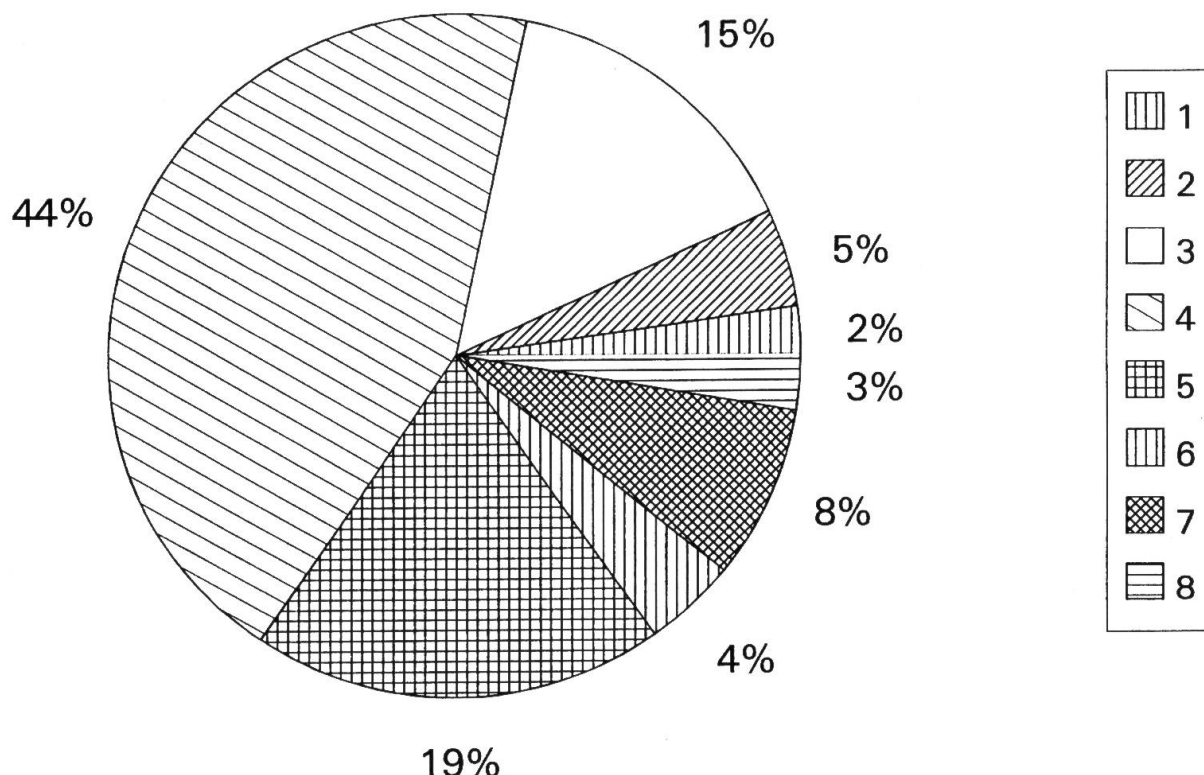


Fig. 2. – The phytogeographical elements in the flora of Gávdos. 1 = Cretan area endemics; 2 = Aegean area and adjacent regions; 3 = East Mediterranean; 4 = Mediterranean; 5 = Mediterranean/Oriental/Saharian; 6 = Mediterranean/Temperate Europe; 7 = Europe and further east; 8 = pluriregional, Cosmopolitan, introduced. Chorological data were chiefly taken from DAVIS (1965-1985), FEINBRUN-DOTHAN (1986), GREUTER & al., “Med-Checklist” (1984, 1986, 1989), PIGNATTI (1982) and ZOHARY (1966, 1972, 1978).

SANDWITH & SIMPSON (1941) commented that the flora of Cyrenaica is “related rather to Crete and Greece than to the adjacent deserts”. RECHINGER (1949) enumerated “southern species” which the South Aegean islands had in common with North Africa. GREUTER (1971) listed 28 species with South Aegean semi-desert-type habitats. Eleven of them occur on Gávdos. Since then additional taxa have been found in Kríti which support strong ecological, and possibly historical phytogeographical links between the South Aegean and Gebel Akhdar, and our research on Gávdos revealed a few more. Four taxa represent an element known exclusively from the South Aegean and the opposite North African coast:

*Allium longanum* was considered a Libyan endemic by EL-GADI (1977: 12) but has since become known from two Cycladean islands and the far northeast of Kríti (STEARN, 1977, with distribution map). Our new finding on Gávdos consists of several but rather small populations totalling a few hundred flowering plants.

*Callitriche pulchra* occurs only in northeastern Libya (omitted by JAFRI, 1984) and on Gávdos where it had been collected by Dörfner (SCHOTSMAN, 1967). Our records some 90 years later are the first confirmation. Few populations exist on Gávdos which are vulnerable due to their small number and the instability of their habitat. Turland in PHITOS & al. (1996: 108) rightly draws attention to *C. pulchra* as a “Red Data species” but certainly errs concerning data on its habitat, ecology and potential threat.

*Reseda odorata* is considered native only to Libya, and in Europe to Gávdos (GREUTER & al., 1989), elsewhere occurring naturalized or as a rare escape from cultivation being grown as



an ornamental and for its fragrant flowers. On Gávdos, *R. odorata* occurs in both anthropogenic habitats and semi-natural rocky places.

*Teucrium brevifolium* is known from Cyrenaica (and adjacent northwestern Egypt) and the South Aegean extending to the southern Greek and southwestern Anatolian mainlands (BORATYNSKI & al., 1992: 259). In Kríti, it occurs mainly in the east. The species is not common on Gávdos and the plants are heavily browsed by goats.

The following taxa are also rare, and restricted in Greece to the South Aegean, but the non-European range is much larger than for the previously mentioned species, extending from North Africa to Southwest Europe and/or Southwest Asia, or beyond:

*Aeluropus lagopoides* is known in Europe only from Sicily, Malta and the Cretan area (several localities in the Karpathos archipelago by GREUTER & al., 1983, and RAUS, 1990; recent additions by MAYER, 1995, to the known occurrences in Kríti – see TURLAND & al., 1993). There is a single population on Gávdos near Cape Tripití which had not previously been recorded.

*Aizoon hispanicum* does not occur on the Greek mainland nor on the islands except Kríti where it was once recorded in the southcentral part (JALAS & SUOMINEN, 1980: 102). It was first found on Gávdos by Runemark and B. Snogerup, and since confirmed by us in few places in the central and northeastern part of the island.

*Artemisia herba-alba* was also discovered on Gávdos by Runemark and B. Snogerup (reported by GREUTER, MATTHÄS & RISSE, 1984). This is the only Greek population and other than its occurrence in the Iberian peninsula, the only European one. It is restricted to a small area north of Kastrí where it is threatened by potential roadmaking rather than by browsing as stated by Turland in PHITOS & al. (1996).

*Astragalus sinaicus* is very scattered in Greece and the Aegean and was previously known in Kríti only from the small island of Chrisi off the southeast coast (RECHINGER, 1944). However, it also occurs along the southcentral and southeast coast of Kríti (RJ, unpubl.). Our records are the first for Gávdos where it grows in very small numbers in various localities.

*Astragalus epiglottis* subsp. *epiglottis* is widely distributed in the South Mediterranean but is apparently rare both in Greece and the Aegean. Reports for the Cretan area are based on a Pichler collection from 1883 made on Karpathos (RECHINGER, 1943: 319); this occurrence has not been confirmed since (GREUTER & al., 1983; TURLAND & al., 1993). The single, rather small population found on Gávdos is endangered by accidental destruction of its habitat; it represents the first record for Kríti.

*Chlamydophora tridentata* is found in North Africa from Tunisia to Egypt, extending to Palestine, and is reported, moreover, from Cyprus and Ródos (GRIERSON, 1975; CARLSTRÖM, 1987). The occurrence on Gávdos, first reported by Dörfler, and now confirmed after 90 years, is the only one in the Flora Europaea area.

*Erodium cicutarium* subsp. *bipinnatum* belongs to a group of closely related taxa in need of further taxonomic studies. It is treated by GUITTONNEAU (1972) as a species, *E. aethiopicum* (Lam.) Brumh. & Thell., also by GREUTER & al. (1986), and is said to be distributed in Morocco, Tunisia and Algeria. Another subspecies occurs on the Southwest European Atlantic coasts. GHAFOR (1978) mentions forms of *E. cicutarium* without a furrow below the pit of the mericarp which occur in Libya; these might represent subsp. *bipinnatum*. For the East Mediterranean area, two records from the South Anatolian coast and the East Aegean island of Kos are cited by DAVIS (1967: 486) but not commented on by DAHLGREN (1980) who gives only *E. cicutarium* s. str. for the Aegean. Our subspecies may nevertheless be more widespread in the South Aegean as it is easily confused with the type subspecies. On Gávdos, both taxa often grow together. *E. cicutarium* subsp. *bipinnatum* prefers sandy coastal habitats (see also GUITTONNEAU, 1972: 105, “psammophile des dunes fixées (clairières des pinèdes)” and DAVIS, 1967: 486, “sand dunes, beaches”).

*Gynandris monophylla* ranges from Cyrenaica to Palestine. In Europe, it is known only from southern Greece (Attica, Egina, Kríti; see distribution map in GOLDBLATT, 1980: 255). The Gávdos population of this taxon is rather large, as are those from the opposite Cretan coast seen by us: between Elafónisos and Paleochora, and along the Sfakiá coast (BERGMEIER & MATTHÄS, 1995).

*Helianthemum stipulatum* is a widespread North African-Irano-Turanian taxon which only just reaches Europe on the islands Chrisi (Gaidouronísi) and Koufonísi (RECHINGER, 1944; TURLAND & al., 1993) as well as the coast of southeast Kríti (MAYER, 1995) (beside one old record from Élis/Peloponnese quoted by RECHINGER, 1944: 80, sub *H. ellipticum* (Desf.) Pers.). With our records on Gávdos, the species is known to occur on three islands south of Kríti and in one station on the main island. The Gávdos plants were found in two locations in the northeast, the habitats being endangered and likely to be destroyed by uncontrolled touristic development.

*Matricaria aurea* occurs in the southern part of the Iberian peninsula, Sicily, Malta and Lampedusa, as well as in North Africa and Southwest Asia. The closest occurrence to our records which are the first for Greece is in Libya (ALAVI, 1983). It was also found on the southwest Anatolian Marmaris peninsula by CARLSTRÖM (1987).

*Periploca angustifolia*, otherwise known from Spain, Sicily, Malta and North Africa, is in Greece restricted to the islands Gávdos and Chrisi (RECHINGER, 1944; BORATYNSKI & al., 1992: 167). We found it throughout the island but never in large numbers. Although to some degree browsed, the Gávdos population is not threatened by grazing whereas building of tourist facilities may pose a threat to shrubs in dune habitats. The species is therefore appropriately considered vulnerable in Greece by Turland in PHITOS & al. (1996: 406f.).

*Plantago squarrosa*, an eastern Mediterranean taxon, is in Europe confined to Greece and the Aegean area. The Cretan records refer to the islands of Elafónisos and Gávdos. Though occurring in large numbers this psammophyte must be considered threatened due to potential tourist development in the area.

*Silene succulenta* subsp. *succulenta* occurs on the North African and Near East coasts, reaching Europe only in the southernmost Aegean region where it is restricted to four islands south, or southwest, of Kríti, viz., Elafónisos, Gávdos, Chrisi and Koufonísi (see distribution map in PHITOS & al., 1996: 473). *S. succulenta* is clearly threatened by increasing beach tourism.

Other taxa with a chiefly South Mediterranean distribution range occur on Gávdos but most are somewhat wider distributed and less rare in the Aegean than those previously listed. The following deserve special mention: *Anchusa aegyptiaca*, *Carduncellus caeruleus*, *Centaurea melitensis*, *Cistus parviflorus*, *Convolvulus oleifolius*, *Crassula vaillantii*, *Crepis pusilla*, *Didesmus aegyptius*, *Erodium laciniatum*, *Juniperus macrocarpa*, *Lotus halophilus*, *Malcolmia africana*, *Malva aegyptia*, *Ononis hispanica* subsp. *hispanica*, *Ononis sieberi*, *Ornithogalum arabicum*, *Plantago albicans*, *Silene behen*, *Silene fruticosa*, *Spergularia diandra* and *Triplachne nitens*.

GREUTER's (1971) phytogeographical concept is supported by our comparisons of floristic similarities between Gávdos and surrounding regions (Fig. 3). Gávdos has 94% of its taxa in common with western Kríti, and 91% with the central and eastern parts of the main island. It shares well over 80% with Karpathos and only slightly less with Ródos. Kíthira in the northwest and the southwest Anatolian Marmaris peninsula in the northeast which is much more distant have somewhat less species in common with Gávdos than Libya in the south. Further behind are the southernmost Peloponnese which is represented in our figure by the small island of Elafonísi, about 200 km from Gávdos, and the Maltese islands almost 1000 km to the far west. Approximately 60% of the Gávdos species occur in each of them.

The percentage values (and absolute numbers) as displayed in Fig. 3 indicate that the phytogeographical connections via the South Aegean island arc are much stronger northeastward than northwestward. The links to North Africa are more pronounced than one might expect from the fact that there is no land between Gávdos and the Libyan coast. The southern connection is

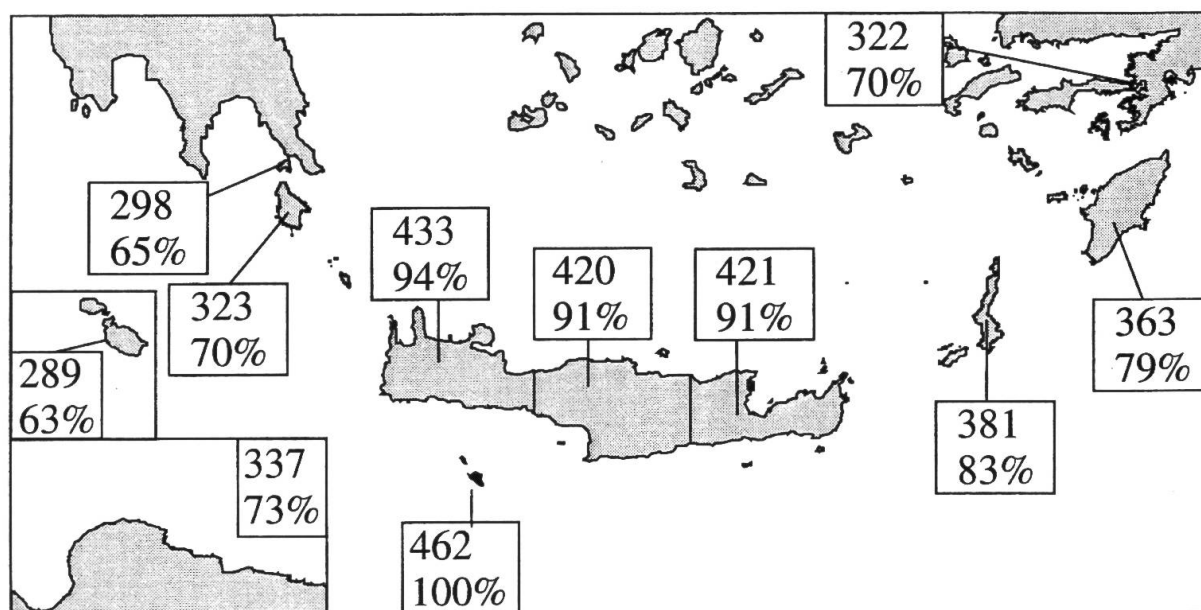


Fig. 3. – Phytogeographical connections between Gávdos and surrounding regions. The figures indicate absolute numbers and percentage values of the Gávdos flora present in the respective areas. Sources beside unpublished data of RJ: ALI & JAFRI (1976-1977), JAFRI & EL-GADI (1977-1986), EL-GADI (1988-1990), CARLSTRÖM (1987), GREUTER & RECHINGER (1967), GREUTER & al., "Med-Checklist" (1984, 1986, 1989), HASLAM & al. (1977), JAGEL (1992), SCHEMBRI & SULTANA (1989), TURLAND & al. (1993) and YANNITSAROS (1969).

indeed not less pronounced than the northwestern one. Although Kíthira is less distant than Cyrenaica – 180 vs 250 km – and there is Kríti and Antikíthira along the route, the floristic similarity, however insufficient present knowledge of the respective floras may be, is slightly weaker than with Libya. Since there were no land connections between the African continent and the South Aegean after the return of the Mediterranean Sea in Pliocene, the striking degree of floristic representation of Gávdos species in northern Libya may be interpreted rather by ecological than by historical phytogeography. Finally, the relatively high percentage of Gávdos species present on the Maltese islands may also be caused by similar habitat conditions and plant communities. The latter remain to be described in the second part of this work.

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